JTSB

運輸安全委員会
Japan Transport Safety Board

JAPAN TRANSPORT SAFETY BOARD


# ANNUAL REPORT 2025

[ March, 2025 ]

# Awareness and Responsibility as an Organization for Transportation Safety

Investigations of accidents and incidents by the Japan Transport Safety Board (JTSB) is done to determine the causes through accumulating and analyzing factual information, and to recommend measures to prevent recurrence. It is also important to identify increasingly complex accident factors and to contribute to mitigating their impact at the time of an accident. In order to achieve these goals, however, the JTSB must enhance its essential competence more than ever before. In other words, we must be able to collect detailed factual information, analyze and decipher it quantitatively, and disseminate safety information with clear explanations, as well as be able to collect and understand knowledge on the causes of factors of accidents that are common worldwide.

The first step in gathering factual information is called the initial investigation. It is important to collect information that may lead to the cause of an accident as soon as possible at the scene and conduct appropriate oral interviews with persons involved in the accident while their memories are fresh. In addition, we try to make use of scientific and quantitative data as much as possible in our oral interviews.

On the other hand, in analyzing the factual information we have accumulated, we are not relying solely on experience, but promoting more scientific and quantitative methods. Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR) records for aircraft and Voyage Data Recorder (VDR) and Automatic Identification System (AIS) records for ships are of course employed. Furthermore, recently video records are often available and useful for analyses. In addition, the Director for Information Technology of the Accident Investigation, which covers all three modes of transportation—aircraft, railway, and marine—has been established to make full use of digital technology, including dimensional and shape measurements using 3D laser scanners (fixed and handheld types), elemental analysis using precision scanning electron microscopes, and image diagnosis using X-ray CT imaging equipment, to improve our investigation capabilities, and have obtained some useful outcomes.

The products of the JTSB, which investigates the causes of accidents and recommends measures to prevent recurrence, will be made public in the form of an investigation report.

It is important that the content of the report is easy to understand for the public and fully understandable for the victims of the accident and their families. In this sense, we hold monthly press conferences with the chairperson of the board to provide information on the status of investigations into accidents and incidents of high public interest, and to ensure that the information is widely known through the media. Furthermore, through cross-sectional analysis of the individual investigation reports accumulated by the JTSB, we publish the “JTSB Digest” and “Analysis Digest Local Office Edition” to help prevent recurrence of accidents and raise awareness and promote their use at workshops and seminars.

Furthermore, many accidents and incidents are common international issues, and information sharing and cooperation in investigation with accident investigation agencies of other countries is essential. For this purpose, the International Transportation Safety Association (ITSA) holds a meeting once a year, attended by the chairpersons of accident investigation authorities from each country. In particular, Japan has taken the lead in establishing the International Railway Accident Investigation International Forum (RAIIF), which brings together railroad accident investigators from around the world, and held its first meeting in Tokyo in the fall of 2024. The second edition of the forum is already scheduled to be held in Taiwan in 2025.

We believe that the activities of the JTSB are gradually gaining recognition in society as an organization that supports transportation safety in Japan, and the committee members and secretariat staff, while confirming the significance of their activities, will continue to make further efforts with awareness and responsibility to meet your expectations.

We appreciate your continued understanding and cooperation.

March 2025
TAKEDA　Nobuo
Chairperson
Japan Transport Safety Board

# Japan Transport Safety Board

# Annual Report 2025

# Contents

○ On the usage of terms

In the text of this annual report, aircraft accidents and the signs of aircraft accidents are described as "aircraft accidents and serious incidents," railway accidents and the signs of railway accidents as "railway accidents and serious incidents," and marine accidents and the signs of marine accidents as "marine accidents and serious incidents."

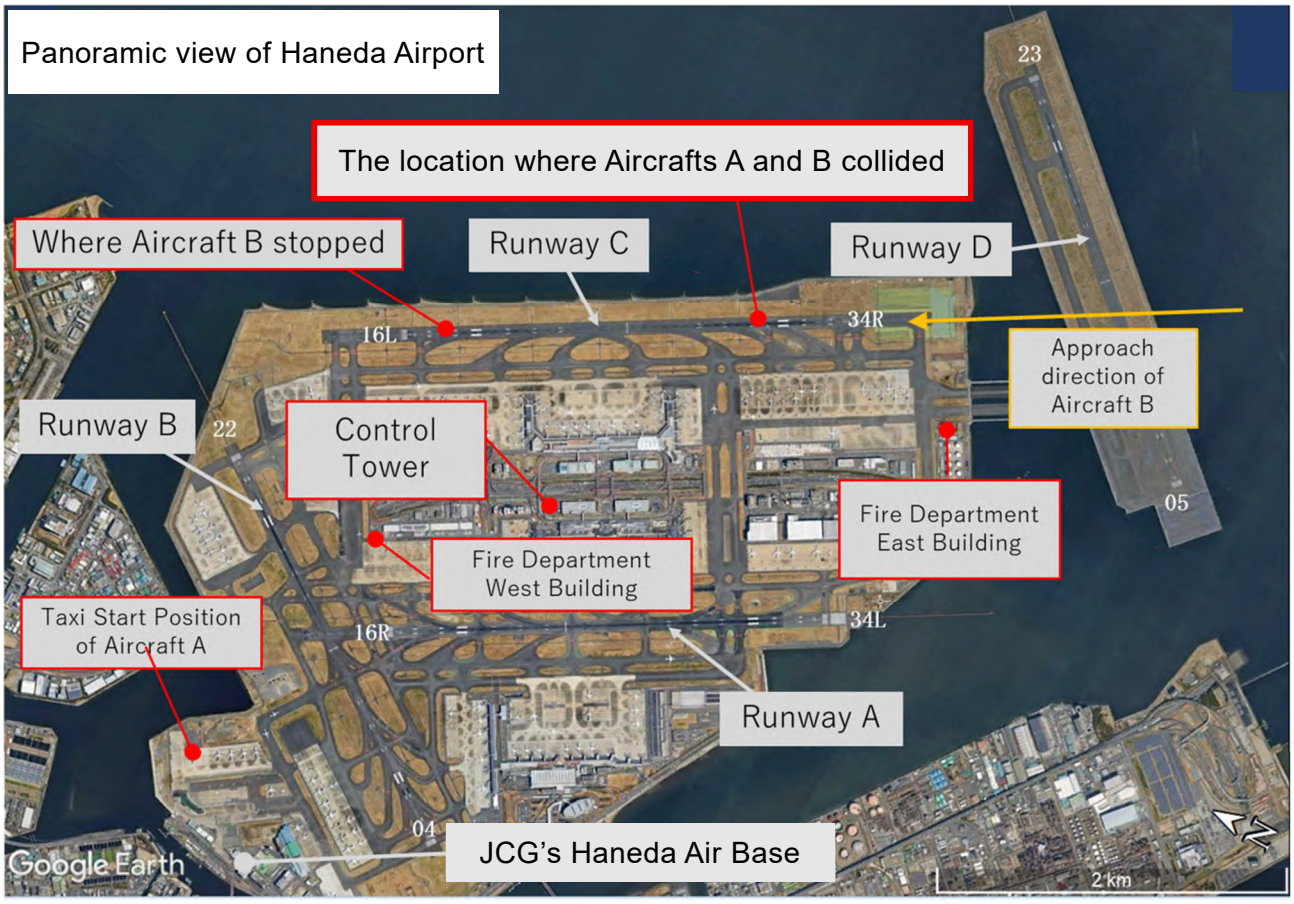
# Major activities in the past year

## 1 Accident Investigation Regarding a Collision between Aircraft on the Runway at Haneda International Airport in Tokyo

The following description has been restructured based on the contents of the interim report to make it easier for readers to understand. Please refer to the interim report for details.

(1) Summary of the Accident

At around 17:47 on Tuesday, January 2, 2024, an accident occurred on Runway 34R (Runway C) at Tokyo International Airport (hereinafter referred to as "Haneda Airport"; please refer to the figure below for the layout of the main facilities located at the airport). A Bombardier DHC-8-315, JA722A (hereinafter referred to as "Aircraft A"), operated by the Japan Coast Guard (hereinafter referred to as "JCG"), collided with an Airbus A350-941, JA13XJ (hereinafter referred to as "Aircraft B"), operated by Japan Airlines Co., Ltd., which was landing on Runway 34R.




(2) History of the Accident

Aircraft A was scheduled to depart from the JCG's Haneda Air Base Apron and take off from Runway C to Niigata Airport in order to transport disaster relief supplies in response to the damage caused by

the earthquake that occurred in the Noto Peninsula in Ishikawa Prefecture on January 1, the day before. Aircraft A was instructed by the air traffic controller to hold short of Runway 34R, but it entered the runway instead and stopped on the runway, where it collided with Aircraft B, which was landing on Runway 34R. There were six persons on board Aircraft A, consisting of the pilot in command and five other flight crew members. The pilot in command of Aircraft A sustained serious injuries, while the other five crew members sustained fatal injuries. Aircraft A burst into flames upon collision with Aircraft B, and the aircraft was destroyed by both the impact and the resulting fire.

Meanwhile, Aircraft B was approaching to land on Runway 34R after taking off from New Chitose Airport as Japan Airlines Flight 516. Aircraft B did not detect Aircraft A until just before the collision, when Aircraft A was illuminated by an external light on the front of the aircraft. The collision occurred immediately after. Following the impact, a fire broke out under the fuselage and engine of Aircraft B. The aircraft continued to taxi, veered off the runway, and came to a stop in a grassy area near the threshold of Runway 34R.

There were 379 people on board Aircraft B, consisting of the Pilot in Command, 11 crew members, and 367 passengers. All crew and passengers evacuated from Aircraft B after it came to a stop. During the evacuation, one passenger sustained serious injuries, four passengers suffered minor injuries, and twelve passengers were examined by a doctor for feeling unwell. Aircraft B was destroyed by both the collision impact and the subsequent fire.

The controller at Tokyo Airport Control, who was responsible for controlling both aircraft from the Tokyo Airport Traffic Control Tower, was unaware that Aircraft A had entered the runway until the two aircraft collided.

Additionally, firefighting operations were conducted in response to the fires on both aircraft by the Tokyo Airport Fire Station of the Ministry of Land, Infrastructure, Transport and Tourism and the Tokyo Fire Department at the request of the Airport Office.

Aircraft A


Same type of Aircraft B

(3) Progress of the Accident Investigation

Upon receiving information about the occurrence of the accident, the JTSB dispatched six investigators, including an investigator-in-charge, to the accident site on the evening of January 2 to begin an investigation. Subsequently, to strengthen the investigation system, the JTSB added investigators to the accident investigation team and changed the investigator-in-charge from the investigator to the Investigator-General for Aircraft Accident. The JTSB continued the investigation

with the cooperation of many relevant parties and published an interim report on the accident investigation on December 25, 2024.

This interim report describes extensive factual information that may have been involved in the accident. The JTSB believes that exposing aviation personnel to this information at an early stage, rather than waiting for the release of the aircraft accident investigation report, will enable its use in efforts to improve aviation safety.

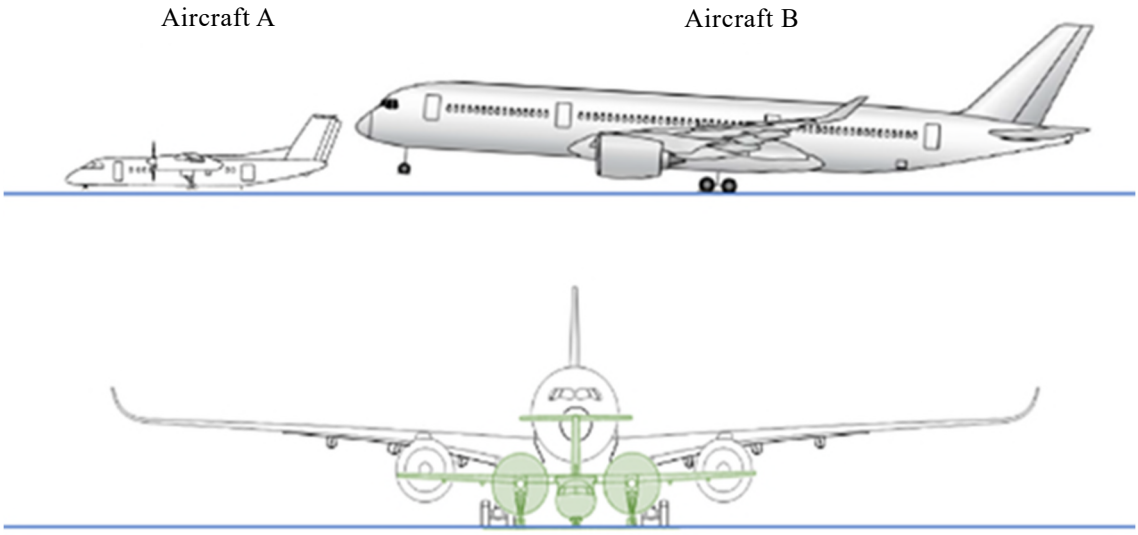
For the interim report on the accident, please refer to the JTSB's website.

https://jtsb.mlit.go.jp/aircraft/rep-acci/keika20241225-JA722A_JA13XJ.pdf (Japanese)

https://jtsb.mlit.go.jp/eng-air_report/interim20241225-JA722A_JA13XJ.pdf (English)

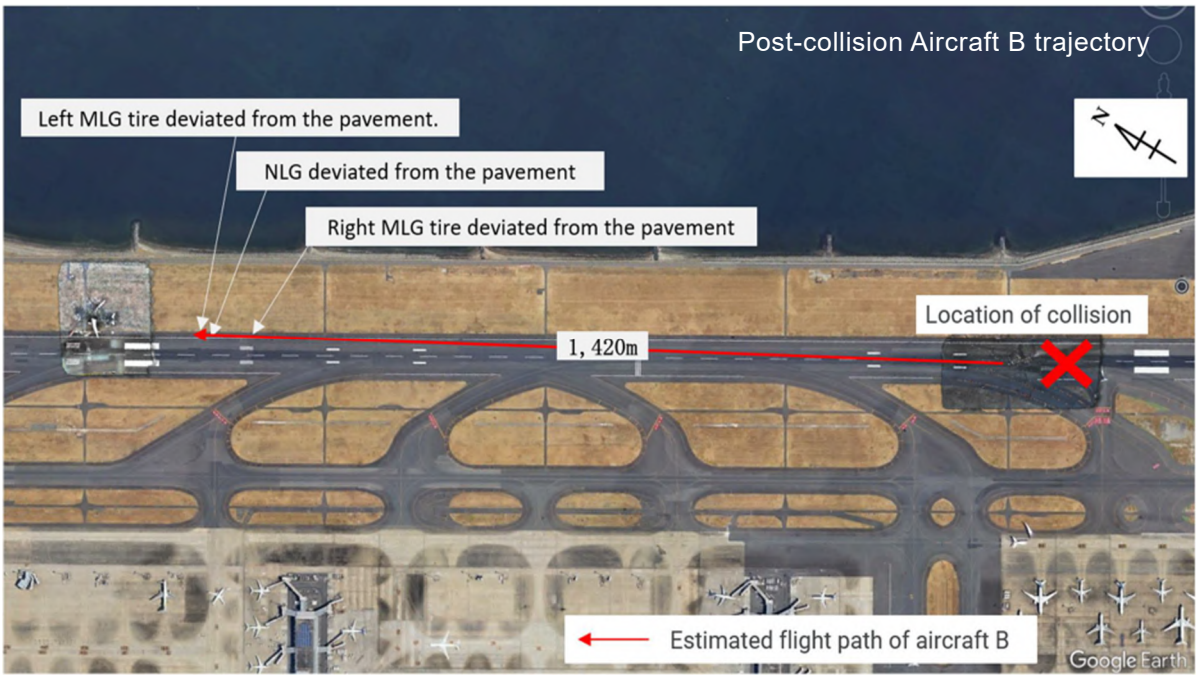
(4) Situation of the Accident

The relative positions of the two colliding aircraft were as shown below.

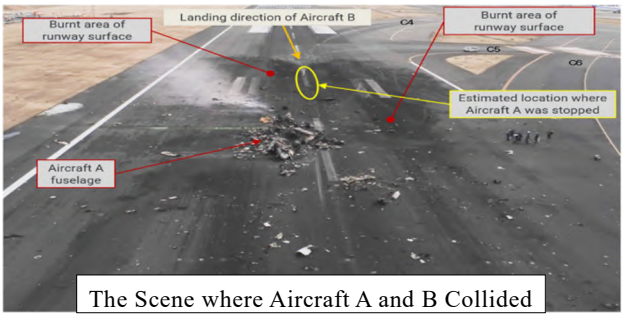



The Situation just before the Collision between Aircraft A and B

As a result of this collision, it is believed that most of the fuselage of Aircraft A was destroyed. Meanwhile, when Aircraft B collided with Aircraft A, equipment such as the electrical system and control system under the floor of the cockpit was severely damaged. As a result, the wheel brakes that slow down the aircraft did not function, and after taxiing without directional control, Aircraft B continued to roll down the runway and came to a stop in a grassy area.




After the collision, the fire that broke out in Aircraft A spread mainly throughout the fuselage. In Aircraft B, the fire burned intensely, primarily in the fuselage, and destroyed most of the aircraft. As shown in the following figure, the fuselages of both aircraft did not retain their original shape.



The Scene where Aircraft A and B Collided


Aircraft B

In this accident investigation, the Flight Data Recorder records were crucial in clarifying the flight situation and cockpit conditions before the collision. As shown in the figure below, the FDRs of both aircraft were severely damaged by the impact of the collision and the effects of the fire. In particular, the Cockpit Voice Recorder of Aircraft B lost its original shape and took several days to locate. Extracting data from these damaged flight recorders requires special equipment and technology. After repeated trial and error with the cooperation of the relevant states, the JTSB was finally able to extract the recorded data and clarify the situation at the time of the collision.

The condition of the flight recorders

In addition to clarifying the cause of the collision, this investigation will also examine the emergency

evacuation of passengers and crew members from Aircraft B after the collision. Fortunately, all passengers and crew members on board Aircraft B survived the accident. The JTSB hopes to derive useful lessons for future similar events where emergency evacuation is necessary.

(5) Future Investigations

In preparation for the release of the investigation report, the JTSB will continue to analyze factual information, determine the causes, and identify specific measures to prevent recurrence and mitigate damage. Finally, we would like to express our deepest condolences to those who lost their lives in this accident, and our sympathies to those who were affected by the accident.

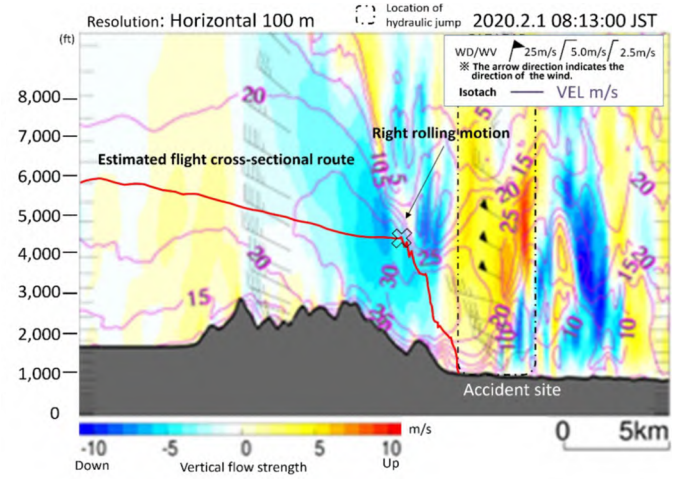
## 2. Publication of the Aircraft Accident Investigation Report on Damage to Persons and the Helicopter at the Time of the Forced Landing

【Summary】
On February 1, 2020, while a helicopter was flying over a mountainous area, the main rotor blades severed the tail drive shaft, making it difficult to control the aircraft. The captain attempted to make a forced landing in a nearby paddy field, but due to a hard landing, the helicopter rolled over, resulting in injuries to those on board and the destruction of the aircraft.

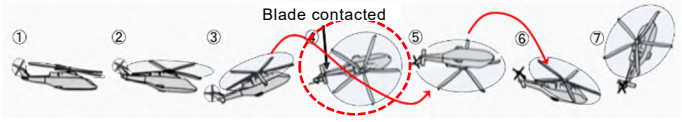
【Probable Causes】
It is presumed that the reason why the main rotor blades severed the tail drive shaft while the helicopter was in flight was that, while flying at high speed over a mountainous area in strong winds, the helicopter encountered a strong downdraft, which caused a rapid increase in airspeed, resulting in a right rolling motion exceeding 360°, during which the main rotor blades flapped significantly toward the fuselage.

In the investigation of this aircraft accident, when the helicopter rapidly increased its airspeed over mountainous regions, the helicopter attitude changed significantly, which might have been caused by mountain waves. Therefore, to investigate the influence of mountain waves at the time of the accident, detailed weather simulations were conducted at the Atmosphere and Ocean Research Institute, University of Tokyo. The JTSB then compared the results with the flight data and the cockpit voice recordings recorded by the Multi-Purpose Flight Recorder installed to analyze the events that occurred.

As a result, when the helicopter encountered a localized strong downdraft and the horizontal wind speed decreased while flying at high speed with a tailwind over the Mountain Range, the airspeed rapidly increased. In response to the attitude change when the airspeed increased, part of the attitude retention function was released and the cyclic stick was moved to the right rear in an




Vertical cross-section of horizontal wind speed and vertical flow




**Attitude change at the time of contact with the main rotor blades**


**Attitude of helicopter at the time of contacting**

attempt to maintain attitude, resulting in a right rolling motion exceeding 360°. The JTSB concluded that the main rotor blades most likely severed the tail drive shaft during this motion, making the helicopter difficult to control.

Based on the results of this investigation, the JTSB recommended, as safety actions, that when flying over mountainous regions in strong winds where mountain waves are expected to occur, pilots need to slow down in advance and select appropriate flight control modes to respond to sudden weather changes. The JTSB also recommended that to fully understand and properly use flight control modes during flight, pilots should carefully read the relevant documents and, whenever possible, conduct training using Full Flight Simulator and others corresponding to each aircraft type, including coordination between two pilots to enable quick and calm responses during emergency operations.

## 3. Publication of the First Small UA Accident Investigation Report Related to the Accident Caused by a Small Unmanned Aircraft System (UAS)

[Summary]

On July 14, 2023, a small unmanned aircraft (UA) crashed after colliding with a road sign pillar during pesticide spraying training flight. At that time, the pilot came into contact with the rotating propeller of the small UA, resulting in serious injuries.

[Probable Causes]

In this accident, it is highly probable that the operator was seriously injured because the operator who was approaching the small UA came into contact with the rotating propeller after the small UA collided with a road sign pillar, changed direction toward the operator, and crashed during pesticide spraying training flight.

The reason the operator was approaching the small UA is probable to be that the operator was flying the small UA without being aware of the safe separation distance from the small UA. Additionally, the reason the small UA collided with the pillar is probable to be that the operator was flying the small UA without being aware of the boundaries of the spray area and the safe separation distance from obstacles, and that the operator made an error when interrupting the automatic flight, which made the stopping distance longer than usual.

This small UA accident is the first time that the JTSB has investigated and published an investigation report on small UA accidents, which were newly added to the scope of accident investigations due to the revision of the Act for Establishment of the Japan Transport Safety Board in accordance with the revision of the Civil Aeronautics Act on December 5, 2022.

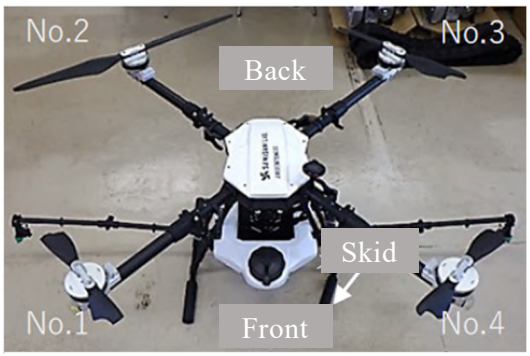


Fig. 1: Accident small UA

In the investigation of this accident, with the cooperation of the small UA manufacturer, flight records of the small UA (see Fig. 1) were obtained and analyzed, and the flight conditions of the small UA were determined from the time it collided with a road sign pillar to the time it came into contact with the operator and crashed. Additionally, to confirm the flight characteristics of the automatic flight mode that was used at the time of the accident, the JTSB reproduced and verified the situation at the time of the accident. These results were compared with the operator's testimony, and the events that occurred were analyzed.

As a result, it became clear that the operator, who was flying the small UA in automatic flight mode, did not properly switch flight modes when interrupting the automatic flight and stopping the small UA, which resulted in the small UA requiring a longer distance to stop than usual and colliding with the pillar. At that time, it was highly probable that the rotating propeller came into contact with the hand of the operator, who was standing near the pillar, causing the operator's injuries.

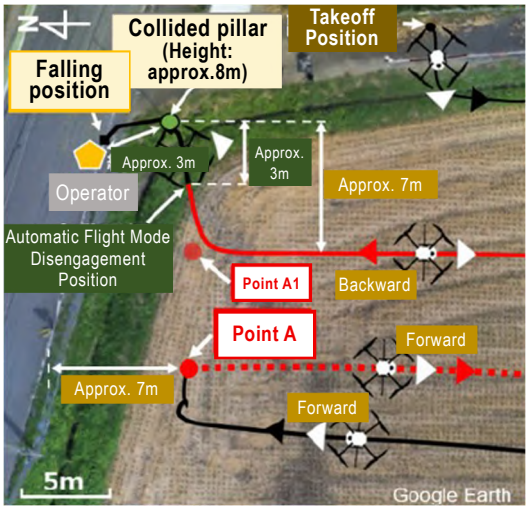


Fig. 2: Flight path at the time of the accident

In this investigation, to accurately grasp the shape of the rice field and the positional relationship between the utility pole that the small UA collided with and the flight path, photographs were taken from above using a small UA, and the flight path of the small UA near the accident site was depicted by combining the topographic data with the small UA's flight records (see Fig. 2).

Based on the results of this investigation, the JTSB indicated that, as one of the safety actions, it is important for those who use small UA for aerial application to assign an assistant to a position according to the flight path and to ensure a safe distance between the small UA and obstacles, the operator, and third parties.

## 4. Investigation report published on Shinkansen derailment accident caused by earthquake -Further consideration is needed regarding the enhancement of measures to prevent derailment and deviation of Shinkansen trains-

[Summary]

On March 16, 2022, the 223B train from Tokyo to Sendai, composed of 17 cars, started from Fukushima station was derailed between Fukushima station and Shiroishizao station. The 60 of the 68 axles had derailed. In addition, 10 of the 60 derailed axles were in a condition in which the deviation preventing guides, etc. installed on the cars were climbing over the rails. Just before the accident, at around 23:36, an earthquake with an epicenter off the coast of Fukushima Prefecture occurred, with a maximum seismic intensity of 6 Upper on the Japanese scale. About two minutes before the quake, a foreshock with a maximum seismic intensity of 5-lower on the Japanese scale and the train stopped by Earthquake Early Warning System for Shinkansen. There were 75 passengers, one driver and four conductors on board, in which six passengers were injured.

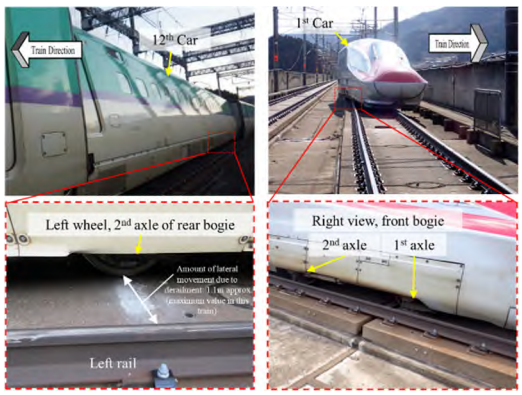



Figure 1 Situation of the Accident Train

[Probable Causes]

It is probable that due to the strong shaking of the track surface caused by the earthquake motion, the rolling of the carbody occurred, then the left or right wheel lifted up, eventually the train derailed after over the rail (rocking derailment).

The investigation of this accident analyzed the mechanisms of derailment and deviation caused by earthquake ground motion. As a result, the JTSB classified the behavior of each wheel and axle at the time of the accident into eight patterns and found that derailment and deviation occurred in a process such as that shown in Fig. 2 as an example.

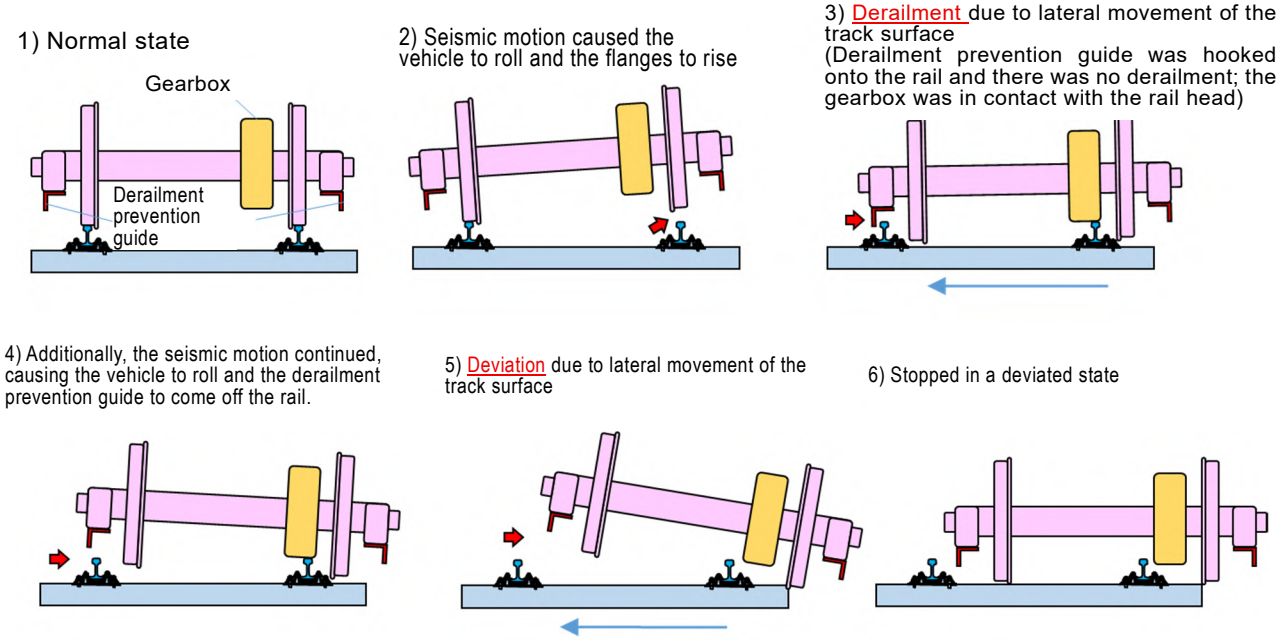



**Fig. 2: Image of car behavior during derailment and deviation (example) (The wheel and axle derailed, and deviation prevention guide initially functioned but ultimately deviated.)**

Based on the above investigation results, the JTSB has proposed measures to prevent recurrence of accidents, including further enhancing the functionality of derailment and deviation prevention measures for Shinkansen trains.

## 5. Publication of the Derailment Accident Investigation Report Due to Handling of Driving Restrictions - Fundamental Safety Measures Must Be Rebuilt, Including a Fundamental Change in Awareness within the Company. -

[Summary]

On June 2, 2023, a single-car train bound for Kubokawa Station from Sukumo Station derailed after running over earth and sand between Ariigawa Station and Tosa-Shirahama Station (see Figs. 1 and 2). There were no passengers on board, only one train driver and one maintenance worker, but no injuries were reported.

[Probable Causes]

It is highly probable that the train departed after rainfall reached the control value at which operation should have been suspended, collided with earth and sand that had accumulated on the tracks, and derailed after running over them.

In the investigation into this accident, the JTSB analyzed the handling of the train, which was allowed to run despite rainfall reaching the control value for the suspension of operations. As a result, the JTSB mainly found the following points:

- When the rain gauge reached the control value for suspension of operation, the train should not have been able to run near the accident site, but since the train driver did not receive any instructions from the dispatcher to drive slowly or suspend operation, it is probable that the train ran near the accident site at normal speed.
- When the rain gauge reached the control value for suspension of operation, the dispatcher should take measures to regulate driving promptly, however, it is highly probable that the practice was such that the restrictions were not implemented based on dispatcher's own judgement, instead, only after receiving instructions from the head of facility and rolling stock depot.
- On the other hand, the head of facility and rolling stock depot should have been monitoring the rain gauge monitoring device (see Fig. 3), but instead was discussing the operation plan at a distant location and did not pay close attention to the rain gauge monitoring devices.
- It is likely that it had become standard practice to observe the situation before taking action when the rain gauge reached the control value, rather than immediately implementing operational restrictions. This indicates a lack of awareness of the importance of ensuring train safety during rainfall, and there was likely insufficient understanding of the dangers posed by rainfall when it reached control values.

Based on the above investigation results, the JTSB recommended that Tosa Kuroshio Tetsudo Co., Ltd. establish a system enabling dispatchers who constantly monitor driving conditions to promptly notify train drivers of speed restrictions when the control value for implementing speed restrictions is observed, in order to prevent recurrence of accidents. Additionally, the JTSB recommended the company re-examine its regulations for handling trains during rainfall by comparing them with those of other railway operators, make necessary reviews, and revise its regulations to ensure the safe transportation of trains.


Fig. 1: Situation of the accident site

Fig. 2: Investigation status

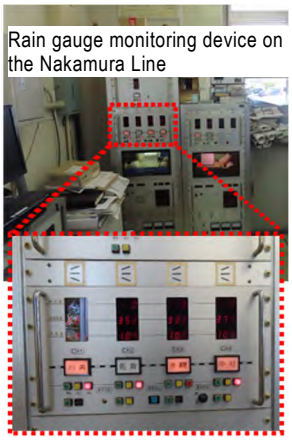



Fig. 3: Rain gauge monitoring device

## 6. Investigation Related to the Derailment Caused by a Freight Train with a Broken Axle

[Summary of the Accident]

On July 24, 2024, the locomotive (leading car) of a 24-car freight train bound for Tokyo Freight Terminal Station that departed from Fukuoka Freight Terminal Station derailed while running through the premises of Shin-Yamaguchi Station on the Sanyo Line. There was only one driver on board the Train, who was not injured.

[Implementation Status of Investigation, etc.]

The JTSB is carefully investigating and analyzing information obtained from oral hearings with relevant parties and reports on damage to cars and facilities, etc.

In this accident, it was confirmed that the axle of the derailed car were broken. Since axle breakage is extremely rare, the JTSB will analyze the mechanism of axle breakage. For this reason, the JTSB has appointed expert advisors* and is conducting investigations while gaining on their expertise.

*Expert advisors are part-time committee members appointed from among external academic experts based on Article 14 of the Act for Establishment of the Japan Transport Safety Board when specialized knowledge is necessary for investigations.

## 7 Publication of the Marine Accident Investigation Report on the Diving Ship Capsized While Sailing ~ Necessity of Initiatives to Ensure Safety on Diving Ships ~

[Summary of the Accident]

On August 16, 2023, the Diving Ship Crystal M (the ship), with the Master, 12 diving passengers and 7 instructors, was proceeding off the northwest coast of Shimojishima Island in Miyakojima City, Okinawa Prefecture, when it flooded and capsized.

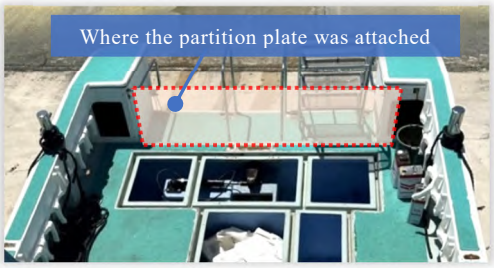

The driving ship

[Probable Causes]

This accident occurred when the ship experienced severe wind, rain, and high waves while passengers were diving. Since the ship continued to anchor by letting go anchor from the stern, waves crashed onto the upper deck, seawater and other substances flowed into the engine room from the stern storage, etc. Furthermore, as the Master continued to sail with more passengers on board and the stern lowered, it is probable that the crashing waves caused the ship to flood and capsize.

In addition to the factors that led to the capsizing of the ship, the investigation into the accident also analyzed the hull structure and safety management unique to diving ships. As a result, the following items were mainly found:

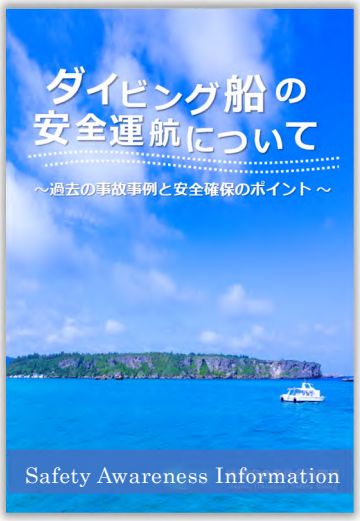
- By changing the stern shape (removal of the partition plate), the structure became more vulnerable to crashing waves.
- After repairing the hydraulic piping, the penetration was left open without being closed.
- The Master did not obtain information on weather and sea conditions after departure and could not make decisions such as evacuation.
- It was possible that the stern part of the ship sank easily, which affected the deterioration of stability, as approximately 1,000 kg of diving equipment was loaded mainly on the stern deck.


Where the partition plate was attached


Loading status of diving equipment on board the ship (reference)

*Photos taken before the accident

Additionally, the following items were found in the investigation of this accident, and it is recommended that multi-layered guidance and enlightenment regarding the operation of diving ships be provided in the future:




- The change in the stern shape was subject to temporary inspections, but it was overlooked due to the lack of suggestions from shipowners and indications during inspections. There was a need to increase the effectiveness of ship inspections, etc.
- The operators did not receive direct guidance and enlightenment from relevant organizations, and the initiatives of relevant administrative agencies regarding diving ships were insufficient.

Based on the results of the above investigations, in order to widely disseminate the necessity of initiatives to ensure the safety of diving ships, the JTSB requested related organizations to disseminate the contents of the investigation report. At the same time as the publication of the investigation report, the JTSB issued the safety awareness materials on the right.

## 8. Publication of the Investigation Report on Grounding of Passenger Ferry -Check Your Ship's Position Even When Drifting-

[Summary]

On March 26, 2024, when the passenger ferry was drifting offshore north of the Otorii Gate of Itsukushima Shrine on Miyajima Island in Hatsukaichi City, Hiroshima Prefecture, it was pushed by the wind and ran aground in shallow waters.

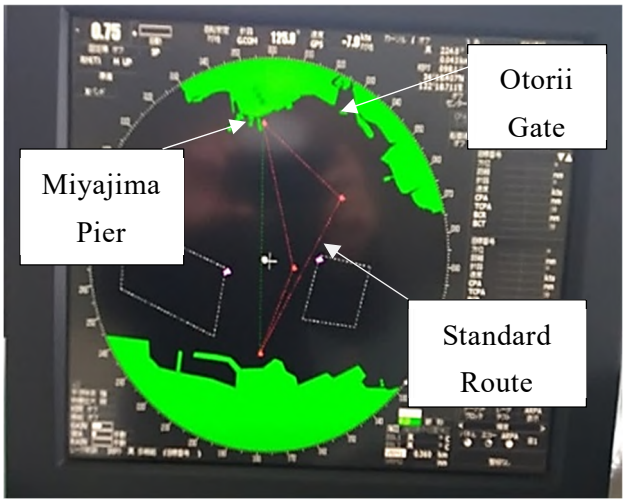
[Probable Causes]

It is probable that this accident occurred when the passenger ferry was exposed to winds of approximately 8 m/s while the Master was focused on the docking and undocking of other ships ahead of him and continued to drift without checking the ship's position visually or by radar, etc. Therefore, the Master did not realize that the ferry was being swept away by wind pressure, allowing it to continue drifting toward the Otorii Gate and run aground in shallow waters.

The sea route where the accident occurred is connecting Miyajimaguchi and Miyajima, and is the main access route to Miyajima, home to the World Heritage Site Itsukushima Shrine, etc. The sailing time is approximately 10 minutes, with two to three passenger ferries operating about four times per hour. When other passenger ferries were docked at Miyajima Pier, passenger ferries that arrived later sometimes drifted and waited near the pier.

The investigation into this accident examined the reasons why the Master continued to drift without checking the ship's position while facing winds that were pushing the ship toward the Otorii Gate. Additionally, a passenger ferry ran aground in almost the same location in February 2020, and the JTSB confirmed the content of measures to prevent recurrence and their implementation status.

The Master had previously waited while drifting in the waters near the Otorii Gate on the standard route when other passenger ferries were docked at Miyajima Pier and had never felt any danger of being swept away by the wind during that time. He did not expect to be swept away to the vicinity of the Otorii Gate at the time of this accident.




Additionally, after the ship was stranded in February 2020, the passenger ferry operation company displayed the standard route on the passenger ferry's radar and instructed passenger ferries not to navigate in the waters near the Otorii Gate of the standard route when visibility was restricted, such as during fog, but allowed them to drift in the same area. However, the operation company had not considered the precautions to take when drifting in the area.

When there is a risk of wind pressure or other

factors, a Master must not be optimistic based on his/her experience or other factors, thinking that the ship will not be swept away, but must check the ship's position visually and by radar, etc. Furthermore, to improve navigation safety, passenger ship operators are required to investigate the risks of grounding and other hazards in the waters they navigate, consider safety measures, including prohibiting entry, and have crew members implement these safety measures.

It is expected that the publication of this investigation report will encourage passenger ship operators to investigate dangers in the waters they navigate and consider safety measures, and that safety measures will be surely implemented by crew members to prevent the recurrence of similar accidents.

## 9. Holding the First Railway Accident Investigation International Forum (RAIIF)

In the field of railway accident investigation, there was no public framework established by international organizations like those for conventional aircraft and ships. For this reason, Okumura, who is the Board Member and a Director of Railway Subcommittee of the JTSB took the leading role and established the Railway Accident Investigation International Forum (RAIIF) based on Japan's suggestion, building on the international achievements and connections that have been cultivated to date.

The memorable first forum was held in Tokyo, was chaired by Okumura, and was conducted as follows:

<Summary>

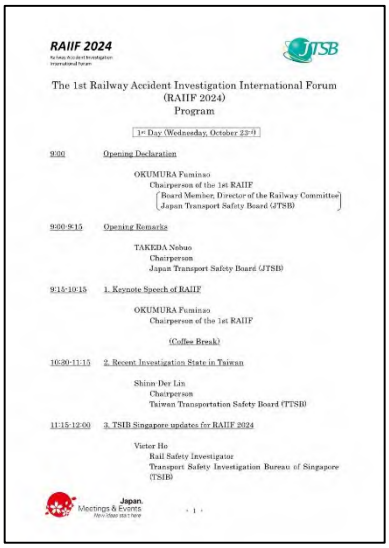
○Date: October 23 (Wednesday) to 25 (Friday), 2024

1st day: Keynote speech (Chairperson Okumura)
Panel discussion with leaders from each country and region presenting their initiatives

2nd day: Distinctive accident investigation cases, safety initiatives, etc.

3rd day: Technical tour

○Participants: A total of 125 people (including the top 5) from 11 countries and regions around the world including Japan (see below):
Japan, Australia, Taiwan, Singapore, South Korea, Sweden, UK, Indonesia, Netherlands, New Zealand, Malaysia


RAIIF 2024

The 1st Railway Accident Investigation International Forum (RAIIF 2024)
Program

1st Day (Wednesday, October 23rd)

9:00 Opening Declaration
OKUMURA Fuminao
Chairperson of the 1st RAIIF
Board Member, Director of the Railway Committee
Japan Transport Safety Board (JTSB)

9:00-9:15 Opening Remarks
TAKEDA Nobuo
Chairperson
Japan Transport Safety Board (JTSB)

9:15-10:15 1. Keynote Speech of RAIIF
OKUMURA Fuminao
Chairperson of the 1st RAIIF

(Coffee Break)

10:30-11:15 2. Recent Investigation State in Taiwan
Shinn Der Lin
Chairperson
Taiwan Transportation Safety Board (TTSB)

11:15-12:00 3. TSIB Singapore updates for RAIIF 2024
Victor Ho
Rail Safety Investigator
Transport Safety Investigation Bureau of Singapore
(TSIB)

Japan. Meetings & Events

Program (Cover)

On the first day, in his keynote speech, the Okumura gave a presentation on the purpose of holding the RAIIF, a summary of railway accident investigations around the world, and Japan's initiatives in international technical cooperation. Next, the leaders of each country and region gave presentations outlining their respective railways and major accident investigation cases. Additionally, a panel discussion was held on the theme of "Challenges faced by accident investigation organizations," and the summary of the discussion pointed out the "importance of initiatives to improve railway accident investigation capabilities and strengthen systems."


Keynote speech by the Chairperson Okumura


Panel discussion

Forum venue

On the second day, accident investigation organizations from each country and region gave presentations on distinctive accident investigation cases such as natural disasters, and railway operators gave presentations on their safety initiatives such as employee training.

On the third day, as a technical tour, observation and experience tours were held at the railway operator's comprehensive training center.

At the end of the forum, the Chairperson gave a "Chairperson's Summary" in which he emphasized the importance of future international cooperation and potential for development, and declared the promotion of the following initiatives:

- building a multi-platform for sharing information
- expanding technical cooperation among railway accident investigation organizations

The Statement by the Chairperson of the 1st RAIIF

The Railway Accident Investigation International Forum (RAIIF) was established on October 23, 2024, and the discussions of the 1st RAIIF were carried out on October 23-24, 2024, in Tokyo. The participants will visit actual facilities and see equipment to discuss and deepen their knowledge on October 25, 2024.

The forum was attended by 11 accident investigation authorities and other related organizations, for a total of 125 participants.

The forum featured 9 presentations including a panel discussion on the first day and 13 presentations on the second day, and very lively discussions were held on the policies of each accident investigation authority, considerations in accident investigation cases, safety initiatives by railway operators, and other subjects.

Based on the presentations and panel discussions, the chairperson of the 1st RAIIF emphasized the importance of international cooperation in the field of railways and its potential for future development, and declared that the following initiatives will be promoted:

1. Establish a multinational information sharing platform to further strengthen networking among the heads of railway accident investigation authorities and their counterparts; and
2. Expand technical cooperation among railway accident investigation authorities.

The next RAIIF will be held in Taiwan in 2025. We hope to see you again in Taiwan and have lively discussions.

October 24, 2024
Fuminao Okumura
Chairperson of the 1st RAIIF

Chairperson's summary speech

In this way, through the forum, valuable presentations and lively discussions were conducted by relevant organizations from countries and regions around the world. The first forum ended successfully, with participants sharing information that will be useful for future railway accident investigations and strengthening relationships between organizations, meaningfully contributing to improving railway safety worldwide.


Handover of the chairperson's hammer from the Chairperson Okumura (right) to the Chairperson Lin (left) of the Taiwan Transportation Safety Board (TTSB)

The next forum is scheduled to be held in Taiwan in 2025 and will continue to be held in the future.

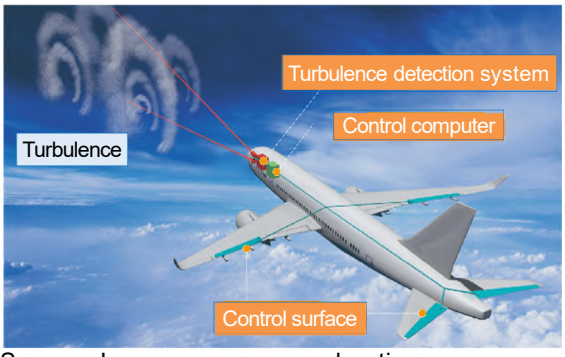
Through its participation in this forum, the JTSB will continue to provide and obtain information useful for railway accident investigations and to strengthen cooperation with relevant organizations around the world, thereby contributing to improving railway safety not only in Japan but also around the world.

## 10 Publishment of the Japan Transport Safety Board Digest Nos. 44 and 45 - Understanding dangerous situations and appropriate safety management and safety measures, etc. -

The JTSB publishes the JTSB Digests (hereafter referred to as the “Digest”), which analyzes the contents of similar accidents and incidents, and includes preventive measures.

The digest published in March 2024, "- Preparing for sudden turbulence during flight - Preventing accidents caused by aircraft turbulence," on aircraft turbulence-related accidents in which passengers and cabin crew members are injured, analyzes investigation reports on similar accidents that have occurred over the past 20 years up to 2023, and introduces measures necessary to prevent the recurrence of similar accidents, statistical analysis results, accident investigation cases, and airlines' initiatives to prevent accidents.

It was found that aircraft turbulence-related accidents accounted for more than half of all aircraft accidents involving large aircraft and accounted for the majority of aircraft accidents involving serious injuries. Additionally, many of the injuries occurred to people outside their seats, and in particular, cabin crew members were injured outside their seats when the seat belt signs were off. For this reason, to prevent accidents, "Turbulence prediction" and "Response to turbulence" must be carried out in a timely and appropriate manner.

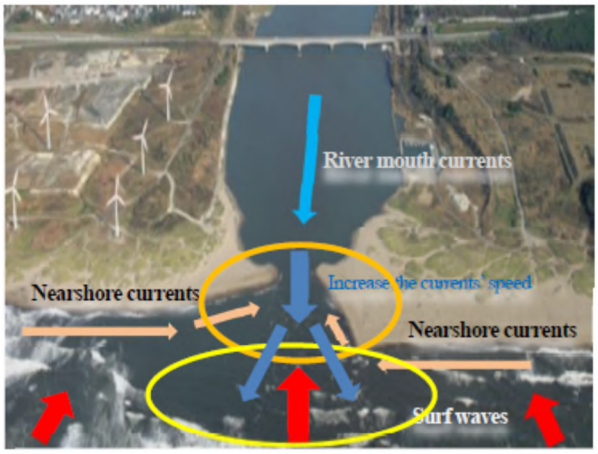



Source: Japan aerospace exploration agency

Conceptual diagram of aircraft turbulence reduction technology

The JTSB has clearly summarized the key points to prevent similar accidents, so please make use of it to further enhance safety in the cabin.

Then in April of the same year, regarding the importance of understanding and addressing issues related to the characteristics of operational sea areas, the JTSB published the digest "Preventing major accidents involving small passenger ships - Are you aware of the characteristics of the operational areas?", which introduced universal safe navigation principles and lessons drawn from past cases and prevention measures for small passenger vessels.




Omono River estuary, Akita Prefecture

(photo processing)

To ensure safe navigation, masters and crew must fully understand their “vessel’s” inherent traits

and handling quirks, such as hull structure and operability, and gain firsthand knowledge of the features and risks of “sea” where operators sail their own ships.

Additionally, to continuously improve the safety management system, it is also important for top management to take the lead in developing "personnel," "equipment," and "systems."

Please use this digest to learn about the characteristics of each “sea” area where you conduct your activities and what measures are necessary to ensure the safety of passengers.

For the digest, please also see Chapter 6 (page 112).

# Chapter 1 Summary of major investigation activities in 2024

When an aircraft, railway, or marine accident occurs, the JTSB designates an accident investigator in charge of investigating the accident, etc., designates an investigator from among them, and begins an investigation into the cause of the occurrence, etc. Since we can never know when or where accidents may occur, the personnel of the Board, including accident investigators, are making continuous efforts to be able to conduct investigation activities immediately when accidents should occur.

Accident investigators conduct investigations and invite comments from parties relevant to the cause of the accident; accordingly, they make draft recommendations or opinions regarding the measures to be taken to prevent the recurrence of accidents and to mitigate damage caused by accidents. Therefore, they shall endeavor to improve their level of skill and knowledge by participating in national and international training; moreover, they share accident information among international society by attending international conferences.

Based on the results of our investigations, who will also make recommendations and state our opinions as necessary to related government institutions and parties relevant to the causes of accidents, the JTSB will continue to contribute to prevent the recurrence of accidents, etc. and reduce damages.

[Regarding recommendations and opinions, see “Chapter 2. Summary of recommendations and opinions issued” (page 28).]

## 1 Major accidents and serious incidents occurred in 2024, for which investigations commenced

Several accidents and serious incidents had occurred and investigations had been launched in 2024. The primary investigations which the JTSB commenced are listed below:

**(1) Aviation mode**

- **Accident involving collision of a Bombardier DHC-8-315 (large aeroplane) of the Japan Coast Guard and an Airbus A350-941 (large aeroplane) of Japan Airlines Co., Ltd. on the Tokyo International Airport runway (Occurred on January 2)**
- **Accident involving damage to a Textron Aviation G58 (small aeroplane) of (School organization) Hiratagakuen due to fuselage landing on the Kobe Airport runway (Occurred on May 31)**
- **Accident involving serious injury caused by a company-owned EAMS Robotics Co., Ltd.'s UAV-E6150FA (small UA, multi-rotor) in Minamisoma City, Fukushima Prefecture (Occurred on June 21)**
- **Crash accident of a Robinson R44II (rotorcraft) of SGC Saga Aviation Co., Ltd. in Yanagawa City, Fukushima Prefecture (Occurred on July 28)**
- **Accident involving damage to a Boeing 747-400F (large aeroplane) of Atlas Air Inc. on runway A at Narita International Airport during the takeoff (Occurred on August 12)**

There were 19 railway accidents investigated, with investigations into the causes of 48 accidents conducted, including 29 ongoing accident investigations from the previous year. In addition, there were 16 serious incidents investigated, with investigations into the causes of 34 serious incidents conducted,

including 18 ongoing serious incident investigations from the previous year.

**(2) Railway mode**

- **Train derailment in the premises of Shin-Yamaguchi Station on the Sanyo Line of the Japan Freight Railway Co., Ltd. (Yamaguchi City, Yamaguchi Prefecture) (Occurred on July 24)**
- **Serious Incident (train car failure) in the premises of Shin-Suizenji Station on the Suizenji Line of the Kumamoto City Transportation Bureau (Kumamoto City, Kumamoto Prefecture) (Occurred on September 2)**
- **Train derailment between Mori Station and Ishiya Signal Yard on the Hakodate Line of the Japan Freight Railway Company (Mori-machi, Kayabe-gun, Hokkaido) (Occurred on November 16)**
- **Other accidents with casualties in the premises of Takatsuka Station on the Tokaido Line of the Central Japan Railway Company (Hamamatsu City, Shizuoka Prefecture) (Occurred on December 10)**
- **Train derailment in the premises of Sendai Station on the Kagoshima Line of the Japan Freight Railway Company (Satsumasendai City, Kagoshima Prefecture) (Occurred on December 12)**

There were 10 railway accidents investigated, with investigations into the causes of 20 accidents conducted, including 10 ongoing accident investigations from the previous year. In addition, there were 5 serious railway incidents investigated, with investigations into the causes of 8 accidents conducted, including 3 ongoing accident investigations from the previous year.

**(3) Marine mode**

- **Capsizing of Towed Ship 13 in the Shimizu Port Orito Bay (Occurred on January 16)**
- **Capsizing of a chemical tanker KEOYOUNG SUN off Mutsurejima Island, Shimonoseki City, Yamaguchi Prefecture (Occurred on March 20)**
- **Injury and Fatality of Stevedores of a cargo ship EVER FELICITY at Ishinomaki Port, Ishinomaki City, Miyagi Prefecture (Occurred on May 20)**
- **Collision of a passenger ship and car ferry Silver Breeze (with tetrapods) at Tomakomai Port, Tomakomai City, Hokkaido (Occurred on July 2)**
- **Collision of a sports fishing boat Daini Ai Maru (with tetrapods) at Sakaiminato (Occurred on July 28)**

There were 610 marine accidents investigated, with investigations into the causes of 1,214 accidents conducted, including 604 ongoing accident investigations from the previous year. In addition, there were 94 marine incidents investigated, with investigations into the causes of 148 accidents conducted, including 242 ongoing accident investigations from the previous year.

## 2 Major accidents and serious incidents for which investigation reports were published in 2024

Completed investigations into the causes of accidents and incidents undergo committee

(subcommittee) review/resolution. Investigation reports were submitted to the Minister of Land, Infrastructure, Transport, and Tourism and published on the JTSB website. Major accidents and incidents, for which the investigation reports published on the website, are as follows.

**(1) Aviation mode**

- **Accident involving injury to passengers and damage to an Agusta AW139 (rotorcraft) of the Fukushima Prefectural Police Aviation Unit caused by hard landing in Koriyama City, Fukushima Prefecture (Occurred on February 1, 2020)**
- **Crash of a Beechcraft A36 (small aeroplane) of the NPO Mesh Support at Iejima Airport, Okinawa Prefecture (Occurred on March 12, 2022)**
- **Aircraft damage due to the collision of a Boeing 767-300 (large aeroplane) of All Nippon Airways Co., Ltd. with a vehicle on the apron at Narita International Airport (Occurred on January 25, 2023)**

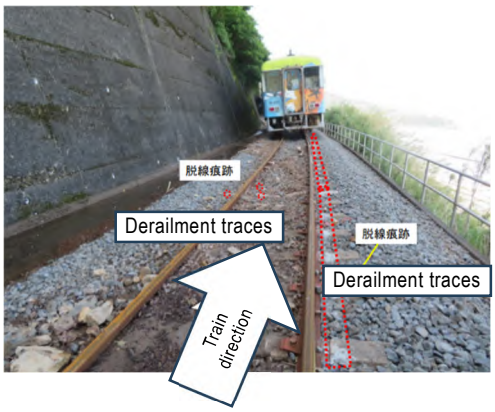
**Rollover of the Accident Helicopter**
Agusta AW139 of the Fukushima Prefectural Police Aviation Unit

- **Accident involving serious injury caused by a privately owned Sami Sami Lab's SAMI SAMI AGV2 (small UA, multi-rotor) in Kokonoe Town, Kusu District, Oita Prefecture (Occurred on July 14, 2023)**
- **Serious incident of a Boeing 737-800 (large aeroplane) of China Postal Airlines LLC that attempted to land on a runway in use by other aircraft on runway B at Kansai International Airport (Occurred on July 20, 2023)**

Completed investigation reports into 14 aircraft accidents and 7 serious aircraft incidents, we have been reported to the Minister and have been published investigation reports.

**(2) Railway mode**

- **Train derailment between Fukushima Station and Shiroishi-Zao Station on the Tohoku Shinkansen Line of the East Japan Railway Company (Shiroishi City, Miyagi Prefecture) (Occurred on March 16, 2022)**
- **Serious incident (train car failure) between Bungo-Ogi Station and Tamarai Station in Hohi Line of Kyushu Railway Company (Taketa City, Oita Prefecture) (Occurred on October 17, 2022)**
- **Train derailment between Ariigawa Station and Tosa-Shirahama Station on the Nakamura Line of the Tosa Kuroshio Railway (Kuroshio-cho, Hata District, Kochi Prefecture) (Occurred on June 2, 2023)**
- **Other accidents with casualties in the premises of Ofuna Station on the Tokaido Line of East Japan Railway Company (Kamakura**




**Train derailment accident of Tosa Kuroshio Tetsudo Railway**

**City, Kanagawa Prefecture) (Occurred on August 5, 2023)**

- **Serious incident (train car failure) between Kotsukyoku-mae Station and Miso Tenjinmae Station in the Suizenji Line of the Kumamoto City Transportation Bureau (Kumamoto City, Kumamoto Prefecture) (Occurred on January 5, 2024)**

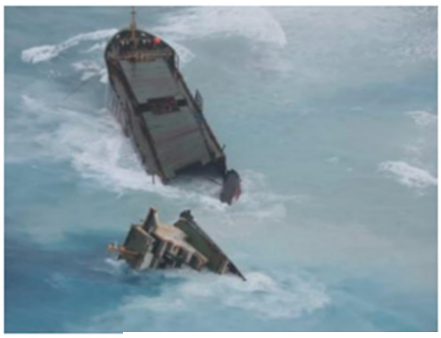
Completed investigation reports into 7 railway accidents and 3 serious railway incidents have been reported to the Minister and have been published.

Regarding the train derailment between Ariigawa Station and Tosa-Shirahama Station on the Nakamura Line of the Tosa Kuroshio Railway (Kuroshio-cho, Hata District, Kochi Prefecture) published in the investigation report, a recommendation was made to Tosa Kuroshio Tetsudo Co., Ltd. on July 25.

(Please refer to Chapter 2, "Summary of recommendations and opinions" on page 29.)

**(3) Marine mode**

- **Collision between the cargo ship GUO XING 1 and the fishing vessel TOMI MARU No.8 off the east coast of Nakayamazaki, Rokkasho-mura, Aomori Prefecture (Occurred on February 29, 2020)**
- **Accident involving damage to container loading platforms of a container ship ONE APUS off the northwest coast of the Hawaiian Islands, United States (Occurred on November 30, 2020)**
- **Grounding of the cargo ship XIN HAI ZHOU 2 off the northwest coast of Taketomi Island, Taketomi Town, Okinawa Prefecture (Occurred on January 24, 2023)**



Provided by the Japan Coast Guard

**Grounding of a cargo ship XIN HAI ZHOU 2**

- **Capsizing accident of a passenger ship NO. 9 on the Hozugawa River at the mountain behind Oji, Shino Town, Kameoka City, Kyoto Prefecture (Occurred on March 28, 2023)**
- **Capsizing of a diving ship Crystal M off the northwest coast of Shimoji Island, Miyakojima City, Okinawa Prefecture (Occurred on August 16, 2023)**

Completed investigation reports into 638 marine accidents and 162 marine incidents, we have been reported to the Minister and have been published investigation reports.

Regarding the grounding of the cargo ship XIN HAI ZHOU 2 published in the investigation report, a safety recommendation was made to GRAND VOYAGE MARINE CO., LTD. and the Panama Maritime Authority on March 28.

In addition, regarding the flood accident of a fishing ship Kaiko Maru, an opinion was expressed to the Director-General of the Fisheries Agency on March 28.

(Please refer to Chapter 2, "Summary of recommendations and opinions" on pages 31-32.)

## 3 Major accidents and serious incidents for which progress reports were published in 2024

In cases where an investigation into an accident is prolonged, the JTSB will report the progress of the

investigation to the Minister of Land, Infrastructure, Transport and Tourism and make it public even before the investigation is completed. In 2024, the JTSB published progress reports on 18 aircraft-related cases, 5 railway-related cases, and 3 marine-related cases (limited to cases where the investigation continued into 2025). The main ones are as follows:

**(1) Aviation mode**

- **Collision between a Bombardier DHC-8-315 (large aeroplane) of the Japan Coast Guard and an Airbus A350-941 (large aeroplane) of Japan Airlines Co., Ltd. on the runway at Tokyo International Airport (Occurred on January 2, 2024)**

  Date of publication of the progress report: December 25, 2024

  Contents of the progress report: 1. Process and progress of the aircraft accident investigation
  2. Factual information
  3. Direction of future investigation and analysis

  This progress report has been published on the JTSB website.

  https://jtsb.mlit.go.jp/aircraft/rep-acci/keika20241225-JA722A_JA13XJ.pdf (Japanese)

  https://jtsb.mlit.go.jp/eng-air_report/interim20241225-JA722A_JA13XJ.pdf (English)

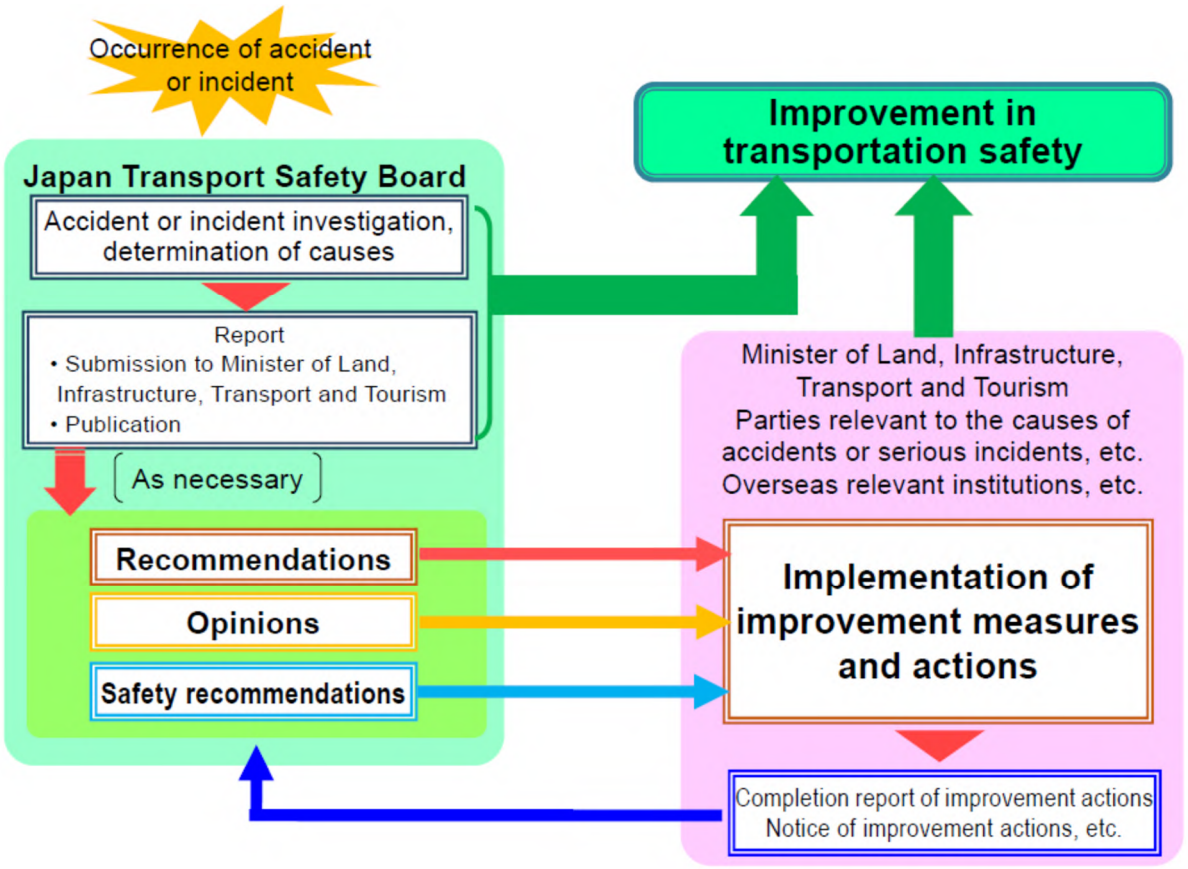
# Chapter 2 Summary of recommendations and opinions

In order to fulfill its mission of contributing to prevent accidents involving aircraft, railway, and marine and reduce damage stipulated in Article 1 of the Act for Establishment of the Japan Transport Safety Board (hereinafter referred to as the "Act for Establishment"), the JTSB has an important system of "recommendations" and "opinions" along with accurate accident investigation to determine the causes of accidents and the causes of damage caused by accidents.

In order to fulfill its mission of improving transportation safety, the JTSB has an important system of "recommendations" and "opinions" along with accurate accident investigation. Based on the results of investigations into accidents, the JTSB can make recommendations to the Minister of Land, Infrastructure, Transport and Tourism and other parties concerned about measures that should be taken to prevent accidents and reduce damage. It is stipulated in the act that the Minister of Land, Infrastructure, Transport and Tourism must notify the JTSB of the measures taken based on the recommendations. If the parties concerned with the cause do not take measures related to the recommendations, the JTSB is entitled to announce that effect publicly. (Articles 26 and 27 of the Act for Establishment)

In addition, it is determined not only based on the results of investigations into individual accidents but also on the interim results of investigations or investigations of past accidents. The JTSB is entitled to state its opinion to the Minister of Land, Infrastructure, Transport and Tourism about policies and measures to prevent accidents and reduce damage, if necessary. (Article 28 of the Act for Establishment)

Furthermore, in the case of aircraft and marine accidents, the JTSB may recommend measures to be taken swiftly to enhance safety (safety recommendations) in the course of accident investigations to relevant overseas organizations and parties based on international conventions, if necessary.


Occurrence of accident or incident
Improvement in transportation safety
Japan Transport Safety Board
Accident or incident investigation, determination of causes
Report
• Submission to Minister of Land, Infrastructure, Transport and Tourism
• Publication
As necessary
Recommendations
Opinions
Safety recommendations
Minister of Land, Infrastructure, Transport and Tourism
Parties relevant to the causes of accidents or serious incidents, etc.
Overseas relevant institutions, etc.
Implementation of improvement measures and actions
Completion report of improvement actions
Notice of improvement actions, etc.

## 1 Recommendations

The recommendations issued by the JTSB in 2024 are as follows.

### (1) Recommendations concerning the train derailment accident that occurred between Ariigawa Station and Tosa-Shirahama Station on the Nakamura Line of the Tosa Kuroshio Tetsudo Co., Ltd. and the measures taken in response to the recommendations

(Recommendations on July 25, 2024)

**○Summary and probable causes**

See Chapter 4, page 78.

**○Recommendations to Tosa Kuroshio Tetsudo (Railway) Co., Ltd.**

It is highly probable that this accident occurred when the train derailed after colliding with the mud and sand and other materials that had flowed onto the tracks due to collapse of a slope, which occurred after the train had departed when the rainfall had reached the level of train operation prohibition. The reason why the train dispatcher did not give the notice of the operation prohibition to the driver is probably because, contrary to regulations, operation controls were to be implemented after instructions from the head of facility and rolling stock depot. With regard to the fact that the head of facility and rolling stock depot did not give instructions to the dispatcher to stop the train, it is probably because it had become the norm to wait and see what would happen without immediately taking operational control when the rain gauge reached the regulated level, and there was a low level of awareness of the need to ensure the safety of train operation during rainfall, which may have been due to a lack of understanding of the dangers of rainfall when it reached the regulated level.

During rainfall, there is a risk that situations may arise which threaten the safety of train operations, such as the inflow of mud and sand from slopes close to the tracks, or the tilting of bridge piers and the washing away of bridge girders due to rising river levels. Depending on the situation on each line, it is necessary to carry out operational controls based on rainfall observations, and if the regulatory value of rainfall is reached and trains are not immediately slowed down or stopped in accordance with the regulations, there is a risk of serious danger to the safety of train operations and therefore to the lives of passengers. This must be avoided at all costs. After the accident, Tosa Kuroshio Tetsudo (Railway) Co., Ltd. revised its " Operation Control Procedures in the Event of Disaster " as a recurrence prevention measures, but only deleted the provision that the train dispatcher or the head of facility and rolling stock depot should temporarily suspend train operations when the alarm buzzer sounds, and instead clarified that the same procedure as in the accident (the train dispatcher suspends train operations at the request of the head of facility and rolling stock depot) should be followed. This cannot be considered as a measure to prevent recurrence. To ensure the safety of train operations during rainfall, it is necessary to have a system in place that allows the immediate implementation of operation controls when the rain gauge reaches the regulated value.

Based on the results of the investigation into this accident, the Japan Transport Safety Board makes the following recommendations to Tosa Kuroshio Tetsudo (Railway) Co., Ltd. in order to ensure the safety of transportation, in accordance with the provisions of Article 27, Paragraph (1) of the Act for Establishment of the Japan Transport Safety Board.

In addition, the Board requests a report on the measures taken in accordance with the Paragraph (2) of the same Article.

Notes

When the regulated value of operation controls is observed, a system should be established to enable the dispatcher, who is constantly monitoring the operating conditions of the train, to promptly notify the driver of the operation control. Therefore, the revised "Operation Control Procedures in the Event of Disaster" should be re-examined by comparing it with the regulations of other railway operators, etc., and necessary revisions should be made to ensure the safe transportation of trains. In addition, the system should be such as to ensure that the operation control based on the regulations functions properly and that the regulations can be complied with.

The (interim) report was submitted on the measures taken by the Tosa Kuroshio Tetsudo Co., Ltd. in response to the recommendations dated November 29, 2024. For more details, please visit the JTSB's website.
https://jtsb.mlit.go.jp/railkankoku/railway-kankoku8re-2_20241213.pdf
(Japanese only)

The accident investigation report can be viewed on the JTSB website.
https://jtsb.mlit.go.jp/railway/rep-acci/RA2024-2-1.pdf (Japanese only)

## 2 Opinions

The opinions issued by the JTSB in 2024 are as follows.

### (1) Opinions concerning the flooding accident of a fishing vessel Kaiko Maru and the measures taken in response to the opinions

(Opinions on March 28, 2024)

**○Summary**

On April 1, 2023, while preparing for departure, the engine room of the fishing vessel Kaiko Maru was flooded. The main engine starter motor, etc. in the engine room of the vessel suffered water damage.

**○Probable Causes**

It is probable that the accident occurred when the Master, for the first time on the vessel, opened the propeller inspection port window to remove a rope that had become entangled in the propeller shaft while the vessel was preparing for departure from Toba Port. The Master did not check the condition of the surrounding walls of the propeller inspection port before proceeding with the rope removal work. As a result, seawater entered the engine room through a hole in the lower part of the surrounding walls.

**○Details of the opinions to the Director-General of the Fisheries Agency**

It is probable that the accident occurred when the Master, for the first time on the vessel, opened the propeller inspection port window to remove a rope that had become entangled in the propeller shaft while Kaiko Maru was preparing for departure from Toba Port. The Master did not check the condition of the surrounding walls of the propeller inspection port before proceeding with the rope removal work. As a result, seawater entered the engine room through holes in the lower part of the surrounding walls.

According to the marine accident investigation reports published by the JTSB, there have been 15 similar accidents involving small fishing vessels and recreational fishing vessels, including this case, resulting in 7 fatalities and 3 injuries including pneumonia, etc., and the hulls of the vessels sank or capsized.

In light of the investigation results of a sinking accident of a recreational fishing vessel that occurred on September 21, 2008, in which the Master and two passengers drowned, the JTSB issued opinions to the Director-General of the Fisheries Agency on December 18, 2009, regarding the inspection of recreational fishing vessels before departure, including guidance to recreational fishing vessel operators on the tightness of the propeller inspection port windows. The Fisheries Agency, on the same date, requested the prefectural governors and related organizations to provide guidance on pre-departure inspections, etc.

However, similar accidents involving small fishing vessels and recreational fishing vessels, including those caused by loose propeller inspection port windows, continue to occur at a rate of one per year. Additionally, accidents have occurred in which a Master sailed without fully closing the

propeller inspection port window; the Master of a recreational fishing vessel died in October 2019, and three people including the Master of a fishing vessel died in March 2022.

It is probable that these similar accidents, which put the lives of crew members at risk and cause significant damage to the hull, can be prevented by fishermen and recreational fishing vessel operators through regular inspections and maintenance. Therefore, the JTSB, based on the findings of its investigation into this accident and similar accidents involving small fishing vessels and recreational fishing vessels, expresses opinions as follows to the Director-General of the Fisheries Agency, in accordance with Article 28 of the Act for Establishment of the Japan Transport Safety Board.

If any measures are taken in response to this opinion, please provide us with the details.

Notes

Considering the circumstances where accidents such as sinking and capsizing related to propeller inspection ports in small fishing vessels and recreational fishing vessels have occurred, the Director-General of the Fisheries Agency should publicize the occurrence of these accidents and inform the prefectures, relevant organizations, and others to implement the following measures to raise awareness among fishery operators and recreational fishing vessel operators of similar accidents.

(1) When the Masters of small fishing vessels or recreational fishing vessels open the propeller inspection port windows to carry out work, they must carry out the work while making sure that water does not enter areas outside the compartment where the propeller inspection port is located, and close the windows securely after completing the work. Furthermore, when crew members other than a master open the windows to carry out work, the Masters must instruct them to carry out the work while making sure that water does not enter areas outside the compartment where the propeller inspection port is located, and confirm that the windows are closed after the work is completed.

(2) The Masters and owners of small fishing vessels and recreational fishing vessels equipped with propeller inspection port windows must regularly inspect the bolts, etc. fixing the inspection port windows, and perform maintenance as necessary.

(3) The Masters and owners of small fishing vessels and recreational fishing vessels equipped with propeller inspection port windows must ensure that the surrounding walls of the inspection port are watertight. Additionally, if holes have been made in the enclosure walls, seal these holes to ensure watertightness and take measures to prevent water from entering areas outside the compartment where the propeller inspection port is located.

On May 24, 2024, the report was submitted detailing the measures taken by the Director-General of the Fisheries Agency in response to the opinions issued. For more details, please visit the JTSB's website.
https://jtsb.mlit.go.jp/shiphoukoku/ship-iken20re_20240528.pdf (Japanese only)

The accident investigation report can be viewed on the JTSB website.
https://jtsb.mlit.go.jp/ship/rep-acci/2024/MA2024-3-14_2023yh0077.pdf
(Japanese only)

## 3 Safety recommendations

The opinions issued by the JTSB in 2024 are as follows.

### (1) Safety recommendations regarding the grounding accident of the cargo ship XIN HAI ZHOU 2

(Safety recommendations issued on March 28, 2024)

**○Probable Causes**

See Chapter 5, page 97.

**Safety Recommendations for Management Companies and Flag State Authorities**

In view of the results of this accident investigation, the Japan Transport Safety Board recommends that GRAND VOYAGE MARINE CO., LTD., as the ship manager of XIN HAI ZHOU 2, and the Panama Maritime Authority, as the flag state, take the following measures for the purpose of preventing the recurrence of similar accidents and reducing damage.

(1) GRAND VOYAGE MARINE CO., LTD. should carry out, in accordance with the safety actions established after the accident, appropriately and continuously to enhance supervision and support of their management vessels when encountering a stormy weather, and to implement education and training for masters and other crew members.

(2) The Panama Maritime Authority should instruct GRAND VOYAGE MARINE CO., LTD. to ensure the appropriate and continual implementation of the preventive measures by the company as referred in item 1 above set force.

The accident investigation report can be viewed on the JTSB website.
https://jtsb.mlit.go.jp/ship/rep-acci/2024/MA2024-3-1_2023tk0001.pdf
(Japanese)
https://jtsb.mlit.go.jp/eng-mar_report/2024/2023tk0001e.pdf (English)

## 4 Implementation status of measures taken in response to the recommendations, opinions, etc. issued in the past

There were no reports in 2024 on the measures taken in response to recommendations and opinions issued by the JTSB up to 2023.

# Chapter 3 Aircraft accident and serious incident investigations

## 1 Aircraft accidents and serious incidents to be investigated

### <Aircraft accidents to be investigated>

**◎Article 2, paragraph (1) of the Act for Establishment of the Japan Transport Safety Board**

The term "aircraft accident" as used in this Act means the accident prescribed as follows:

(i) the accident prescribed in each of the items of Article 76, paragraph (1) of the Civil Aeronautics Act regarding aircraft.

(ii)the accident prescribed in each of the items of Article 132-90, paragraph (1) of the Civil Aeronautics Act, which are serious ones as may be specified in the Order of the Ministry of Land, Infrastructure, Transport and Tourism (Article 1 of Regulation for Enforcement of the Act for Establishment of the Japan Transport Safety Board), regarding small UA.

### 1. Accidents related to aircraft

○ **Article 76, paragraph (1) of the Civil Aeronautics Act**

(i)crash, collision, or fire of aircraft

(ii)injury or fatality of any person, or damage of any object caused by aircraft

(iii)fatality (except those specified in Order of the Ministry of Land, Infrastructure, Transport and Tourism) or missing of any person on board the aircraft

(iv)contact with other aircraft

(v)other accidents relating to aircraft specified in Article 165-3 of the Regulation for Enforcement of the Civil Aeronautics Act

▪ **Article 165-3 of the Regulation for Enforcement of the Civil Aeronautics Act**

Case where aircraft in flight is damaged[*1*2]

*1 excluding the sole damage of engine, engine cowling, engine accessories, propeller, wing tip, antenna, tire, brake or fairing

*2 case which refers to the case corresponding to "major repair." "Major repair" means a repair that has a significant effect on airworthiness.

### 2. Accidents related to small UA

○ **Article 132-90, paragraph (1) of the Civil Aeronautics Act**

(i) injury or fatality of any person, or damage of any object caused by small UA

(ii) collision or contact with an aircraft

(iii) other accidents relating to small UA which are serious ones as may be specified in Order of the Ministry of Land, Infrastructure, Transport and Tourism (*Currently, there is no order)

↓which are

serious ones as may be specified in Order of the Ministry of Land, Infrastructure, Transport and Tourism (Article 1 of Regulation for Enforcement of the Act for Establishment of the Japan Transport Safety Board)

**・Article 1 of the Regulation for Enforcement of the Act for Establishment of the Japan Transport Safety Board**

(i) injury or death of any person caused by small UA

(ii) damage of any object caused by an small UA prescribed below.

(a) damage of buildings for which a person is actually present or movable facilities such as vehicles, ships, etc.

(b) case where electricity supply facilities, telecommunications facilities, transportation facilities, educational facilities, medical facilities, government facilities, or other public facilities operations are disrupted.

(c) other cases which are recognized as particularly exceptional in addition to those listed in (a) and (b)

(iii) collision or contact with an aircraft

<Aircraft serious incidents to be investigated>

**◎Article 2, paragraph (2), item (ii) of the Act for Establishment of the Japan Transport Safety Board (serious incidents involving aircraft and/or small UA)**

Aircraft serious incident is a case recognized a risk of aircraft accident as may be specified in the Order of the Ministry of Land, Infrastructure, Transport and Tourism (Article 2 of the Regulation for Enforcement of the Act for Establishment of the Japan Transport Safety Board).

**○ Article 2 of the Regulation for Enforcement of the Act for Establishment of the Japan Transport Safety Board**

**3. Serious incidents related to aircraft**

(1) The following cases*. However, item (viii), (xi) and (xii) are limited to the cases occurred to an aircraft during flight.

(i) case where a pilot in command of an aircraft, during a flight, recognized a risk of collision or contact with any other aircraft

(ii) take-off from a closed runway, a runway being used by other aircraft, a runway which is different from the instructed one or a taxiway, or aborted take-off

(iii) landing on a closed runway, a runway being used by other aircraft, a runway which is different from the instructed one or a location where an aircraft is not normally supposed to land such as a taxiway or a road

(iv) case where engine cowling, wingtip or component other than landing gear is contact with ground surface during landing

(v) overrun, undershoot and deviation from a runway (limited to when an aircraft is unable to perform taxiing)

(vi) case where emergency evacuation was conducted by using the emergency evacuation slide

(vii) case where aircraft crew executed an emergency operation during flight in order to avoid crash into water or contact with the ground

(viii) damage to the engine (limited to a case where fragments penetrated the casing of the engine or a major damage occurred inside the engine)

(ix) the engine is stopped continuously or loss of power or thrust thereof (except when the engine(s) are stopped with an attempt of assuming the engine(s) of a motor glider) of engines (in the case of multiple engines, two or more engines) in flight

(x) case where any of aircraft propeller, rotary wing, landing gear, rudder, elevator, aileron or flap is damaged and thus flight of the aircraft may not be continued

(xi) multiple malfunctions in one or more systems installed on aircraft impeding the safe flight of aircraft

(xii) occurrence of fire or smoke inside an aircraft and occurrence of fire within an engine fire-prevention area

(xiii) abnormal decompression inside an aircraft

(xiv) shortage of fuel requiring urgent measures

(xv) case where aircraft operation is impeded by an encounter with air disturbance or other abnormal weather conditions, failure in aircraft equipment, or a flight at a speed exceeding the airspeed limit, limited payload factor limit operating altitude limit

(xvi) case where aircraft crew was unable to perform normal duties due to injury or disease

(xvii) case where an object which attached to the exterior of the aircraft, suspended, or towed dropped unintentionally or it dropped as an emergency operation

from the aircraft.

(xviii) case where parts fell from aircraft collided with persons

(xix) case equivalent to those listed in the preceding items

*Item (ii) through (xix) are the cases listed in Article 166-4 of the Regulation for Enforcement of the Civil Aeronautics Act, which are cited in Article 2 of the Regulation for Enforcement of the Act for Establishment of the Japan Transport Safety Board.

(2) The following cases, and an unusual case in particular:

(i) case listed in item (viii), (xi), and (xii) of 1 above occurring with an aircraft other than during flight

(ii) case where an aircraft other than during flight is damaged*1*2

*1 except the sole damage of engine, cowling, engine accessories, propeller, wing tip, antenna, tire, brake or fairing

*2 case which refers to the case corresponding to "major repair." "Major repair" means a repair that has a significant effect on airworthiness.

(iii) case where any of aircraft propeller, rotary wing, landing gear, rudder, elevator, aileron or flap is damaged and thus flight of the aircraft may not be started

(iv) case equivalent to those listed in the preceding items

**4. Serious incidents related to small UA**

(1) case where a pilot in command of an small UA, during a flight, recognized a risk of collision or contact with any other aircraft

(2) The following cases, and an unusual case in particular:

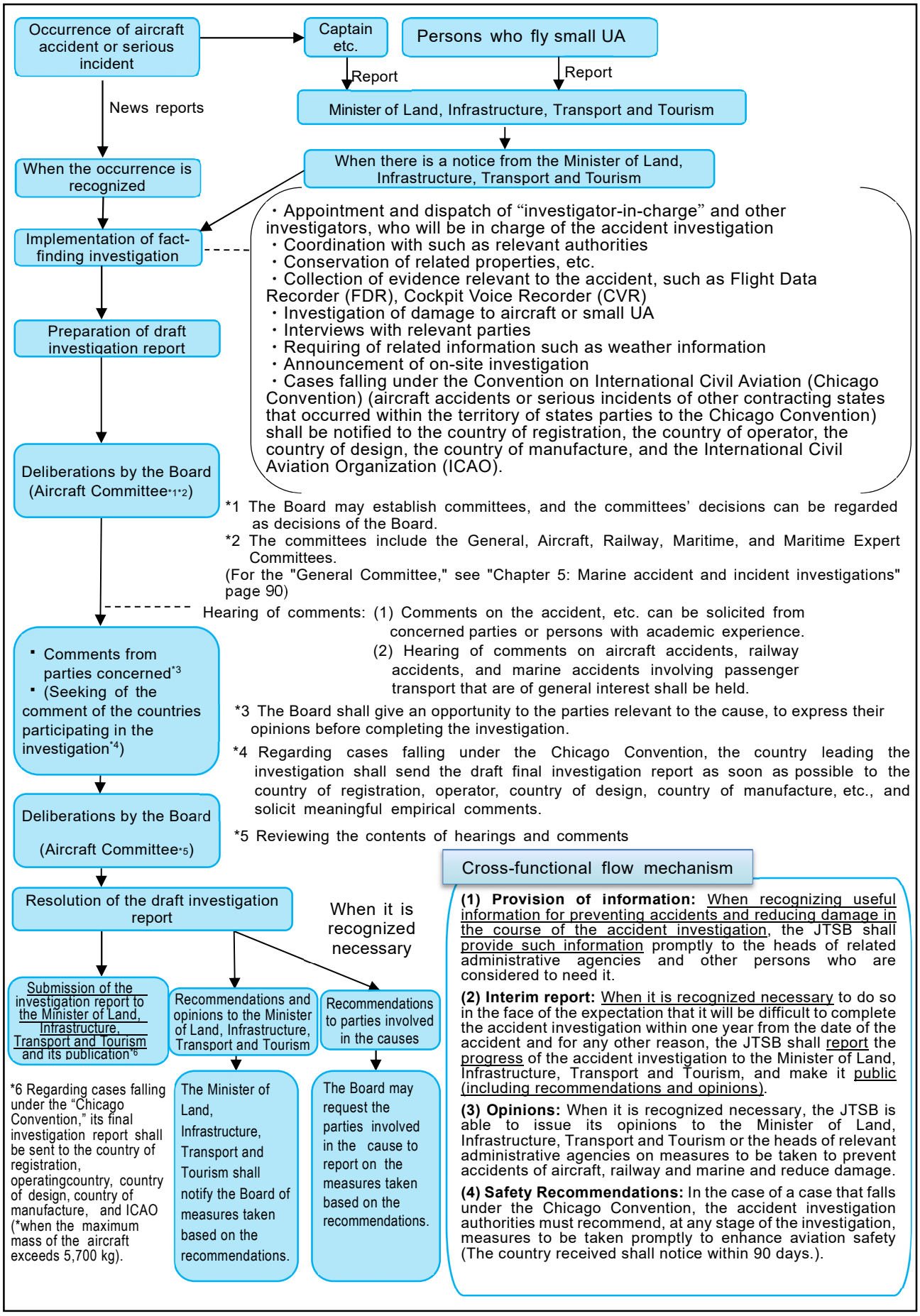
(*cases listed in each item of Article 236-86 of the Regulation for Enforcement of the Civil Aeronautics Act)

(i) injury to persons caused by an small UA (excluding serious injuries)

(ii) case in which an small UA becomes uncontrollable

(iii) case in which an small UA ignites (restricted to that occurred during flight)

## 2 Procedure of aircraft accident/serious incident Investigation



## 3 Statistics of investigations of aircraft accidents and serious incidents

The JTSB carried out investigations of aircraft accidents and serious incidents in 2024 as follows:

In 2024, 29 accident investigations were carried over from 2023 and 19 accident investigations were newly launched. Besides, 14 investigation reports were published, and thereby 34 accident investigations were carried over to 2025.

Moreover, 18 serious incident investigations were carried over from 2023, and 16 serious incident investigations were newly launched in 2024. Furthermore, 7 investigation reports were published, and thereby 27 serious incident investigations were carried over to 2025.

Among the 21 investigation reports published in 2024, none was issued with recommendations and none was issued with opinions.

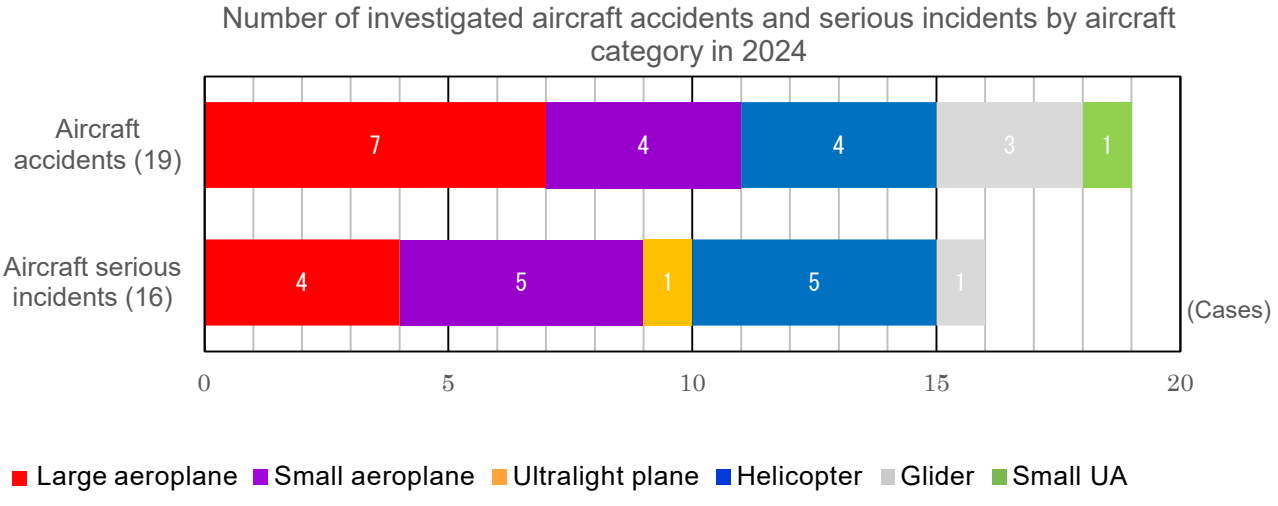
Investigations of aircraft accidents and serious incidents in 2024 (Cases)

| Category | Carried over from 2023 | Launched in 2024 | Total | Published investigation reports | (Recommendations) | (Safety recommendations) | (Opinions) | Carried over to 2025 | (Interim report) |
|---|---|---|---|---|---|---|---|---|---|
| Aircraft accident | 29 | 19 | 48 | 14 | (0) | (0) | (0) | 34 | (10) |
| Aircraft serious incident | 18 | 16 | 34 | 7 | (0) | (0) | (0) | 27 | (8) |

## 4 Statistics of investigated aircraft accidents and serious incidents in 2024

The aircraft accidents and serious incidents that were newly investigated in 2024 consisted of 19 aircraft accidents, which increased by two from 17 for the previous year, and 16 aircraft serious incidents, which increased by two compared to 14 for the previous year.

By aircraft category, the aircraft accidents included seven cases involving large aeroplanes, four cases involving small aeroplanes, four cases involving helicopters, three cases involving gliders, and one case involving small UA. The aircraft serious incidents included four cases involving large aeroplanes, five cases involving small aeroplanes, one case involving ultralight plane, five cases involving helicopters, and one case involving glider.




* Large aeroplane refers to an aircraft of a maximum take-off mass of over 5,700 kg.

* Small aeroplane refers to an aircraft of a maximum take-off mass of under 5,700 kg except for ultralight plane and self-made aircraft.

* Ultralight planes include self-made aircraft in the form of ultralight planes.

*

The number of fatal injuries, missing and injuries were 22, including seven fatal injury and 15 injuries.

The number of fatalities, missing or injury (aircraft accident)

(Persons)

| 2024 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Aircraft category | Fatal Injuries | | Missing | | Serious/Minor Injuries | | Total |
| | Crew | Passengers and others | Crew | Passengers and others | Crew | Passengers and others | |
| Large aeroplane | 0 | 5 | 0 | 0 | 8 | 0 | 13 |
| Small aeroplane | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Helicopter | 2 | 0 | 0 | 0 | 1 | 3 | 6 |
| Ultralight plane | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Glider | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| Small UA | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Total | 2 | 5 | 0 | 0 | 12 | 3 | 22 |
| | 7 | | 0 | | 15 | | |

*The above statistics include incidents under investigation so may change depending on the status of the investigation and deliberation. In addition, for the number listed as “passengers” on the website in the number of injuries of an aircraft accident currently under investigation, the minimum number of pilots required to fly the aircraft are counted as “crew.”

## 5 Summaries of aircraft accidents and serious incidents which occurred in 2024

The aircraft accidents and serious incidents which occurred in 2024 are summarized as follows:

(Aircraft accidents)

| 1 | Date and location | Operator | Aircraft registration number and aircraft type |
|---|---|---|---|
| | January 2, 2024<br>On Runway C at Tokyo International Airport | Japan Coast Guard<br>(Aircraft A) | JA722A<br>Bombardier DHC-8-315<br>(Large aeroplane) |
| | | Japan Airlines Co., Ltd<br>(Aircraft B) | JA13XJ<br>Airbus A350-941<br>(Large aeroplane) |
| | Summary | At Tokyo International Airport (hereinafter referred to as “Haneda Airport”), Aircraft A, which had stopped on Runway 34R (Runway C), and Aircraft B, which had landed on the same runway, collided.<br>There were six persons on board Aircraft A, consisting of the pilot in command (hereinafter referred to as “PIC A”) and five other flight crew members. Aircraft A burst into flames at the same time as it collided with Aircraft B. The PIC A sustained a serious injury and five other crew members sustained fatal injuries. Aircraft A was destroyed by fire.<br>There was a total of 379 people on board Aircraft B, consisting of the Pilot in Command (hereinafter referred to as “PIC B”)), eleven other crew members and 367 passengers. A fire broke out under the fuselage of Aircraft B at the same time as the collision with Aircraft A, and then Aircraft B continued to taxi, went off the runway and came to a stop in a grassy area near the threshold of the runway. All crew and passengers evacuated from Aircraft B after it came to a stop, but one passenger sustained a serious injury, four passengers suffered minor injuries and twelve passengers were examined by a doctor for feeling unwell. Aircraft B was destroyed by fire. | |

| | | | |
|---|---|---|---|
| 2 | Date and location | Operator | Aircraft registration number and aircraft type |
| | February 1, 2024<br>Approximately 100 km south-southeast of Chubu Centrair International Airport, at an altitude of approximately 8,500 meters | All Nippon Airways Co., Ltd. | JA899A<br>Boeing 787-9<br>(Large aeroplane) |
| | Summary | The aircraft took off from Tokyo International Airport, and while in flight, when it shook near the above location, one member of the cabin crew twisted her ankle, and another member came into contact with the cart and was injured. The aircraft continued flying and landed at Suvarnabhumi International Airport. | |
| 3 | Date and location | Operator | Aircraft registration number and aircraft type |
| | March 20, 2024<br>Approximately 77 km south of Narita International Airport, at an altitude of approximately 1,500 meters | All Nippon Airways Co., Ltd | JA891A<br>Boeing 787-9<br>(Large aeroplane) |
| | Summary | The aircraft took off from Los Angeles International Airport, but was struck by lightning near the above location while descending. Subsequently, it continued the flight and landed at Narita International Airport. | |
| 4 | Date and location | Operator | Aircraft registration number and aircraft type |
| | April 1, 2024<br>Approximately 150 km southeast of Narita International Airport, at an altitude of approximately 5,200 meters | Japan Airlines Co., Ltd. | JA843J<br>Boeing 787-8<br>(Large aeroplane) |
| | Summary | The aircraft took off from Melbourne International Airport, but four cabin crew members were injured in flight when the aircraft shook near the above location. The aircraft continued its flight and landed at Narita International Airport. | |
| 5 | Date and location | Operator | Aircraft registration number and aircraft type |
| | April 12, 2024<br>At a height of approximately 7 meters above Aoi Ward, Shizuoka City, Shizuoka Prefecture | Shin Nihon Helicopter Co., Ltd. | JA6686<br>Aerospatiale AS332L1 (Rotorcraft) |
| | Summary | The rotorcraft took off from a temporary airfield in Aoi Word, Shizuoka City, Shizuoka Prefecture. While goods were being transported near the above location, the formwork (steel, about 6.5 meters long and about 140 kg in weight) placed on the ground was blown by the aircraft's downwash and struck and injured one ground worker. | |
| 6 | Date and location | Operator | Aircraft registration number and aircraft type |
| | May 13, 2024<br>While approaching a temporary airfield in Aso city, Kumamoto Prefecture | Takumi Enterprise Co., Ltd. | JA718W<br>ROBINSON R44 II<br>(Rotorcraft) |
| | Summary | The rotorcraft took off from the helicopter landing facility in Aso city, Kumamoto Prefecture, and while approaching the same facility to land, generated an abnormal noise from its rear and the engine speed dropped, which caused a heavy impact when it landed in a vacant lot. | |
| 7 | Date and location | Operator | Aircraft registration number and aircraft type |
| | May 25, 2024<br>Near Ubuyama Village, Aso District, Kumamoto Prefecture | Privately owned | JA2189<br>Alexander Schleicher ASK13<br>(Glider) |
| | Summary | After the glider took off from a temporary airfield in Aso city, Kumamoto Prefecture, the tow line used to tow the aircraft loosened, making it impossible to continue the flight, and causing the aircraft to crash into a park in Ubuyama Village, Aso District, Kumamoto Prefecture. | |
| 8 | Date and location | Operator | Aircraft registration number |

| | | | |
|---|---|---|---|
| | | | and aircraft type |
| | May 31, 2024<br>On the runway at Kobe Airport | Academic Corporte Body Hiratagakuen | JA212H<br>Textron Aviation G58<br>(Small aeroplane) |
| | Summary | When the aircraft landed at Kobe Airport, the underside of the fuselage came into contact with the runway. | |
| 9 | Date and location | Operator | Aircraft registration number and aircraft type |
| | June 5, 2024<br>Near the runway at Yoron Airport | Privately owned | JA3712<br>Piper PA-28-151<br>(Small aeroplane) |
| | Summary | See “6 Publication of investigation reports” (No. 13 on page 56). | |
| 10 | Date and location | Operator | Aircraft registration number and aircraft type |
| | June 9, 2024<br>In mountains approximately 2 km southeast of Kagoshima Airport | New Japan Airlines Co., Ltd. | JA4061<br>Cessna 172P<br>(Small aeroplane) |
| | Summary | While approaching Kagoshima Airport, the aircraft deviated from the entry route, collided with trees in the mountains southeast of the airport, and got stuck. | |
| 11 | Date and location | Operator | Aircraft registration number |
| | June 21, 2024<br>In Kashima Ward, Minamisoma City, Fukushima Prefecture | Operators | JU323659D902<br>UAV-E6150FA manufactured by Eames Robotics Co., Ltd. (Small UA) |
| | Summary | When an operator tried to land a UAV after flying it from a take-off location in Kashima Ward, Minamisoma City, Fukushima Prefecture, to spray pesticides, the aircraft became uncontrollable and came into contact with an assistant, who sustained injuries to both hands . | |
| 12 | Date and location | Operator | Aircraft registration number and aircraft type |
| | July 14, 2024<br>On the landing zone at a landing site of a temporary airfield in Kitami city, Hokkaido | Corporation | JA2469<br>Alexander Schleicher ASK12<br>(Glider) |
| | Summary | The glider took off from a temporary airfield in Kitami city, Hokkaido, and when it landed there, it landed roughly, and those on board suffered injuries. | |
| 13 | Date and location | Operator | Aircraft registration number |
| | July 20, 2024<br>On the runway at Tsushima Airport | Oriental Air Bridge Co., Ltd. | JA858A<br>Bombardier DHC-8-402<br>(Large aeroplane) |
| | Summary | The aircraft landed at Tsushima Airport and collided with a bird during the landing roll. Post-arrival inspection revealed damage to the aircraft. | |
| 14 | Date and location | Operator | Aircraft registration number and aircraft type |
| | July 28, 2024<br>Fields in Yanagawa City, Fukuoka Prefecture | SGC Saga Aviation Co., Ltd. | JA779N<br>Robinson R44 Ⅱ<br>(Rotorcraft) |
| | Summary | The aircraft was discovered in a state where fire had occurred at the above location after take-off from a temporary airfield in Hita City, Oita Prefecture. | |
| 15 | Date and location | Operator | Aircraft registration number |
| | August 12, 2024<br>On Runway A at Narita International Airport | Atlas Air, Inc. | N404KZ<br>Boeing 747-400F<br>(Large aeroplane) |
| | Summary | The aircraft took off from Narita International Airport. Immediately afterwards, however, the instrument panel indicated a malfunction in the hydraulic system and that the air pressure inside the aircraft had dropped below normal during the flight, so the Pilot declared a state of emergency, and the aircraft landed and stopped on Runway A of the Airport. Post-arrival inspection revealed that the left main landing gear tire had burst and the aircraft had been damaged. | |

| | | | |
|---|---|---|---|
| 16 | Date and location | Operator | Aircraft registration number |
| | September 4, 2024<br>Approximately 200 km east of Seoul, at an altitude of 12,500 meters | Japan Airlines Co., Ltd. | JA863J<br>Boeing 787-9<br>(Large aeroplane) |
| | Summary | The aircraft took off from Beijing, and while flying near the above location, one cabin crew member collided with the right flank of the passenger seat partition when the aircraft experienced turbulence. The aircraft continued flying and landed at Tokyo International Airport. | |
| 17 | Date and location | Operator | Aircraft registration number |
| | October 2, 2024<br>Thickets on the west side of the runway at Hateruma Airport, at an altitude of approximately 20 meters | Japan Coast Guard | JA974A<br>Agusta AW139<br>(Rotorcraft) |
| | Summary | The aircraft took off from New Ishigaki Airport, and while approaching Hateruma Airport, the aircraft and its main rotor blades came into contact with trees, damaging the underside of the rear of the aircraft and the blade. The aircraft continued flying and landed at Hateruma Airport. | |
| 18 | Date and location | Operator | Aircraft registration number |
| | October 26, 2024<br>Cadastre: Chikuma River riverbed in Yoshinomachi, Wakahowatauchi, Nagano City, Nagano Prefecture | Corporation | JA21YP<br>Alexander Schleicher ASK21<br>(Glider) |
| | Summary | The glider was launched by a winch from Nagano City Gliding Field, but landed at the same field because it could not ascend properly. While landing, it overran the runway and stopped on the grass in a riverbed near the gliding field. | |
| 19 | Date and location | Operator | Aircraft registration number |
| | October 27, 2024<br>Semine Temporary Airfield, Kurihara City, Miyagi Prefecture | Privately owned | JA4098<br>Cessna 172P<br>(Small aeroplane) |
| | Summary | When the aircraft landed at a temporary airfield in Kurihara City, Miyagi Prefecture, it overran the runway, fell off a cliff, overturned and stopped on the grass near the same airfield. | |

The above details are subject to change depending on the progress of the investigation, etc.

(Aircraft serious incidents)

| | | | |
|---|---|---|---|
| 1 | Date and location | Operator | Aircraft registration number and aircraft type |
| | January 28, 2024<br>Near the runway at Oita Airport | Honda Airways Co., Ltd. | JA924H<br>Honda Aircraft HA-420<br>(Small aeroplane) |
| | Summary | When the aircraft landed at Oita Airport, it deviated from the runway and stopped on the grass. | |
| 2 | Date and location | Operator | Aircraft registration number and aircraft type |
| | February 17, 2024<br>At an altitude of approximately 105 meters above Honda Airport | Honda Airways Co., Ltd. | JA03FD<br>Agusta AW139<br>(Rotorcraft) |
| | Summary | The rotorcraft took off from a temporary airfield in Kawajima Town, Hiki District, Saitama Prefecture. An operational test of the outboard hoist device was carried out over the landing zone of Honda Airport, and the hoist cable and the weight attached to it (approximately 35 cm in diameter, 30 cm high and weighing approximately 135 kg) fell to the ground. | |
| 3 | Date and location | Operator | Date and location |
| | March 31, 2024<br>Temporary airfield in Tsu City, Mie Prefecture | Privately owned | JR0832<br>Zen Air STOL CH701 R532L<br>(Ultralight plane) |

| | | | | |
|---|---|---|---|---|
| | Summary | When the ultralight plane landed at a temporary airfield in Tsu City, Mie Prefecture, it overran the runway, hit a fence, and stopped. | | |
| 4 | Date and location | | Operator | Date and location |
| | April 7, 2024<br>While Approaching Miho Airport | | ANA Wings Co., Ltd. | JA69AN<br>Boeing 737-800<br>(Large aeroplane) |
| | Summary | The aircraft took off from Tokyo International Airport, and while approaching Miho Airport, the Ground Proximity Warning System's warning was activated, so it executed a go-around accordingly, and landed at the same airport. | | |
| 5 | Date and location | | Operator | Date and location |
| | May 5, 2024<br>On the landing zone at a landing site of a farm road airfield in Fukushima City (Fukushima Sky Park) | | Privately owned | JA2416<br>Grob G109B<br>(Glider) |
| | Summary | When the aircraft landed at Fukushima Sky Park, it was fanned by the wind, lost its balance, and the propeller came into contact with the runway and was damaged. | | |
| 6 | Date and location | | Operator | Date and location |
| | May 15, 2024<br>On the runway at Fukui Airport | | Privately owned | JA4022<br>SOCATA TB-21<br>(Small aeroplane) |
| | Summary | During touch-and-go training at Fukui Airport, the underside of the aircraft fuselage came into contact with the runway and was damaged. | | |
| 7 | Date and location | | Operator | Date and location |
| | June 4, 2024<br>Shortly after take-off from Narita International Airport | | Polar Air Cargo Worldwide, Inc. | N714SA<br>Boeing 777F<br>(Large aeroplane) |
| | Summary | The aircraft took off from Narita International Airport, but immediately afterwards a malfunction occurred in the second (right) engine. The engine was shut down, a state of emergency was declared, and the aircraft returned to the airport and landed. Post-arrival inspection revealed that an internal engine component had broken and penetrated the engine case. | | |
| 8 | Date and location | | Operator | Date and location |
| | June 10, 2024<br>At an altitude of approximately 1,400 meters above Aioi City, Hyogo Prefecture | | Takumi Enterprise Co., Ltd. | JA400C<br>Robinson R44 Ⅱ<br>(Rotorcraft) |
| | Summary | The aircraft took off from Nagoya Airport, but engine output dropped unexpectedly near the above location while flying. After declaring a state of emergency, it landed at a school ground in Aioi City, Hyogo Prefecture. | | |
| 9 | Date and location | | Operator | Date and location |
| | June 22, 2024<br>At an altitude of approximately 7,600 meters above Minabe Town, Hidaka District, Wakayama Prefecture | | ANA Wings Co., Ltd. | JA88AN<br>Boeing 737-800<br>(Large aeroplane) |
| | Summary | The aircraft took off from Nagasaki Airport, and during its descent, a problem occurred in the pressurization system near the above location causing the in-flight air pressure to drop, so a state of emergency was declared, and it descended to an altitude of approximately 3,000 meters. Subsequently, since the air pressure inside the aircraft was within the normal range, the declaration was cancelled, and the aircraft landed at Chubu Centrair International Airport. | | |
| 10 | Date and location | | Operator | Date and location |
| | July 7, 2024<br>On the landing zone at a landing site of a farm road airfield in Fukushima City (Fukushima Sky Park) | | Corporation | JA4101<br>Cessna 172P<br>(Small aeroplane) |

| | | | | |
|---|---|---|---|---|
| | Summary | When the aircraft landed at the Fukushima City Farmway Temporary Airfield (Fukushima Sky Park), where the rear lower part of the fuselage came in contact with the landing zone. | | |
| 11 | Date and location | | Operator | Date and location |
| | July 28, 2024<br>Park in Yachiyo Town, Yuki District, Ibaraki Prefecture | | Privately owned | JA02KG<br>Agusta A109E<br>(Rotorcraft) |
| | Summary | During flight, the flight control system malfunctioned, causing problems in controlling the aircraft, so the aircraft declared a state of emergency and landed at the above location. | | |
| 12 | Date and location | | Operator | Date and location |
| | August 5, 2024<br>Near the runway at Ryugasaki Airfield | | Skynet Academy Co., Ltd. | JA01DC<br>Cessna 172S<br>(Small aeroplane) |
| | Summary | When the aircraft landed at Ryugasaki Airfield, it deviated from the runway and stopped on the grass. | | |
| 13 | Date and location | | Operator | Date and location |
| | August 8, 2024<br>On the runway at Kobe Airport | | Academic Corporte Body Hiratagakuen | JA824H<br>Eurocopter EC135P2+<br>(Rotorcraft) |
| | Summary | When the rotorcraft landed at Kobe Airport, it was instructed to land at the take-off/landing field for helicopters (helipad) on the taxiway assigned by the air traffic controller, but it landed on the runway instead. | | |
| 14 | Date and location | | Operator | Date and location |
| | October 10, 2024<br>Yasuzuka Ward, Joetsu City, Niigata Prefecture, at an altitude of approximately 150 meters | | Shin Nihon Helicopter Co., Ltd. | JA6412<br>Bell 412EP<br>(Rotorcraft) |
| | Summary | The aircraft took off from the Yasuzuka Temporary Airfield in Joetsu City, Niigata Prefecture, and while flying with supplies hanging, part of the supplies (contents: ready-mixed concrete weighing approximately 820 kg) fell into the mountains of the same city. | | |
| 15 | Date and location | | Operator | Date and location |
| | October 22, 2024<br>Shortly after take-off from Konan Airport | | Okayama Air Service Co., Ltd. | JA60AZ<br>Textron Aviation G58<br>(Small aeroplane) |
| | Summary | The aircraft took off at Konan Airport, but immediately after, an abnormal noise was generated from the 2nd (right) engine, and since the instrument display indicated that the lubricating oil pressure of the engine had decreased, it landed at Konan Airport.<br>Post-arrival inspection revealed damage to the internal engine parts and penetration of the crankcase. | | |
| 16 | Date and location | | Operator | Date and location |
| | November 28, 2024<br>Making a landing approach at New Chitose Airport | | Spring Japan Co., Ltd. | JA82YA<br>Airbus A321-231<br>(Large aeroplane) |
| | Summary | While the aircraft received permission to land and was approaching, a construction vehicle entered the same runway. | | |

The above details are subject to change depending on the progress of the investigation, etc.

## 6 Publication of investigation reports

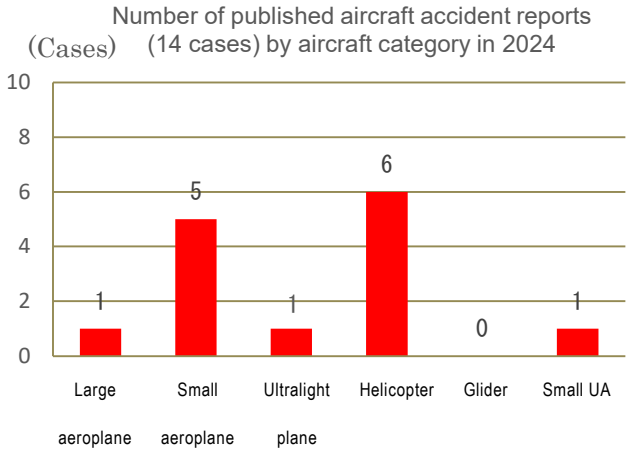
The number of investigation reports of aircraft accidents and serious incidents published in 2024 was 21, consisting of 14 aircraft accidents and 7 aircraft serious incidents.

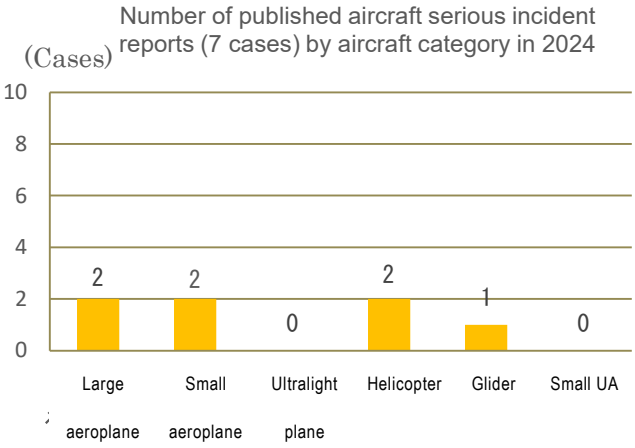
Breaking them down by aircraft category, the aircraft accidents involved one large aeroplane, five small aeroplane, one ultralight plane, six helicopters, and one small UA. The aircraft serious incidents involved two large aeroplanes, two small aeroplanes, two helicopters, and one glider.

Note: In aircraft accidents and serious incidents, two or more aircraft are sometimes involved in one case. See pages 47 to 61 for

details.

The total number of fatalities, missing persons, and injured persons is 22, with four fatalities and 18 injuries.




The aircraft accidents and serious incidents which occurred in 2024 are summarized as follows.

**Aircraft accident investigation reports published in 2024**

| 1 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
|---|---|---|---|---|
| | January 25, 2024 | Feburuay 1, 2020<br>Mihota town, Koriyama City<br>Fukushima Prefecture | Fukushima Prefectural Police Aviation Unit | JA139F<br>Agusta AW139, JA139F<br>(Rotorcraft) |
| | Summary | The rotorcraft operated by the Fukushima Prefectural Police Aviation Unit, was flying from the Aizu Chuo Hospital Temporary Operation Site in Aizuwakamatsu City, Fukushima Prefecture toward Fukushima Airport in order to transport organs for transplantation, the main rotor blades severed the tail drive shaft and controlling the helicopter became difficult over Mihota Town in Koriyama City, Fukushima Prefecture. Therefore, the helicopter tried to make a forced landing in a paddy field in the town but made a hard landing and rolled over.<br>On board the helicopter were seven persons in total, consisting of a captain, a co-pilot, two mechanics, and three passengers. Four of them were seriously injured, and the other three sustained minor injuries. The helicopter was destroyed, but there was no outbreak of fire. | | |
| | Probable Causes | The JTSB concludes that the probable cause of this accident was that as the main rotor blades severed the tail drive shaft and controlling the helicopter became difficult while flying, the helicopter tried a forced landing, but made a hard landing, which resulted in injuries to persons on board and damage to the helicopter.<br>The reason why the main rotor blades severed the tail drive shaft is most likely because when the helicopter encountered a strong downdraft while flying at a high speed over mountain regions in strong winds, it started a right rolling motion exceeding 360° after the rapid increase airspeed, and the main rotor blades were largely flapping[*1] toward the fuselage. In addition, regarding the fact that the helicopter became a right rolling motion, it was probably affected by the captain's large stick movement when encountering a downdraft.<br><br>[*1]"Flapping" refers to the vertical movement of the rotor blades around the flapping hinge, which raises and lowers the rotor blades to balance the different lift forces on the forward and reverse sides of the blades. | | |
| | Safety Actions | The following can be considered in order to prevent the recurrence of similar accidents in the same situation as this accident.<br>(1) Important notes when flying over mountainous regions in strong winds<br>Although it is difficult to accurately predict the location of strong vertical general winds[*2] as in this accident, especially when general wind orthogonal to mountainous areas blows, large | | |

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|---|---|---|---|---|
| | | amplitude mountain waves are generated and rapid change in horizontal wind velocity is expected to occur. Therefore, it is necessary to constantly monitor the weather conditions outside the aircraft and changes in flight specifications, and to fully consider the flight control capability of the aircraft so as to be able to respond to sudden weather changes, and to select appropriate flight control mode during flight. When flying with a tailwind, if there is a large difference between airspeed and ground speed, it is necessary for pilots to decelerate in advance above the areas where mountain waves would occur and fly selecting the appropriate altitude and flight route.<br>(2) Implementation of recurrent trainings using the FFS and others<br>Pilots need to judge flight objectives and environmental conditions in order to select a proper flight control mode during the flight. In order to fully understand and properly use the flight control modes, it is necessary for them to read carefully the flight manuals and other related documents and learn the differences of flight control by using the FFS and others. - - 63 With normal flight training and ground training only, it is difficult to respond quickly and calmly between two pilots in the event of an emergency operation. Therefore, as much as possible, it is desirable to conduct trainings using the FFS and others that are corresponding to each boarding aircraft type and including the coordination of two pilots.<br>*2 "General wind" means a wind that represents a wide area and is not affected by local factors such as topography. | | |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-acci/AA2024-1-1-JA139F.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA139F.pdf (English) | | |
| 2 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
| | April 25, 2024 | November 20, 2022<br>Near the Bando Flying Club Temporary Airfield in Bando City, Ibaraki Prefecture | Privately owned | JR0628<br>Lands S-7 Courier-R582L<br>(Ultralight plane with two seats) |
| | Summary | Immediately after take-off from the Bando Flying Club Temporary Airfield in Oyama, Bando City, Ibaraki Prefecture, the aircraft crashed into a field near the north-northwest of the same temporary airfield. The pilot and passenger on board the aircraft both died. The aircraft was destroyed, but no fire broke out.  | | |
| | Probable Causes | It is possible that this accident occurred when the ultralight plane made a sharp turn while losing thrust due to engine failure during take-off and ascent, causing the flight speed to slow and the plane to stall due to the larger bank angle, leading to a crash.<br>Regarding the engine failure, the ignition system may have been difficult to ignite, and the fuel system was unable to supply a sufficiently concentrated fuel mixture during ascent. | | |
| | Safety Actions | Ultralight plane users must inspect the airframe and engine properly according to the procedures specified in the manufacturer's manual. | | |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-acci/AA2024-2-1-JR0628.pdf (Japanese only) | | |
| 3 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
| | May 30, 2024 | September 20, 2021<br>Okuwa-mura, Kiso-gun, Nagano Prefecture | Akagi helicopter Co., Ltd. | JA6200<br>KAMAN K-1200 (Rotorcraft) |

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|---|---|---|
| | Summary | While the rotorcraft was hovering for helicopter logging, its engine shut down and crashed.<br>Only the captain was on board the helicopter and sustained a minor injury.<br>The helicopter was destroyed but no fire broke out.<br>  |
| | Probable Causes | The JTSB concludes that it is certain that the cause of this accident was that while the helicopter was hovering, the engine shut down because the Blade 44 of PT2 rotor was fractured, resulting in the crash.<br>The Blade 44 was fractured because the inspection result of PT2 cumulative gap[*1] was determined to be within the allowable value during the 2nd O/H and the rotor blade and disks were not replaced, which most likely caused the subsequent excessive shroud gap and the flutter[*2] on the blade, leading to the HCF and the fracture. Regarding the judgment that the PT2 cumulative gap inspection result was within allowable value in the 2nd O/H, it is possible that the Inspection Procedure, which allowed for different interpretations, caused variations in shim[*3] tooling quality and shroud gap measurement techniques at the Maintenance Facility, resulting in inaccurate shroud gap measurements.<br><br>[*1] The 1PT rotor blades are paired with two blades, and there is a gap between each pair called the shroud gap. The "cumulative gap" refers to the total of all shroud gaps between adjacent pairs of rotors.<br>[*2] “Flutter” is a dynamic instability resulting from the interplay between the elastic resilience, inertia, and aerodynamic forces of the rotor blades, and a phenomenon which manifests oscillations centered at a fixed point (rotor blade mounts) persist in proportion to the distance and, if divergent, may lead to structural destruction.<br>[*3] A “shim” is a thin plate used to fill gaps, and by sandwiching the shim between two parts, the gap can be filled, or the height can be adjusted. |
| | Safety Actions | It is required for the Design and Manufacturing Company (Company B) to consider, including following issues, preventive measures for a reoccurrence of similar accidents, in relation to the Inspection Procedure. (See “3. ANALYSIS” on the Investigation Report.)<br>(1) Specify suitable for shroud gap measurements and calibrated equipment.<br>(2) For the Inspection Procedure, establish specific and quantitative inspection procedure.<br>(3) Be specifically indicate and manage about the contents of shroud gap inspection result records, and the record preservation procedure. |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-acci/AA2024-3-1-JA6200.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA6200.pdf (English) |

| 4 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
|---|---|---|---|---|
| | May 30, 2024 | June 15, 2023<br>Nantan City, Kyoto Prefecture | Aero Asahi Corporation | JA9678<br>Aerospatiale AS332L1<br>(Rotorcraft) |

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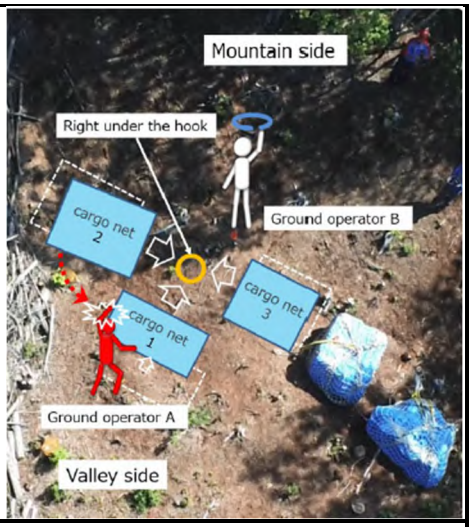
| | Summary | When the helicopter lifted the Cargo covered in cargo net[*1] (hereinafter referred to as "Cargo net"), it came into contact with a ground operator in the mountains in Nantan City, Kyoto Prefecture, and the ground operator was seriously injured.<br><br>[*1]"Cargo net" refers to a tool used to wrap and suspend loads by attaching suspension straps to the four corners of the rope woven nets. |
| | Safety Actions | It is necessary for the external cargo sling operators to ensure thoroughly that the ground operators shall never approach cargoes without sending a sign to the onboard mechanic, and that when finding the ground operator has not moved to a safe position during the monitoring of ground work, the onboard mechanic shall secure the safety for the ground work in cooperation with the captain. (See "3. ANALYSIS" on the Investigation Report.) |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-acci/AA2024-3-2-JA9678.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA9678(3).pdf (English) |




| 5 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
|---|---|---|---|---|
| | June 27, 2024 | March 23, 2021<br>Aoki-mura, Chiisagata-gun, Nagano Prefecture | Privately owned | JA6050<br>AÉROSPATIAL AS350B<br>(Rotorcraft) |

| | | |
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| | Summary | The rotorcraft took off from Tokyo Heliport in Tokyo to transport personnel, and while the helicopter was flying toward Matsukawa Temporary Operation Site, Matsukawa-mura, Kitaazumi-gun, Nagano Prefecture, its engine power decreased over the vicinity of Aoki-mura, Chiisagata-gun, Nagano Prefecture. Therefore, the helicopter attempted to make a forced landing on a farm road in Ogami, Aoki-mura, resulting in a hard landing, which caused the captain and three passengers to sustain serious injuries, and two passengers to sustain minor injuries. The helicopter was destroyed but no fire broke out. |
| | Probable Causes | The JTSB concludes that the probable cause of this accident was that as the helicopter's engine power most likely decreased during cruising flight, the helicopter attempted to make a forced landing on a farm road in autorotation[*1], and made a hard landing, resulting in injuries to the captain and passengers and the destruction of the helicopter.<br>It is highly probable that the helicopter's engine power decreased during the flight because the power turbine shaft fractured due to the engine's power turbine front bearing seizure, however, it was not possible to determine the cause of the power turbine front bearing seizure. And the reason why it became a hard landing at the time of the forced landing was most likely because in autorotation landing, the altitude at flare[*2]-out became high, and the rate of descent before the touchdown was not sufficiently controlled.<br><br>[*1] "Autorotation" refers to an autorotation flight, and flight condition in which the main rotor blades responsible for the lift are driven only by the aerodynamic force completely at the time of the rotorcraft in motion. (Airworthiness Inspection Manual)<br>[*2] "Flare" refers to deceleration operation for landing, which allows the rate of descent to reduce by converting kinetic energy into potential energy. |

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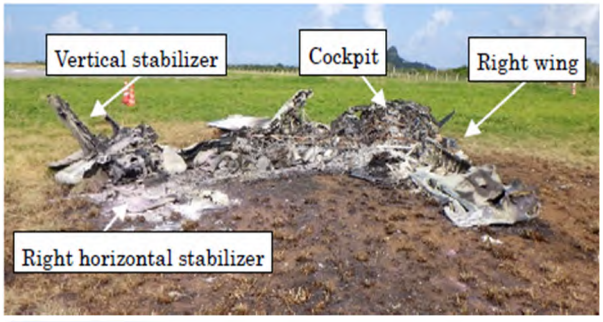
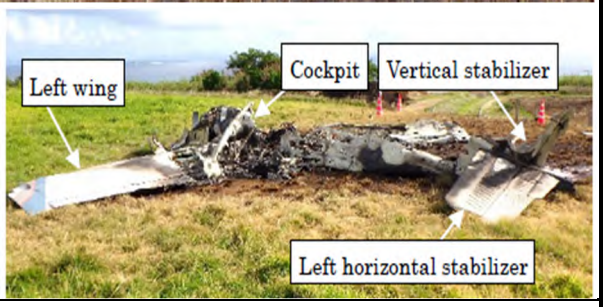
| | Safety Actions | (1)As private pilots who fly single-engine helicopters have limited opportunities to take the training of one of emergency procedures taken at the time of engine power loss, it is important for them to fly considering the height velocity-envelope[*3], weight, and wind direction / velocity, and it is important to conduct trainings by imaging the landing site, approach direction, and operations at touchdown in case of attempting a forced landing in autorotation in a daily basis.<br>(2) In case of attempting a forced landing in autorotation, in accordance with the emergency operations procedures, it is necessary to maintain NR and airspeed before the start of flare maneuver. Making an autorotation landing on a narrow place requires such advanced skills of touchdown operations by flare, when is unable to bring the helicopter into the wind, or its weight is too heavy, in order to reduce the load at touchdown as much as possible, it is important for a pilot to select the widest possible site and try to land.<br>(3) When the power turbine front bearing of the same type of engine was replaced, it is desirable for the design and manufacturer company collect the replaced parts, examine the deterioration status, and consider additional countermeasures.<br>[*3] The "height-velocity-envelop, or H/V curve" is a graph charting the height and speed at which a helicopter can safely transition from normal flight to autorotation. |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-acci/AA2024-4-2-JA6050.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA6050.pdf (English) |

| 6 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
|---|---|---|---|---|
| | June 27,2024 | March 12, 2022<br>Iejima Airport, Okinawa Prefecture | Non-Profit Organization (NPO) Mesh Support | JA4577<br>BEECHCRAFT A36<br>(Small aeroplane) |
| | Summary | When making an approach to Runway 04 at Iejima Airport for familiarization training, the aircraft operated by the NPO Mesh Support, collided with the fence and slopes short of the runway, and then the aircraft bounced, crashed into the grassy area short of the runway, and was destroyed and bursting into flames.<br>On board the aircraft were the captain and one passenger, who suffered fatal injuries. |  <br>  | |
| | Probable Causes | The JTSB concludes that the probable cause of this accident was likely that the aircraft collided with the fence and its posts, and slopes in the airport because it failed to correct its lowered approach path when approaching Runway 04 at Iejima Airport. After that, it is more likely that the aircraft bounced, crashed into the grassy area short of the runway, and the aircraft was destroyed and went up in flames.<br>Regarding the reason the aircraft failed to correct its lowered approach path, it was not possible to determine because the aircraft was not equipped with a flight data recorder and others, the only records available to verify the flight conditions were radar wake records, the persons onboard member were fatally injured, and the aircraft was severely damaged. | |
| | Safety Actions | It is desirable that the NPO should consider the necessity to enhance the system that would allow them to sufficiently manage not only training but also daily operation and maintenance in order to maintain safe operations, which is a prerequisite for their activities. (See "3. ANALYSIS" on the Investigation Report.) | |

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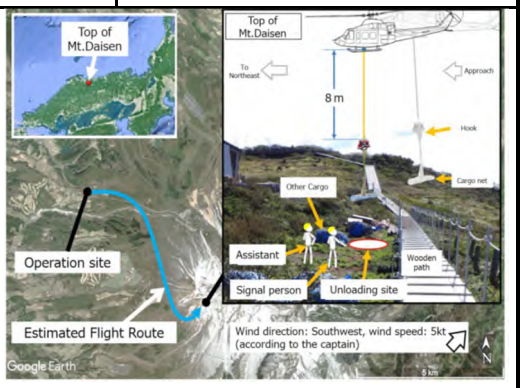
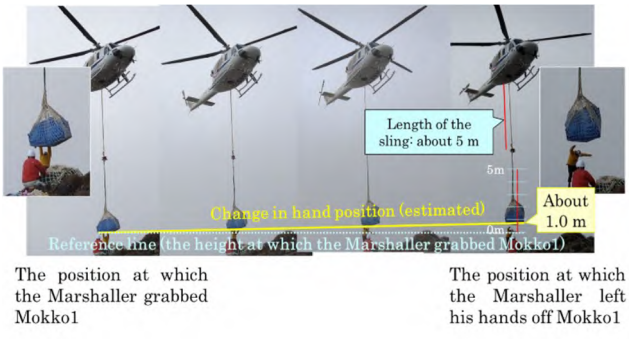
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-acci/AA2024-4-1-JA4577.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA4577.pdf (English) | | |
| 7 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
| | July 25, 2024 | September 29, 2023<br>Daisen Town, Saihaku District, Tottori Prefecture | Shikoku Air Service Co., Ltd. | JA6977<br>Bell 412EP (Rotorcraft) |
| | Summary | When the helicopter unloaded the Cargo covered by a cargo net*1 (hereinafter referred to as "Cargo net") at the top of Mt. Daisen in Daisen Town, Saihaku District, Tottori Prefecture, it came into contact with a ground operator and the ground operator was seriously injured.<br><br>*1"Cargo net" refers to a tool used to wrap and suspend loads by attaching suspension straps to the four corners of the rope woven nets. | | |
| | Probable Causes | The JTSB concludes that in this accident, it is certain that the signal person was injured because while the helicopter was unloading, the Cargo net swung and hit the left leg of the signal person who had moved to the side of the wooden path thinking that assistance work might be required.<br>It is highly probable that the Cargo net hit the signal person because during unloading, the signal person was in the range where the Cargo net could swing and reach. Distracted by the assistant moving between the Cargo net and other cargo, the signal person took the eyes off from the Cargo net, which also more likely contributed to. | | |
| | Safety Actions | The company needs to ensure that ground operators are fully aware of the ground work (unloading) precautions that the company has established. In addition, if assistance work such as adjusting position or direction of suspended cargo is expected, it is required that the work should be done in a way that allows assistance work to be conducted in the safe position even if the suspended cargo swings, for example by attaching a rope for assistance work. | | |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-acci/AA2024-5-1-JA6977.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA6977.pdf (English) | | |
| 8 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
| | August 29, 2024 | November 28, 2022<br>Miyakonojo City, Miyazaki Prefecture | Shikoku Air Service Co., Ltd. | JA6977<br>Bell 412EP (Rotorcraft) |
| | Summary | The rotorcraft operated by Shikoku Air Service Co., Ltd., was lifting a cargo during cargo sling operation near the summit of Mt. Ohachi in the Kirishima Mountain Range, Miyakonojo City, Miyazaki Prefecture, the cargo away from the ground came close to a ground operator. Unable to avoid the approaching cargo, the ground operator grabbed it by his hands and his body was lifted along with the cargo. The ground operator left the hands from the cargo immediately after that but was injured when landing on the ground. | | |



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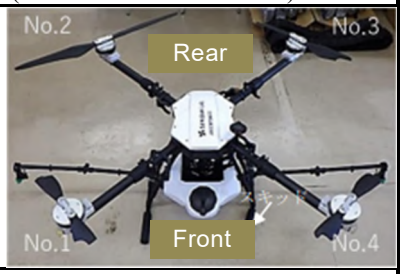
|---|---|---|
| | Probable Causes | The JTSB concludes that the probable cause of this accident was that a cargo (Mokko[*1]) lifted by the helicopter swung backward when being away from the ground and came closed to the Marshaller, then the Marshaller unable to avoid the Mokko grabbed it by his hands, but left the hands from the Mokko immediately after being lifted along with the Mokko, and fell, most likely resulting in sustaining injuries in landing on the ground.<br>The Mokko swung backward was probably because the helicopter was subject to the wind blowing up from the crater (disturbance), thus its hovering attitude and position were not stable and the deviation between the positions of the Mokko and the helicopter was created, but despite of this situation, the helicopter started the sling cargo operation, which probably contributed to it.<br>Besides, the Marshaller had fallen into the situation where the Marshaller was unable to avoid the approaching Mokko was likely because while the Marshaller was unable to secure enough safe space to move away in the surrounding area, the Mokko was lifted, furthermore likely because they did not properly perform hazard prediction and preliminary education for the work environment peculiar for the cargo sling operation by helicopter such as confirmation of the helicopter movement at the summit and the refuge area to move away around the Mokko.<br>[*1] "Mokko" refers to a tool used to wrap and suspend loads by attaching suspension straps to the four corners of the rope woven nets. |
| | Safety Actions | (1) From a viewpoint of preventing accidents attributed to the peculiarities of the cargo transport by helicopter in which different companies from different industries work together, the Company needs to ensure to perform the items specified in the Manual, such as hazard prediction including confirmation of refuge area to move away, and preliminary education for the workers. (See "3. ANALYSIS" on the Investigation Report.)<br>(2) It is desirable that the Company should assign personnel with expertise in aircraft operations, identify hazards and evaluate risks from an objective perspective, without being immersed in the work in case of expecting the work environment different from the usual one such as the Summit Cargo Sling Site. (See "3. ANALYSIS" on the Investigation Report.) |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-acci/AA2024-6-1-JA6977.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA6977-2.pdf (English) |

| 9 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
|---|---|---|---|---|
| | August 29, 2024 | July 14, 2023<br>Kokonoe Town, Kusu District, Oita Prefecture | Privately owned | JU32367E6C22<br>Sami Sami Lab's SAMI SAMI AGV2<br>(Small UA and multirotor) |
| | Summary | The small UA crashed after colliding with a road sign pillar while flying in Kokonoe Town, Kusu District, Oita Prefecture, to practice pesticide spraying. At that time, the operator came into contact with the rotating propeller of the small UA and was seriously injured. |  | |
| | Probable Causes | In this accident, it is highly probable that the operator was seriously injured because the operator who was approaching the aircraft came into contact with the rotating propeller after the aircraft collided with a road sign pillar, changed direction toward the operator, and crashed during pesticide spraying training flight.<br>The reason the operator was approaching the aircraft is more likely to be that the operator was flying the aircraft without being aware of the safe separation distance from the aircraft. Additionally, the reason the aircraft collided with the pillar is more likely to be that the operator was flying the aircraft without being aware of the boundaries of the spray area and the safe separation distance from obstacles, and that the operator made an error when interrupting the automatic flight, which made the stopping distance longer than usual. | | |

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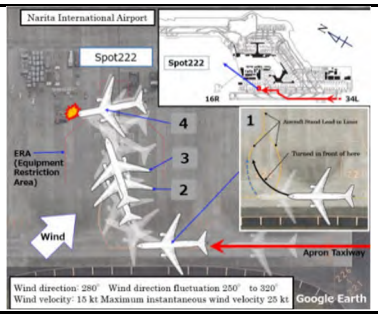
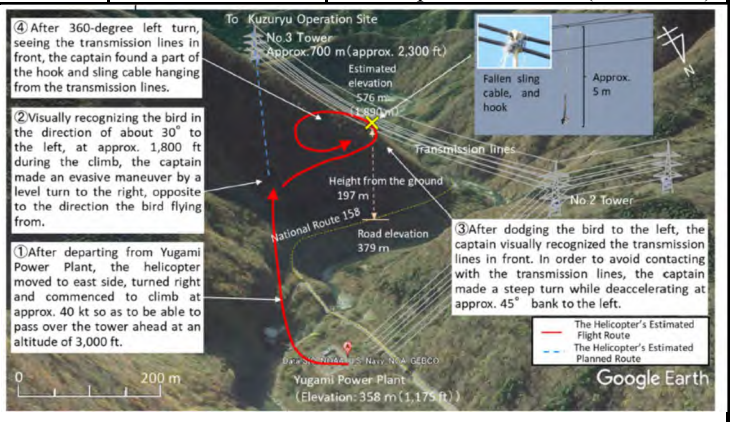
| | Safety Actions | To prevent the recurrence of similar accidents, operators using small UA for aerial spraying must consider the shape of the spraying area and the position of nearby obstacles, arrange assistants at positions according to the flight path, and ensure a safe distance between the aircraft and the boundaries of the spraying area, obstacles, and between the operator and third parties during flight. Moreover, it is important for the operator to always maintain a safe distance to avoid obstacles in preparation for unexpected situations and to be proficient in avoidance maneuvers. | | |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-acci/AA2024-6-2-JU32367E6C22.pdf (Japanese only) | | |
| 10 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
| | September 26, 2024 | August 1, 2021<br>Sendai Airport | Privately Owned | JA4077<br>Piper PA-46-350P (Small aeroplane) |
| | Summary | The aircraft sustained substantial damage when landing at Sendai Airport during the landing roll because it tilted forward with the nose down, the propellers and the lower forward fuselage contacting with the runway surface. A total of two persons on board the aircraft, including a captain and a passenger, and there were no injuries.   | | |
| | Probable Causes | The JTSB concludes that the probable cause of this accident was certainly that during the landing roll, fractured was the right foot of the left and right actuator attachment feet fixing the actuator that retained the NLG in the down-locked position, therefore, loads from the NLG concentrated on the left attachment foot, which deformed the engine mount that could no longer support the actuator, leading to the collapse of the aircraft's NLG in the retracted direction. It is certain that because the NLG collapsed in the retracted direction, the aircraft tilted forward, the propellers and the lower forward fuselage contacting with the runway surface to be damaged as well as the actuator in the extended position hit the firewall, deforming it.<br>The right actuator attachment foot fractured was probably because cracks originating from the inner surface of the right actuator attachment foot had occurred in the past due to impacts at the time of landings and others and progressed over the repeated flights.<br>Regarding the occurrence of the cracks that originated from the inner surface of the right actuator attachment foot, the corrosion that occurred on the inner surface possibly contributed to it. | | |
| | Safety Actions | It is probably effective for same model airplanes as the aircraft, equipped with the original engine mount to appropriately conduct the fluorescent penetrant inspection instructed by the Service Bulletin and/or replace the original engine mount with the redesigned one in order to prevent recurrence of similar accidents. (See “3. ANALYSIS” on the Investigation Report.) | | |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-acci/AA2024-7-1-JA4077.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA4077.pdf (English) | | |
| 11 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
| | September 26, 2024 | January 25, 2023<br>Narita International Airport | All Nippon Airways Co., Ltd. | JA603A<br>Boeing 767-300<br>(Large aeroplane) |

| | | | | |
|---|---|---|---|---|
| | Summary | The aircraft operated by All Nippon Airways Co., Ltd., landed at Runway 34L at Narita International Airport, and turned toward its Spot during taxing within the apron, however, slid on the icy surface of the Spot and collided with a ground service equipment parking in the vicinity, resulting in damage to the airframe.   | | |
| | Probable Causes | The JTSB concludes that it is certain that the probable cause of this accident was that while turning toward the Spot, the aircraft slid on the icy surface on the Spot and the PIC became unable to control the taxiing of the aircraft, thus the aircraft collided with a ground service equipment parking around the Spot, resulting in damage to the airframe.<br>The aircraft slid on the icy surface probably because the surface conditions on the Spot had not been fully improved for the taxing of the aircraft, and its taxiing speed was not the one to cope with the surface conditions on the Spot.<br>The surface conditions on the Spot had not been fully improved because the spray range and amount of the anti-icing agents were inappropriate, which probably contributed to it. In addition, the aircraft's taxiing speed was not the one to cope with the surface conditions on the Spot probably because the information that would affect the taxiing of aircraft was not provided to the flight crewmembers of the aircraft from the ground. | | |
| | Safety Actions | It is important for the company to stipulate the specific spray procedures for the anti-icing agents to ensure the spot surface conditions are suitable for aircraft to taxi safely. In addition, it is important for those who support aircraft operations by the Operation Assistant and others from the ground to ensure to provide timely the flight crewmembers with the information not limiting to the surface conditions of spots but could affect aircraft taxiing control. (See "3. ANALYSIS" on the Investigation Report.) | | |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-acci/AA2024-7-2-JA603A.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA603A.pdf (English) | | |
| 12 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
| | September 26, 2024 | June 28, 2023<br>Near Shimojishima Airport, Okinawa Prefecture | PD Aerospace, LTD. | JX0163<br>PD Aerospace PDAS-X06<br>(Self-made and pilotless aircraft) |
| | Summary | The self-made and pilotless aircraft lost radio communication with the control system immediately after take-off from Runway 17 at Shimojishima Airport for a test flight and subsequently landed on the sea north of Shimojishima Airport, resulting in a total loss.   | | |
| | Probable Causes | The probable cause of this accident was that the self-made and pilotless aircraft was about to deviate from the pre-set test flight airspace during the test flight, triggering the FTS mode (a function to prevent deviation from the test flight area), which automatically controlled the aircraft to land on the sea surface, resulting in a total loss due to the impact at landing.<br>It is probable that the self-made and pilotless aircraft was about to deviate from the pre-set test flight airspace due to the following factors:<br>・The loss of communication with the pilot led to a switch to autopilot.<br>・An unintended altitude drop occurred while flying on autopilot, causing the aircraft to switch to RTH Climb mode, with priority given to regaining altitude. | | |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-acci/AA2024-7-4-JX0163.pdf (Japanese only) | | |
| 13 | Date of | Date and location | Operator | Aircraft registration number |

| | | | | |
|---|---|---|---|---|
| | publication | | | and aircraft type |
| | September 26, 2024 | June 5, 2024<br>Yoron Airport, Kagoshima prefecture | Privately owned | JA3712<br>Piper PA-28-151<br>(Small aeroplane) |
| | Summary | While the aircraft was landing at Yoron Airport, it deviated from the runway and collided with the airport's perimeter fence, resulting in damage the leading edges of both wings, and so on.<br>  <br>(Provided by the Civil Aviation Bureau) | | |
| | Probable Causes | The JTSB concludes that the probable cause of this accident was that when the aircraft was on its landing roll and the rudder was used to correct its direction before it had sufficiently slowed down, and the left brake pedal was most likely pressed in the process, which activated the left brake, causing the aircraft to veer to the left, deviate from the runway, enter the grass field, and collide with the perimeter fence, damaging the aircraft. | | |
| | Safety Actions | In the initial training, it is desirable to instruct student pilots to correct heading during the ground run after landing by using the appropriate amount of rudder depending on the speed and to master the appropriate foot position when using the rudder. (See “3. ANALYSIS” on the Investigation Report.) | | |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-acci/AA2024-7-3-JA3712.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA3712.pdf (English) | | |
| 14 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
| | October 31, 2024 | June 16, 2023<br>Naha Airport | Privately owned | JA5309<br>Cessna T303<br>(Small aeroplane) |
| | Summary | While the aircraft was on the apron at Naha Airport undergoing an engine function check in preparation for departure, white smoke was seen coming from around No. 1 engine (left) and a warning light indicating a possible engine fire came on, thus the captain shut down both engines. Only the captain was on board the aircraft, no injuries. There was evidence of a fire in the engine cowl housing No.1 engine (left) of the aircraft. | | |
| | Probable Causes | The JTSB concludes that the probable cause of this accident was that the fire on the aircraft was most likely caused by damage to the coupling that connects the turbine part in the left engine cowling to the exhaust tailpipe, which caused the exhaust tailpipe to detach, allowing the hot exhaust gases to be ejected, resulting in a fire from the burning of the heat shield installed at the vicinity of the connections, and hoses and part of the engine cowling.<br>It is possible that the use of the coupling, which was a non-specified part, was likely to have contributed to the cause of the coupling damage. | | |
| | Safety Actions | It is essential that aircraft users should properly inspect and maintain the aircraft in accordance with the latest version of the manufacturer's manual. In addition, it is important to take appropriate actions such as carrying out a detailed inspection when some changes and others that are different from the usual are found during the daily inspection. Besides, it is important that aircraft users should use the specified parts that are certified to meet airworthiness standards.<br>Furthermore, in order to prevent the recurrence of similar accidents, it is essential to carry out regular replacement and others of the coupling in accordance with the Technical Circular Directive (TCD-10180-2023) issued by the Civil Aviation Bureau, Ministry of Land, Infrastructure, Transport and Tourism on September 4, 2023. (See “3. ANALYSIS” on the Investigation Report.) | | |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-acci/AA2024-8-1-JA5309.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA5309.pdf (English) | | |

## Aircraft serious incident investigation reports published in 2024

<table>
<tr><td rowspan="4">1</td><td>Date of publication</td><td>Date and location</td><td>Operator</td><td>Aircraft registration number and aircraft type</td></tr>
<tr><td>January 25, 2024</td><td>Janurary 21, 2023<br>Naganoshi glider site, Nagano City, Nagano Prefecture</td><td>Nagano Gliding Association</td><td>JA2524<br>PZL-Bielsko Model SZD-51-1 Junior (Glider, Single-Seater)</td></tr>
<tr><td>Summary</td><td colspan="3">When the glider landed at Naganoshi glider site in Nagano City, Nagano Prefecture, its lower surface of the fuselage forward section touched the runway, resulting in damage to the glider. On board the glider was a captain only, who was not injured.</td></tr>
<tr><td>Probable Causes</td><td colspan="3">The JTSB concludes that the probable cause of this serious incident was that the lower surface of the fuselage forward section more likely contacted with the runway surface because the nose of the glider went down immediately before the touchdown and glider sank with the nose-down attitude. It is probable that the nose of the glider went down because after the glider floated as its nose was excessively up during the approach, the flare maneuvers[*1] were initiated before the glider started sinking again, and the captain, who felt the glider shaken, thought about the possibility of stall, and quickly pushed forward the control stick in order to make nose down operations.<br><br>[*1] “Flare maneuver” refers to a series of nose-up control inputs in order to help minimize landing impact for a smooth landing.</td></tr>
<tr><td></td><td>Safety Actions</td><td colspan="3">It is desirable for glider pilots to image the countermeasures in advance in order to response to even the circumstances different from those originally envisaged, such as deviating from the planned route during the approach for landing, before making flight. In addition, even when the glider floats as its nose is excessively up before the touchdown, it is necessary to ensure thoroughly basic procedures such as making flare maneuvers and airbrakes[*2] control according to the sink without rapid nose-down control inputs to attempt to land. (See “3. ANALYSIS” on the Investigation Report.)<br><br>[*2] “The airbrakes” refer to the resistance boards mounted on the upper surfaces of the main wings and are extended to modify the lift. When the airbrakes are extended, the lift is reduced, and glider pilots adjust the path angle by operating the lever during the approach for landing. They are also called “dive brakes”.</td></tr>
<tr><td></td><td>Report</td><td colspan="3">https://jtsb.mlit.go.jp/aircraft/rep-inci/AI2024-1-1-JA2524.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA2524.pdf (English)</td></tr>
<tr><td rowspan="3">2</td><td>Date of publication</td><td>Date and location</td><td>Operator</td><td>Aircraft registration number and aircraft type</td></tr>
<tr><td>February 29, 2024</td><td>October 24, 2022<br>Ono City, Fukui Prefecture</td><td>Nakanihon Air Co., Ltd.</td><td>JA02AH<br>Eurocopter AS 350 B3(Rotorcraft)</td></tr>
<tr><td>Summary</td><td colspan="3"> 

After completing the cargo transportation in the vicinity of Yugami Power Plant, the aircraft was flying toward Kuzuryu Ski Resort Temporary Operation Site in Ono City, Fukui Prefecture from the loading site in Yugami Power Plant in Ono City, Fukui Prefecture. During this flight, the underslung sling cable was broken as contacting with transmission lines and a part of the hook and sling cable dropped. The sling cable was broken and damaged, in addition, the transmission lines were damaged and required some repair or replacement. There was neither damage to the</td></tr>
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<tr><td></td><td></td><td colspan="3">helicopter nor to the personnel inside and outside the helicopter.</td></tr>
<tr><td></td><td>Probable Causes</td><td colspan="3">The JTSB concludes that the probable cause of this serious incident was that it is highly probable that while the helicopter was making an evasive from transmission lines maneuver by a steep turn, the underslung sling cable contacted with the two transmission lines, and the contact areas on the sling cable were burnt out and severed, then a part of the sling cable and the hook fell onto the transmission line.<br>The reason why the sling cable contacted with the transmission lines was because when the helicopter made a steep turn to avoid a bird strike after a big bird was spotted during the climb, the attention to the transmission lines was diminished, and a level turn was made at the same altitude as the transmission lines, which most likely brought the sling cable to an altitude in which the sling cable would come into contact with the transmission lines and did not allow sufficient clearance.</td></tr>
<tr><td></td><td>Safety Actions</td><td colspan="3">A helicopter’s cargo transportation in a mountain region is carried out in narrow areas, it is expected not to have sufficient clearance from obstacles. Therefore, even in the event of encountering hazard such as birds, it is necessary to select in advance such a flight route as enabling to ensure sufficient clearance not to be close to linear obstacles linear obstacles such as transmission lines or overhead wires and fly a helicopter while doing in-flight communication so as not to diminish the attention to linear obstacles.</td></tr>
<tr><td></td><td>Report</td><td colspan="3">https://jtsb.mlit.go.jp/aircraft/rep-inci/AI2024-2-1-JA02AH.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA02AH.pdf (English)</td></tr>
<tr><td>3</td><td>Date of publication</td><td>Date and location</td><td>Operator</td><td>Aircraft registration number and aircraft type</td></tr>
<tr><td></td><td>June 27, 2024</td><td>July 20, 2023<br>Yao Airport, Yao City, Osaka Prefecture</td><td>Asahi Airlines Co.,Ltd.</td><td>JA58GC<br>TEXTRON AVIATION G58<br>(Small aeroplane)</td></tr>
<tr><td></td><td>Summary</td><td colspan="3">  <br>When approaching and touching down on Runway 27 at Yao Airport as being operated by the trainee for touch-and-go training, the aircraft repeated bouncing[*1], then executed a go-around controlled by the captain who was the instructor. The post-flight check made by the mechanics found each blade tip of left propeller was damaged, and then confirmed scratch marks on the runway. On board the aircraft were three persons in total with an instructor, a trainee, and a passenger, but no one was injured.<br><br>[*1] A “bouncing” is a phenomenon where an aircraft bounces back into the air after the aircraft touched down during landing.</td></tr>
<tr><td></td><td>Probable Causes</td><td colspan="3">The JTSB concludes that the probable cause of this serious incident was that during the continuous touch-and-go training, the aircraft bounced at the time of the first touchdown and made a hard touchdown on the nose landing gear while being tilted to the left at the time of the second touchdown, which more likely caused each blade tip of left side propeller to come to contact with the runway.<br>It is probable that the aircraft made a hard touchdown on the nose landing gear was because the maneuvering operation failed to properly control the aircraft's attitude and power to set the speed required when the aircraft passed the runway approach end, in addition, despite such a condition that the aircraft would bounce at touchdown, they continued landing without executing a go-around.</td></tr>
<tr><td></td><td>Safety Actions</td><td colspan="3">The company should manage that the company’s pilots thorough to comply with the go around policy and to conduct in ensuring exterior inspections during pre- and post-flight checks.</td></tr>
<tr><td></td><td>Report</td><td colspan="3">https://jtsb.mlit.go.jp/aircraft/rep-inci/AI2024-3-2-JA58GC.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA58GC.pdf (English)</td></tr>
<tr><td>4</td><td>Date of publication</td><td>Date and location</td><td>Operator</td><td>Aircraft registration number and aircraft type</td></tr>
<tr><td></td><td>June 27, 2024</td><td>July 20, 2023<br>Kansai International Airport</td><td>China Postal Airlines LLC</td><td>B-5156<br>Boeing 737-800</td></tr>
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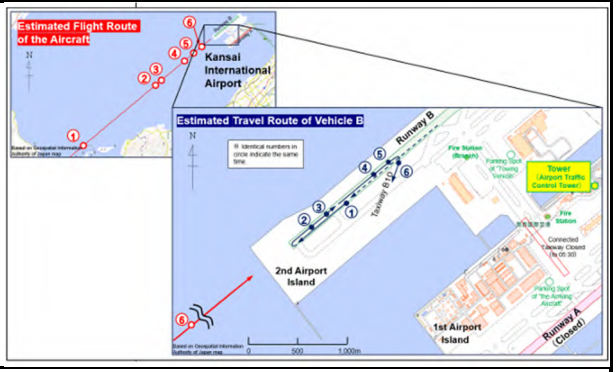
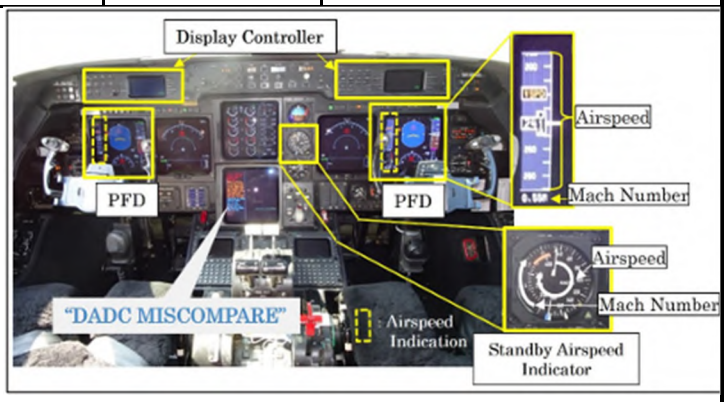
|---|---|---|---|---|
| | | | | (Large aeroplane) |
| | Summary | At Kansai International Airport, after receiving a landing clearance from an air traffic controller, the aircraft attempted to land on Runway 06L being used by a vehicle for runway inspection. |  | |
| | Probable Causes | The JTSB concludes that the probable cause of this serious incident was certainly that when Vehicle B was conducting a scheduled inspection on Runway B with the entry permission, the Tower cleared the aircraft to land on the runway, therefore, the aircraft attempted to land.<br>The reason why the Tower cleared the aircraft to land on Runway B despite the existence of Vehicle B on the runway was most likely because as the Tower received the incorrect information that the runway was clear from the Ground who was in charge of radio communications with Vehicle A and Vehicle B, and the Tower did not visually recognize Vehicle B on the runway, therefore, judged that Vehicle B had vacated the runway, thus there would be no obstacles and others on the runway.<br>It is highly probable that the Ground informed the Tower of incorrect information that the runway was clear was because the Ground mistook the report of vacating the runway from Vehicle A for that from Vehicle B. | | |
| | Safety Actions | When air traffic controllers engaged in ground control position's services receives a report from one of several vehicles especially permitted for entering that it has vacated the runway, it is important that they should read it back to the vehicle concerned with the information on the specific runway designator and the current position. Besides, it is important to prevent misidentification of communication parties by thoroughly ensuring the basic actions of communication including conveying the specific information to the related control positions and mutually confirming it. Furthermore, it is important that air traffic controllers engaged in the tower control position's services ensure that the basic actions should be taken to confirm there would be no vehicle on the runway when issuing the take-off and landing clearance. (See "3. ANALYSIS" on the Investigation Report.) | | |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-inci/AI2024-3-1-B-5156.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/B-5156.pdf (English) | | |
| 5 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
| | August 29, 2024 | May 22, 2020<br>At an altitude of about 13,200m, about 300km southwest of Tokyo International Airport | Prime Jet, LLC | N146BG<br>GULFSTREAM AEROSPACE G-IV (Large aeroplane) |
| | Summary | The aircraft operated as a positioning flight by Prime Jet, LLC became the airspeed indications unreliable on both primary flight displays [*1] (PFDs) receiving the air-data from a remaining Digital Air Data Computer [*2] (DADC) when commencing the descent for landing while the flight crew members had deactivated one of the two DADCs, which the flight crew members decided that it had failure during the cruise for the |  | |

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|---|---|---|
| | | Tokyo International Airport after the take-off to position the Aircraft from Phnom Penh International Airport. After that, the Aircraft landed at Tokyo International Airport. There were three people on board, including two crew members other than the captain in the Aircraft, no one was injured, and the aircraft had no damage.<br><br>*1 "Primary Flight Display" is an integrated instrument that displays information necessary for flight, such as attitude, altitude, and speed.<br>*2 "Digital Air Data Computer" is a device that processes outside air information and digitally outputs such as altitude, speed, temperature, and others. |
| | Probable Causes | The JTSB concludes that the probable cause of this serious incident is certainly to be determined as falling under the category of multiple malfunctions in one or more systems installed on aircraft impeding the safe flight of aircraft because both airspeed indications became unreliable when the aircraft began the descent in the situation where the flight crew members deactivated No. 2 DADC determined to be faulty as the action for the DADC MISCOMPARE message and the PFDs for both seats use the data from No. 1 DADC.<br>It is possible that the reason that the airspeed indications on the PFDs for both seats, which had been using the data from No. 1 DADC became unreliable was because the aircraft was flying through airspace where ice crystals existed and the No. 1 pitot line was blocked. Regarding the operating status of No. 2 DADC determined to be faulty by the flight crew members, it could not be determined with almost no records on the DFDR except the one during the descent and few objective factual information. |
| | Safety Actions | The design and manufacturing company probably needs to reorganize the descriptions in the QRHs*3 related to DADC MISCOMPARE message. (See "3. ANALYSIS" on the Investigation Report.)<br><br>*3 "QRH" stands for Quick Reference Handbook, which describes the contents of the Airplane Flight Manual regarding emergency operations and performance for quick retrieval and viewing in actual flight operations. |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-inci/AI2024-4-2-N146BG.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/N146BG.pdf (English) |

| 6 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
|---|---|---|---|---|
| | August 29, 2024 | June 2, 2022<br>Kagoshima Airport | Independent Administrative Institution Civil Aviation College | JA74MD<br>Cirrus SR22<br>(Small aeroplane) |
| | | | Kagoshima International Aviation Co., Ltd. | JA02KG<br>Agusta A109E (Rotorcraft), |

| | | |
|---|---|---|
| | Summary | At Kagoshima Airport, while a Cirrus SR22, JA74MD, operated by Independent Administrative Institution Civil Aviation College, stopped on Taxiway T2 in preparation for take-off following the instruction from an air traffic officer, an Agusta A109E, JA02KG, operated by Kagoshima International Aviation Co., Ltd., attempted to approach and land to the take-off and landing position for helicopters (Helipad) established on the taxiway in order to perform a stop-and-go*1 being cleared by another air traffic controller.<br><br>*1 The "stop and go" means that an aircraft stops once on the runway (on the helipad set on the taxiway in this serious incident) and takes off from that position.<br><br>  <br>Aircraft B |
| | Probable | The JTSB concludes that the probable cause of this serious incident was certainly that the |

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| | Causes | Tower issued a clearance to perform a stop-and-go at the Helipad to Aircraft B, despite the presence of Aircraft A, which was stopped on the taxiway set with the Helipad.<br>It is highly probable that the reason why the Tower cleared Aircraft B to perform a stop-andgo at the helipad was because the Tower had not sufficiently visually confirmed that there were no aircraft and others there that could obstruct a stop-and-go by Aircraft B, and had not recognized the presence of Aircraft A.<br>The failure of the Tower to recognize the presence of Aircraft A was probably due to the fact that the Tower missed the opportunity to recognize the presence of Aircraft A because the Tower did not request prior approval from the Ground responsible for managing the Helipad and because the Ground did not transfer the radio communication for Aircraft A to the Tower. It is possible that a background factor in these incidents was the heavy workload on the Tower due to a temporary increase in traffic. | | |
| | Safety Actions | When the air traffic controller in charge of the tower control position issues a clearance for landing or stop-and-go and others, it is the basic actions to ensure sufficient visual confirmation that there would be aircraft and other obstructions in the vicinity. In addition, it is necessary for the control tower to ensure the safety of helicopters landing or performing stop-and-go on the Helipad and aircraft on the taxiway by establishing the specific procedures for approval and permission with regard to the method of operation and use of the Helipad and taxiway set with the Helipad as countermeasures to reduce risk. (See "3. ANALYSIS" on the Investigation Report.) | | |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-inci/AI2024-4-3-JA74MD_JA02KG.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA74MD_JA02KG.pdf (English) | | |
| 7 | Date of publication | Date and location | Operator | Aircraft registration number and aircraft type |
| | August 29, 2024 | July 14, 2023<br>Near Kohnan Airfield, Okayama City, Okayama Prefecture | Okayama Air Service Co., Ltd. | JA10AZ<br>CESSNA 172R<br>(Small aeroplane) |
| | Summary | The aircraft operated by Okayama Air Service Co., Ltd., was approaching Runway 09 at Kohnan Airfield when its engine was stopped. The aircraft continued to approach and stopped on the taxiway after landing on the runway. There were three persons on board the aircraft, consisting of the captain, a trainee, and a passenger, but no one was injured. |  | |
| | Probable Causes | The JTSB concludes that the probable cause of this serious incident was most likely that when the aircraft was flying, the fuel supply flow to the engine was interrupted, resulting in the engine shutdown. Regarding the interruption of fuel supply flow to the engine, it is possible that with the low remaining fuel flow in the fuel tanks, its fuel tank outlets were uncovered due to the change in flight attitude and the fuel flow to the engine decreased, which allowed air entered in the fuel line to interrupt the fuel flow to the engine. | | |
| | Safety Actions | It is important to load the sufficient fuel before flight according to the purpose and duration of the flight, and it is necessary to ensure that an aircraft does not prolong uncoordinated flight with low remaining fuel in the fuel tanks. (See "3. ANALYSIS" on the Investigation Report.) | | |
| | Report | https://jtsb.mlit.go.jp/aircraft/rep-inci/AI2024-4-1-JA10AZ.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-air_report/JA10AZ.pdf (English) | | |

## 7 Provision of factual information in 2024 (aircraft accidents and serious incidents)

The information (on aircraft serious incident) provided in 2024 was 1 case, the details thereof are as follows:

**The information provided on the serious aircraft incident on August 15, 2022**

(Information provided on March 29, 2024)

**(Summary of the Aircraft Serious Incident)**

On August 15, 2022, around 12:32 PM, a privately owned Christen Industries A-1 JA4083 (hereinafter referred to as "Aircraft A") was flying after take-off from Runway 14 at the Menuma Gliding Field in Kumagaya City, Saitama Prefecture, while towing an Alexander Schleicher ASK21 (glider) JA2520 (hereinafter referred to as "Aircraft B"), operated by RIKKYO UNIVERSITY. During this time, Aircraft B overtook Aircraft A from above, causing the tow line to break. While Aircraft B performed a towline detachment operation at an altitude of 500 meters, part of the tow line that had broken and remained on Aircraft B (made of polyester with a diameter of approximately 7 mm, approximately 60 m long, and weighing approximately 1.5 kg, including two metal connecting rings 4 cm in diameter (hereafter referred to as "ring pair")) fell.

Subsequently, Aircraft A landed normally at Runway 14 of the same gliding field at 12:39 PM, and Aircraft B landed at 12:44 PM. The fallen towline has not been discovered to date, and there have been no reports of damage to people or property on the ground.

**(Provision of Information)**

The investigation to date has revealed the following facts:

- Aircraft A is equipped with a retractable glider towing device approved by the Federal Aviation Administration of the Federal Republic of Germany (Luftfahrt-Bundesamt), which is designed to break the breaking point[*1] attached to the tip of the towline inside the stabilizer[*2] when a load exceeding the design load is applied, allowing the remaining towline on Aircraft A to be retracted by the device. However, the tip of the Japanese-made towline 1 used by Aircraft A did not have a braking point attached, and towline 1 had broken at a knot inside the stop egg[*3].
- Therefore, tow lines 1 and 2 as recommended by the designer and manufacturer of the device, and the breaking point (hereinafter referred to as the "Breaking Point (white)") of the type described in the working instructions (hereinafter referred to as the "Work Instructions") approved by the Federal Aviation Administration of the Federal Republic of Germany (Luftfahrt-Bundesamt), the country in which the device was designed and manufactured, were tested. When a tensile strength test was conducted (nominal tensile strength 500 ± 50 daN), the results were as shown in Attached Tables 1 and 2.
- The test results indicate that the tensile strength of the towline under operational conditions, where a single knot is made inside the stop egg, is weaker than the measured tensile strength of the breaking point (white). Therefore, even when the breaking point (white) is correctly attached and towline 2 as recommended by the designer and manufacturer of the device is used, it has been

found that there is a possibility that the towline will break at the knot made inside the stop egg before the breaking point (white) breaks.

*1 The "breaking point" refers to a metal plate that breaks when excessive load is applied to the towline, disconnecting the towline from the glider, and is also referred to as a "fuse," "breaking piece," "weak link," or "towline safety device."

*2 The "stabilizer" is also referred to as the "end piece" and is a fitting attached to the tip of the towline on the glider side (the towed aircraft side), connecting to the glider via the ring pair. The towline is threaded through the stabilizer, and an eight-shaped knot is made at the tip, which is then housed inside the stabilizer.

*3 The "stop egg" is an egg-shaped device attached to the end of the towline to prevent the towline from being pulled out further from the rear end of the towing aircraft, allowing the towline to stop with a stopper installed at the rear end of the towline. By making a knot in the towline inside the stop egg, it ensures that the position of the stop egg does not shift. This prevents the pulling force on the towline from being transmitted directly to the winding device under the towing glider.

*The details of the information provided is included on the website of the JTSB.
https://jtsb.mlit.go.jp/iken-teikyo/JA4083_JA252020240329.pdf (Japanese only)

# Chapter 4 Railway accident and serious incident investigations

## 1 Railway accidents and serious incidents to be investigated

**<Railway accidents to be investigated>**

**◎Article 2, paragraph (3), of the Act for Establishment of the Japan Transport Safety Board**

(Definition of railway accident)

"Railway accidents" mean serious accidents that falls under any of (1) to (3) and also falls under (4), as defined below.

(1) Accidents occurred during the operation of a train or vehicle (Article 19* of the Railway Business Act)

(2) Train collision, fire, or other accident during the operation of a train or vehicle occurred on dedicated railways

(3) Train collision, fire, or other accident during the operation of a train or vehicle occurred on tramways

(4) Serious accidents prescribed by the Ordinance of the Ministry of Land, Infrastructure, Transport and Tourism (Article 3 of the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board)

*Train collision, fire, or other accidents during the operation of a train or vehicle, which is prescribed by the Ordinance of the Ministry of Land, Infrastructure, Transport and Tourism (Paragraph 1, Article 3 of the Ordinance on Report on Railway Accidents)

**○Article 3 of the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board** (Serious accidents)

1 Accidents listed in items (1) to (3) in Article 3, paragraph 1 of the Ordinance on Report on Railway Accidents

(1) Train collision: An accident in which a train collides or contacts with another train or a vehicle.

(2) Train derailment: An accident in which a train derails (excluding those related to snowplows in operation).

(3) Train fire: An accident in which a train catches fire.

2 Accidents listed in items (4) to (6) in Article 3, paragraph 1 of the same Ordinance, which are listed in any of (a) to (d) below.

(4) Level crossing accident: An accident in which a train or vehicle collides or contacts with a person or vehicle passing on a level crossing road.

(5) Accident against road traffic: An accident in which a train or vehicle collides or contacts with a person or vehicle passing on a road other than a level crossing road.

(6) Other accidents with casualties: An accident causing injury or fatality in the operation of a train or vehicle.

(a) An accident involving the fatality of any passenger, crew member, etc.

(b) An accident involving five or more casualties with at least one of the casualties dead.

(c) A fatal accident that occurs at a level crossing with no automatic barrier machines.

(d) Accident found to have likely been caused by a railway worker's error in procedure or due to the malfunction, damage, destruction, etc. of vehicles or railway facilities, which resulted in the fatality of a person.

3 Accidents listed in items (2) and (4) to (7) in Paragraph 1, Article 3 of the same Ordinance, which are recognized as particularly exceptional.

(2) Train derailment: An accident in which a train derails

(4) Level crossing accident: An accident in which a train or vehicle collides or contacts with a person or vehicle passing on a level crossing road.

(5) Accident against road traffic: An accident in which a train or vehicle collides or contacts with a person or vehicle passing on a road other than a level crossing road.

(6) Other accident with casualties: An accident causing injury or death in the operation of a train or vehicle.

(7) Heavy property loss without casualties: An accident in which the operation of a train or vehicle causes damage to property of 5 million yen or more.

4 Accidents equivalent to those listed in items (1) to (7) in Paragraph 1, Article 3 of the same Ordinance occurred in dedicated railways, which are recognized particularly exceptional. (Accidents related to dedicated railways)

(1) Train collision: An accident in which a train collides or contacts with another train or a vehicle.

(2) Train derailment: An accident in which a train derails.

(3) Train fire: An accident in which a train catches fire.

(4) Level crossing accident: An accident in which a train or vehicle collides or contacts with a person or vehicle passing on a level crossing road.

(5) Accident against road traffic: An accident in which a train or vehicle collides or contacts with a person or vehicle passing on a road other than a level crossing road.

(6) Other accidents with casualties: An accident causing injury or death in the operation of a train or vehicle.

(7) Heavy property loss without casualties: An accident in which the operation of a train or vehicle causes damage to property of 5 million yen or more.

5 Accidents specified by the public notice of the Japan Transport Safety Board as an accident equivalent to the above 1 to 3 accidents that occurred on tramways (accident under Article 3, Item 5 of the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board and the situation under Article 4, Item 7 of the same Ordinance) (Accidents related to tramways)

**・Article 1 of the public notice stipulating the accident specified in Article 3, Item 5 of the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board and the situation specified in Article 4, Item 7 of the same Ordinance** (Accidents related to tramways)

1 Accidents specified in (1) to (6) in Article 1, Paragraph 1 of the Ordinance for Report of Tram Accidents, etc., which are listed in any of (a) to (c).

(1) Vehicle collision accident: An accident in which a vehicle operating on the main track collides with or contacts with another vehicle.

(2) Vehicle derailment: An accident in which a vehicle operating on the main track derails.

(3) Vehicle fire accident: An accident in which a vehicle operating on the main track catches fire.

(4) Level crossing accident: An accident where a vehicle collides or contacts with a person or vehicle on a level crossing road.

(5) Accident against road traffic: An accident in which a vehicle collides or contacts with a person or vehicle on a road other than a level crossing.

(6) Other accidents with casualties: An accident causing injury or death in the operation of a vehicle.

(a) An accident involving the death of a passenger, crew member, etc.

(b) An accident involving five or more casualties with at least one of the casualties dead

(c) A fatal accident that occurs at a level crossing with no automatic barrier machines

2. Accidents specified in the items (1) to (7) of the same Ordinance, which are recognized as particularly exceptional

(1) Vehicle collision accident: An accident in which a vehicle operating on the main track collides or contacts with another vehicle.

(2) Vehicle derailment: An accident in which a vehicle operating on the main track derails.

(3) Vehicle fire accident: An accident in which a vehicle operating on the main track catches fire.

(4) Level crossing accident: An accident in which a vehicle collides or contacts with a person or vehicle passing on a level crossing road.

(5) Accident against road traffic: An accident in which a vehicle collides or contacts with a person or vehicle passing on a road other than a level crossing road.

(6) Other accidents with casualties: An accident causing injury or death in the operation of a vehicle.

(7) Heavy property loss accident: An accident in which the operation of a vehicle causes damage to property of 5 million yen or more.

3. The operation of new tramways and shared tramways that are laid other than on the road surface shall follow the items (1) to (3) in Paragraph 1, Article 3 of the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board.

## Railway accidents to be investigated

<table>
<tr><td>Category</td><td>Train collision</td><td>Train derailment</td><td>Train fire</td><td>Level crossing accident</td><td>Accident against road traffic</td><td>Other accidents with casualties</td><td>Heavy property loss without casualties</td></tr>
<tr><td rowspan="2">Railway<br>[Act 2-3]<br>(including tramway operated as equivalent to railway)<br>[Notice 1-3]</td><td colspan="3">All accidents*1<br>[Ordinance 3-1]</td><td colspan="3">・Accidents involving the death of a passenger, crew member, etc.<br>・Accidents involving five or more casualties with at least one of the casualties dead<br>・Fatal accidents that occur at level crossings with no automatic barrier machines<br>・Accidents found to have likely been caused by a railway worker's error in procedure or due to the malfunction, damage, destruction, etc. of vehicles or railway facilities, which resulted in the death of a person<br>[Ordinance 3-2]</td><td></td></tr>
<tr><td></td><td colspan="2">Accidents that are particularly rare and exceptional [Ordinance 3-3]</td><td colspan="4">Accidents that are particularly rare and exceptional [Ordinance 3-3]</td></tr>
<tr><td>Dedicated railway</td><td colspan="7">Accidents that are particularly rare and exceptional [Ordinance 3-4]</td></tr>
<tr><td rowspan="3">Tramway<br>[Ordinance 3-5]</td><td>Train collision</td><td>Train derailment</td><td>Train fire</td><td>Level crossing accident</td><td>Accident against road traffic</td><td>Other accidents with casualties</td><td>Heavy property loss without casualties</td></tr>
<tr><td colspan="6">・Accidents involving the fatality of a passenger, crew member, etc.<br>・Accidents involving five or more casualties with at least one of the death<br>・Fatal accidents that occur at level crossings with no automatic barrier machines<br>[Notice 1-1]</td><td></td></tr>
<tr><td colspan="7">Accidents that are particularly rare and exceptional [Notice 1-2]</td></tr>
</table>

*1 Except for derailment accidents of working snowplows. [Ordinance 3-1] However, accidents that are particularly rare and exceptional are to be investigated. [Ordinance 3-3]

(Note) In the table, “Act” refers to the Act for Establishment of the Japan Transport Safety Board; “Ordinance” refers to the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board; “Notice” refers to the Public Notice by the Japan Transport Safety Board; and the numbers refer to the Article and Item numbers. (*In “Act,” the Article and Paragraph are abbreviated)

**<Railway serious incidents to be investigated>**

**◎Article 2, paragraph (4), item (ii), of the Act for Establishment of the Japan Transport Safety Board** (Definition of railway serious incident)

"Railway serious incident" is a situation prescribed by Order of the Ministry of Land, Infrastructure, Transport and Tourism (Article 4 of the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board), which may obviously cause a railway accident.

**○Article 4 of the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board**

*The names of the situations listed in 1 to 6 are abbreviations.

1 "Incorrect management of safety block"
A situation where a train starts moving for the purpose of operating in the relevant block section before completion of the block procedure and another train or vehicle had existed in the zone.

2 "Incorrect indication of signal"
A situation where a signal indicates that a train should proceed even though there is an obstacle in the route of the train or the route of the train is obstructed while the signal indicates that the train should proceed and a train had entered into the route.

3 "Violating red signal"
A situation where a train proceeds regardless of a stop signal, thereby obstructing the route of another train or vehicle and another train or vehicle had entered into the protected area of the signal which protects the zone of the route.

4 "Dangerous damage in facilities"
A situation that causes a malfunction, damage, destruction, etc., of tracks, safety facilities etc., and which caused malfunction, damage, destruction, etc. bearing particularly serious risk of collision or derailment of or fire in a train.

5 "Dangerous trouble in vehicle"
A situation that causes a malfunction, damage, destruction, etc., of running device, braking device, electrical device, coupling device, train protection system etc. of a vehicle, and caused malfunction, damage, destruction, etc., bearing particularly serious risk of collision or derailment of or fire in a train.

6 Any of "Incorrect management of safety block," "Incorrect indication of signal," "Violating red signal," "Main track overrun[*1]," "Violating closure section for construction[*2]," "Vehicle derailment[*3]," "Dangerous damage in facilities," "Dangerous trouble in vehicle," "Heavy leakage of dangerous object[*4]" and "A situation equivalent to the prior 9 items (others)," which is recognized as particularly exceptional.

*1 "Main track overrun" refers to a situation in which a train or vehicle overruns a main track between stations.
*2 "Violating closure section for construction" refers to a situation in which a train runs in a section during construction or maintenance work that should be done by stopping train operation.
*3 "Vehicle derailment" refers to a situation in which a vehicle derails, and includes the following situations;
・A vehicle derailed on a main track.
・A vehicle derailed on a side track and disrupted a main track.
・A vehicle derailed on a side track, and the cause can be attributed to a cause other than the equipment or handling specific to the side track.
*4 "Heavy leakage of dangerous object" refers to a situation in which hazardous materials, explosives,

etc., leak significantly from a train or vehicle.

7 Situations which are specified by the public notice (Article 2 of the Public Notice which defines the accident of Item 5, Article 3 of the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board and the situation of Item 7, Article 4 of the same Ordinance), as those equivalent to the situations of the items 1 to 6 above occurred on tramways.

**・Article 2 of the Public Notice which defines the accident of Item 5, Article 3 of the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board and the situation of Item 7, Article 4 of the same Ordinance** (Serious incident related to tramways)

*The names of the situations listed in 1 to 4 are abbreviations.

1 “Incorrect management of safety system”
A situation where a vehicle is operating on a main track for the purpose of operating in the relevant safety zone before the completion of safety system procedures and another vehicle operating on the main track had existed in the zone.

2 “Dangerous damage in facilities”
A situation that causes malfunction, damage, destruction, etc., of tracks, safety facilities, etc. that disrupts the safety of a vehicle operating on a main track, and caused malfunction, damage, destruction, etc., bearing a particularly serious risk of collision, derailment, or fire in the vehicle operating on the main track.

3 “Dangerous trouble in vehicle”
A situation that causes a malfunction, damage, destruction, etc., of running device, braking device, electrical device, coupling device, etc. of a vehicle, that disrupts the safety of a vehicle operating on a main line and caused malfunction, damage, destruction, etc., bearing a particularly serious risk of collision, derailment, or fire in the vehicle operating on the main track.

4 “Incorrect management of safety system” “Violating red signal[*1],” “Overrun on main track[*2],” “Dangerous damage in facilities,” “Dangerous trouble in vehicle,” “Heavy leakage of dangerous object[*3]” and “A situation equivalent to the prior 6 items (others),” which is recognized as particularly exceptional.

*1 “Violating red signal” refers to a situation in which a vehicle operating on a main track overruns a stop signal and obstructs a course of another vehicle.
*2 “Overrun on main track” refers to a situation in which a vehicle overruns a main track.
*3 “Heavy leakage of dangerous object” refers to a situation in which hazardous materials, explosives, etc., leak significantly from a vehicle.

5 The operation of new tramways and shared tramways that are laid other than on the road surface shall follow the items 1 to 6 in Article 4 of the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board.

## Serious incidents to be investigated

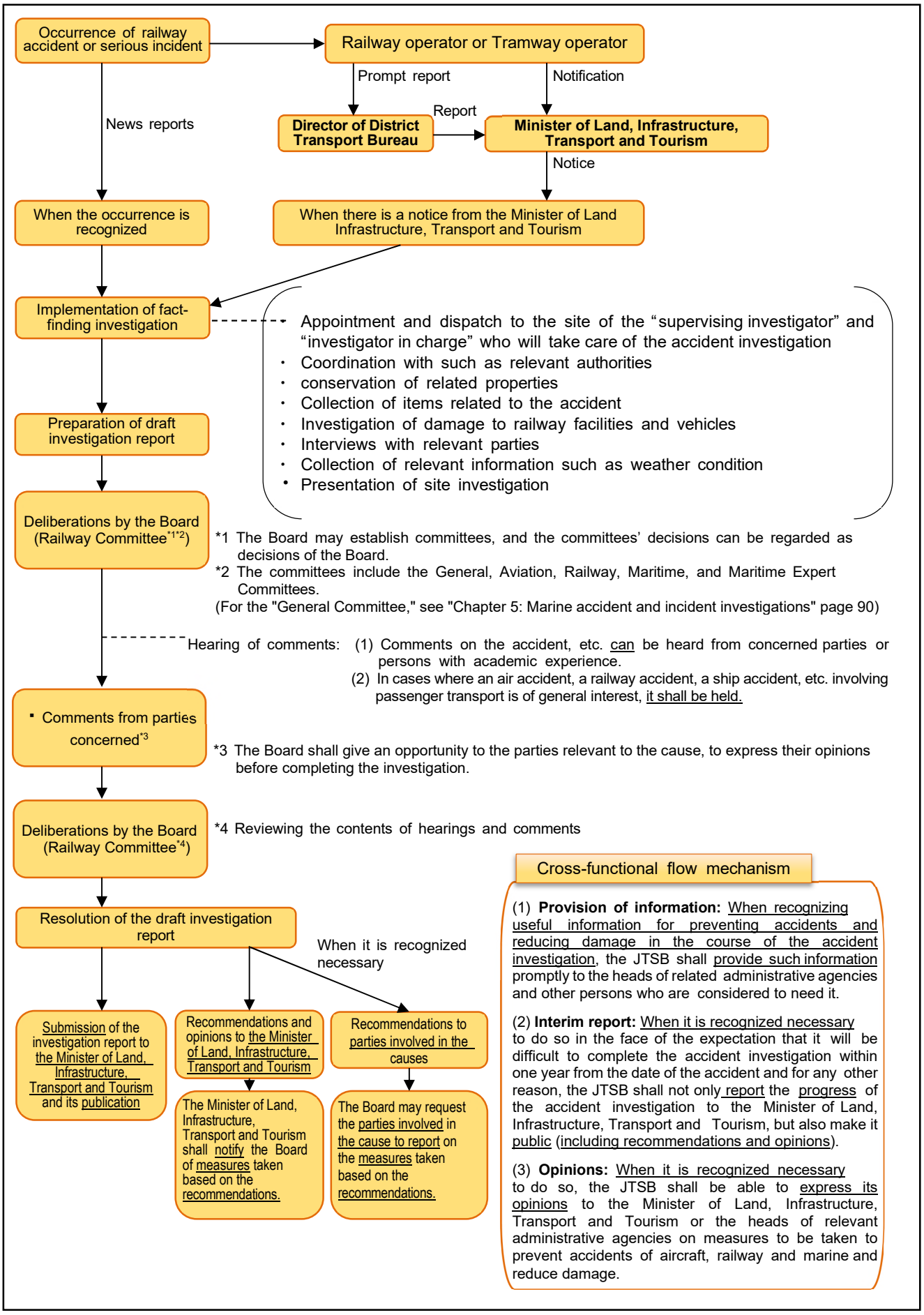
<table>
<tr><td>Category</td><td>Incorrect management of safety block</td><td>· Incorrect indication of signal<br>· Violating red signal</td><td>Dangerous damage in facilities</td><td>Dangerous trouble in vehicle</td><td>· Main track overrun<br>· Violating closure section for construction<br>· Vehicle derailment<br>· Heavy leakage of dangerous object<br>· Others</td></tr>
<tr><td rowspan="2">Railway<br>[Act 2-4-2]<br>(including tramway operated as equivalent to railway<br>[Notice 2-5])</td><td colspan="2">Certain conditions such as the presence of another train<br>[Ordinance 4-1, 4-2, 4-3]</td><td colspan="2">Risk of collision, derailment or fire<br>[Ordinance 4-4, 4-5]</td><td></td></tr>
<tr><td colspan="5">Incidents that are particularly rare and exceptional [Ordinance 4-6]</td></tr>
<tr><td></td><td>Incorrect management of safety system</td><td>Violating red signal</td><td>Dangerous damage in facilities</td><td>Dangerous trouble in vehicle</td><td>· Main track overrun<br>· Heavy leakage of dangerous object<br>· Others</td></tr>
<tr><td rowspan="2">Tramway<br>[Ordinance 4-7]</td><td>Certain conditions such as the presence of another vehicle<br>[Notice 2-1]</td><td></td><td colspan="2">Particularly remarkable risk of collision, derailment or fire [Notice 2-2, 2-3]</td><td></td></tr>
<tr><td colspan="5">Incidents that are particularly rare and exceptional [Notice 2-4]</td></tr>
</table>

(Note) In the table, “Act” refers to the Act for Establishment of the Japan Transport Safety Board; “Ordinance” refers to the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board; “Notice” refers to the Public Notice by the Japan Transport Safety Board; and the numbers refer to the Article and Item numbers. (*In “Act,” the Article, Paragraph, and Item are abbreviated)

*For details, see each case on the website of the JTSB.

https://jtsb.mlit.go.jp/images/example.pdf (Japanese)

## 2 Procedure of railway accident/serious incident investigation



## 3 Statistics of investigations of railway accidents and serious incidents

The JTSB carried out investigations of railway accidents and serious incidents in 2024 as follows:

From 2023, 10 accident investigations were carried over, and 10 were newly launched in 2024. Among these, 7 investigation reports were published in 2024, and 13 accident investigations were carried over to 2025.

Moreover, three railway serious incident investigations were carried over from 2023, and five serious incident investigations were newly launched in 2024. Among these, three investigation report was published in 2024, and five investigations were carried over to 2025.

Among the 10 investigation reports published in 2024, one was issued with recommendations, and none was issued with opinions.

Investigations of railway accidents and serious incidents in 2024

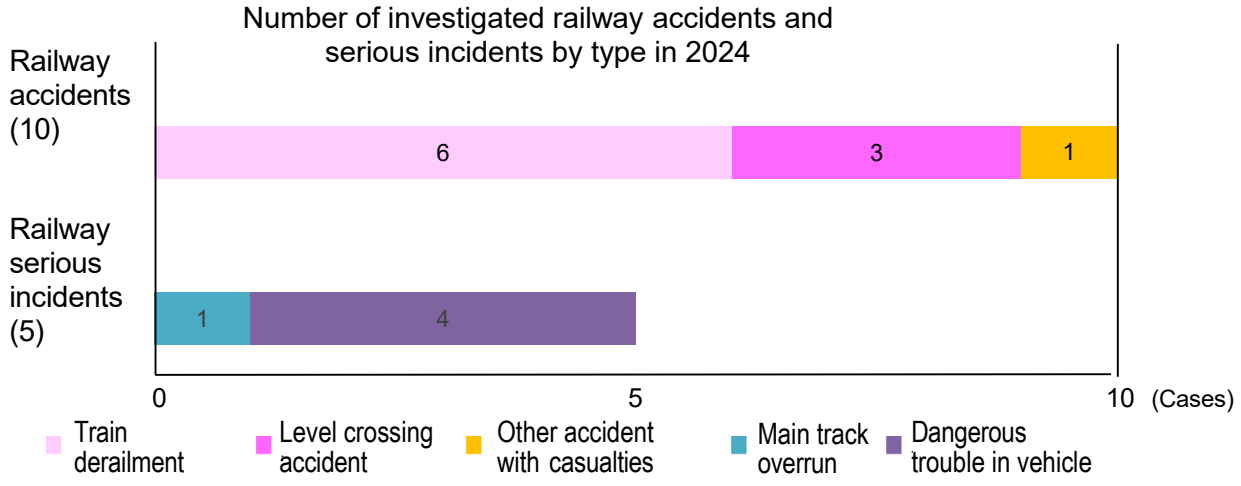
(Cases)

| Category | Carried over from 2023 | Launched in 2024 | Total | Published Investigation reports | (Recommendations) | (Opinions) | Carried over to 2025 | (Interim report) |
|---|---|---|---|---|---|---|---|---|
| Railway accident | 10 | 10 | 20 | 7 | (1) | (0) | 13 | (4) |
| Railway serious incident | 3 | 5 | 8 | 3 | (0) | (0) | 5 | (1) |

## 4 Statistics of investigated railway accidents and serious incidents in 2024

Regarding the number of railway accidents and incidents investigated in 2024, there were 10, a decrease of one from 11 in the previous year, and there were five serious railway incidents, an increase of three from 2 in the previous year.

The breakdown by type of accidents and serious incidents is as follows: The railway accidents consisted of six derailments, three level crossing accidents, and one other accident with casualties. As for railway serious incidents, there were one main track overrun and four dangerous troubles in vehicle.




There were six persons were fatally injured or injured in accidents, five of whom were fatality and one was injured.

The number of casualties (in railway accidents)

(Persons)

| 2024 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Category | Dead | | | Injured | | | Total |
| | Crew | Passenger | Others | Crew | Passenger | Others | |
| Casualties | 0 | 0 | 5 | 0 | 1 | 0 | 6 |
| Total | 5 | | | 1 | | | |

*The above statistics include incidents under investigation so may change depending on the status of the investigation and deliberation.

## 5 Summaries of railway accidents and serious incidents which occurred in 2024

The railway accidents and railway serious incidents which occurred in 2024 are summarized as follows.

(Railway accidents)

| 1 | Date and accident type | Railway operator | Line section (location) |
|---|---|---|---|
| | January 18, 2024<br>Level crossing accident | Kanto Railway Co., Ltd. | Between Mitsuma Station and Minami-Ishige Station on the Joso Line (Ibaraki Prefecture)<br>Heinai 2 Crossing (Class 4 level crossing without a crossing gate or road warning device) |
| | Summary | See “6 Publication of investigation reports” (No.7 on page 82). | |
| 2 | Date and accident type | Railway operator | Line section (location) |
| | February 13, 202<br>Train derailment (Level crossing accident) | Central Japan Railway Company | In the premises of Toyokawa Station on the Iida Line (Aichi Prefecture)<br>Suzuyo Crossing (Class 1 level crossing with a crossing gate and road warning device) |
| | Summary | The driver of this train, while running the section, recognized that a vehicle had stalled at the crossing and initiated an emergency stop, but the train collided with the vehicle.<br>Upon inspecting the site, it was found that the front first axle of its eight axles had derailed to the left side of the direction of travel. | |
| 3 | Date and accident type | Railway operator | Line section (location) |
| | April 6, 2024<br>Level crossing accident | Joshin Electric Railway Co., Ltd. | Between Maniwa Station and Nishiyamana Station on the Joshin Line (Gunma Prefecture)<br>Tensui Crossing (Class 4 level crossing without crossing gate nor road warning device) |
| | Summary | The driver of the train recognized a person entering the crossing from the left side of the direction of travel and initiated an emergency stop, but the train collided with the person.<br>The death of the person was later confirmed. | |
| 4 | Date and accident type | Railway operator | Line section (location) |
| | June 20, 2024<br>Level crossing accident | East Japan Railway Company | Between Sawame Station and Higashi-Hachimori Station on the Gono Line (Akita Prefecture)<br>Haginodai Crossing (Class 3 level crossing without crossing gate, but with road warning device) |
| | Summary | The driver of the train recognized a vehicle entering the crossing from the right side of the direction of travel and initiated an emergency stop, but the train collided with the vehicle.<br>The death of the person in the vehicle was later confirmed. | |
| 5 | Date and accident type | Railway operator | Line section (location) |
| | July 24, 2024<br>Train derailment | Japan Freight Railway Company | In the premises of Shin-Yamaguchi Station on the Sanyo Line (Yamaguchi Prefecture) |
| | Summary | The driver of this train recognized an unusual noise and shaking while running this section, and stopped the train. | |

| | | |
|---|---|---|
| | | Upon inspecting the site, it was found that one axle had derailed to the left side of the direction of travel. |
| 6 | Date and accident type | Railway operator | Line section (location) |
| | September 24, 2024<br>Train derailment | Hisatsu Orange Railway inc. | In the premises of Nodago Station on the Hisatsu Orange Railway Line (Kagoshima Prefecture) |
| | Summary | The driver of this train, when entering Notago Station, heard an unusual noise and applied the emergency brake to stop the train.<br>Upon inspecting the site, it was found that the front two axles had derailed to the left side of the direction of travel. | |
| 7 | Date and accident type | Railway operator | Line section (location) |
| | October 4, 2024<br>Train derailment | Isumi Railway Co., Ltd. | Between Kuniyoshi Station and Kazusa-Nakagawa Station on the Isumi Line (Chiba Prefecture) |
| | Summary | The driver of this train recognized an unusual noise and shaking while running this section, and initiated an emergency stop to stop the train.<br>Upon inspecting the site, it was found that the first car (third/fourth axles) and second car (all of the four axles) of an eight-axle, two-car train had derailed to the left side of the direction of travel. | |
| 8 | Date and accident type | Railway operator | Line section (location) |
| | November 16, 2024<br>Train derailment | Japan Freight Railway Company | Between Mori Station and Ishiya Signal Station on the Hakodate Line (Hokkaido) |
| | Summary | The driver of this train, while running in the section, stopped the train because the emergency brake was activated from the rear.<br>Upon inspecting the site, it was found that four freight cars (the second and fourth of its four axles of the 12th car, the second of the four axles of the 15th car, all the four axles of the 17th car, and the second and fourth of the four axles of the 19th car) had derailed to the right side of the direction of travel, and one freight car (all of the four axles of the 20th car) had derailed to the left side of the direction of travel. | |
| 9 | Date and accident type | Railway operator | Line section (location) |
| | December 10, 2024<br>Other accidents with casualties | Central Japan Railway Company | In the premises of Takatsuka Station on the Tokaido Line (Shizuoka Prefecture) |
| | Summary | The driver of this train, while running in the section, recognized a maintenance worker working on the track and initiated an emergency stop, but the train collided with the worker.<br>The death of the maintenance worker was later confirmed. | |
| 10 | Date and accident type | Railway operator | Line section (location) |
| | December 12, 2024<br>Train derailment | Japan Freight Railway Company | In the premises of Sendai Station on the Kagoshima Line (Kagoshima) |
| | Summary | The driver of this train recognized shaking while running this section, initiated an emergency stop, and stopped the train.<br>Upon inspecting the site, it was found that one locomotive (all six axles) and two freight cars (the four axles of the first train and three of the four axles of the second train) had derailed. | |

The above information is subject to change depending on the progress of the investigation.

(Railway serious incidents)

| | | | |
|---|---|---|---|
| 1 | Date and accident type | Railway operator | Line section (location) |
| | January 5, 2024<br>Dangerous trouble in vehicle | Kumamoto City Transportation Bureau | Between Kotsukyoku-mae Tram Stop and Misotenjin-mae Tram Stop on the Suizenji Line (Kumamoto Prefecture) |
| | Summary | See “6 Publication of investigation reports” (No.3 on page 78). | |

| | | | |
|---|---|---|---|
| 2 | Date and accident type | Railway operator | Line section (location) |
| | February 23, 2024<br>Dangerous trouble in vehicle | Kumamoto City Transportation Bureau | Between Daniyamamachi Tram Stop and Urusanmachi Tram Stop on the Kami-Kumamoto Line (Kumamoto Prefecture) |
| | Summary | While the train was running between the tram stops, it stopped due to a lack of operational power. The driver checked the vehicle and found the middle door open. When checking the dashcam on board the vehicle, it was confirmed that the door had opened while it was travelling between tram stops. | |
| 3 | Date and accident type | Railway operator | Line section (location) |
| | April 15, 2024<br>Main track overrun | Minami-aso Railway Co., LTD. | In the premises of Tateno Station on the Takamori Line (Kumamoto Prefecture) |
| | Summary | The driver of this train, while entering Tateno Station, applied the brakes but did not slow down and proceeded for about 300 m, stopping spontaneously. | |
| 4 | Date and accident type | Railway operator | Line section (location) |
| | September 2, 2024<br>Dangerous trouble in vehicle | Kumamoto City Transportation Bureau | In the premises of Shinsuizenji Tram Stop on the Suizenji Line (Kumamoto Prefecture) |
| | Summary | The driver stopped the tram immediately after departing the tram stop, as the driver confirmed that the middle door on the left side of the direction of travel had opened.<br>In addition, no passengers fell out of the vehicle through the open doors. | |
| 5 | Date and accident type | Railway operator | Line section (location) |
| | November 6, 2024<br>Dangerous trouble in vehicle | Iyo Railway Co., Ltd. | Between Keisatsusho-mae Tram Stop and Katsuyamacho Tram Stop on the Jonan Line (Ehime Prefecture) |
| | Summary | The driver stopped the tram immediately after departing the tram stop, as the driver confirmed that the front door on the left side of the direction of travel had opened while the train was running.<br>In addition, no passengers fell out of the vehicle through the open doors. | |

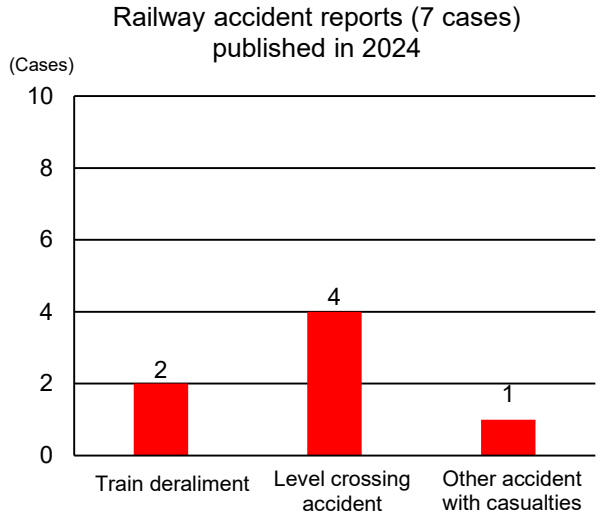
The above information is subject to change depending on the progress of the investigation.

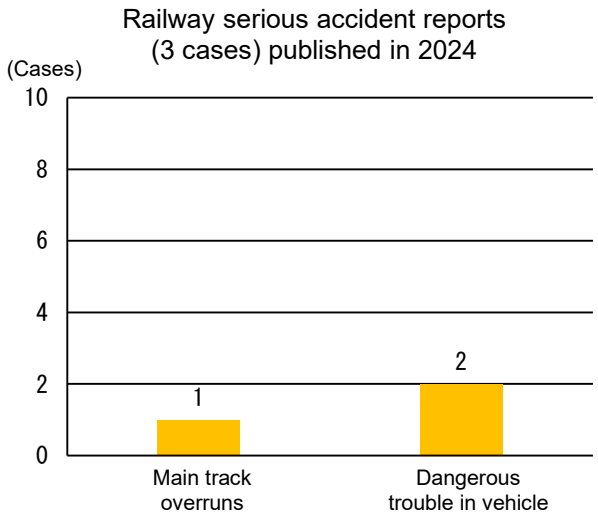
## 6 Publication of investigation reports

The number of investigation reports of railway accidents and serious incidents published in 2024 was 10, consisting of seven railway accidents and three serious incidents.

Breaking them down by type, the railway accidents contained two train derailment accidents, four level crossing accidents, and one other accident with casualties while the railway serious incidents contained one main track overrun and two dangerous troubles in vehicle.

The number of casualties was 17, consisting of four fatalities and 13 injuries.



The investigation reports on railway accidents and serious incidents published in 2024 are summarized as follows.

**Railway accident investigation reports published in 2024**

<table>
<tr><td rowspan="3">1</td><td>Date of publication</td><td>Date and accident type</td><td>Railway operator</td><td>Line section (location)</td></tr>
<tr><td>February 26, 2024</td><td>March 16, 2022<br>Train derailment</td><td>East Japan Railway Company</td><td>Between Fukushima station and Shiroishizao station, Tohoku Shinkansen, Shiroishi City (Miyagi Prefecture)</td></tr>
<tr><td>Summary</td><td colspan="3">The train started from Fukushima station with 5 minutes late than the scheduled. The train stopped due to the urgent brake automatically triggered by a power failure on the overhead catenary when it was traveling between Fukushima station and Shiroishizao station at a speed of approximately 154 km/h<br>After the train stopped, the driver felt the shaking of a large earthquake, and when he checked the train from inside and outside after the shaking stopped, he found that several cars had derailed.<br>As a result of the subsequent investigation, 60 of the 68 axles had derailed. In addition, 10 of the 60 derailed axles were in a condition in which the deviation preventing guides, etc. installed on the cars were climbing over the rails.<br>There were 75 passengers, one driver and four conductors on board, in which six passengers were injured.<br>At around 23:36:33 on the same day, a magnitude 7.4 earthquake with an epicenter off the coast of Fukushima Prefecture occurred, with a maximum seismic intensity of 6 Upper on the Japanese scale. About two minutes before the quake, a foreshock of magnitude 6.1 occurred, with a maximum seismic intensity of 5-lower on the Japanese scale.<br><br>*1"deviation preventing guide" means a guide installed under the journal box of the bogie to contact the rail after derailment to prevent the car from deviating too far from the rail in the event of a derailment of Shinkansen train due to an earthquake or other event. Also referred to as L-shaped car guide, etc.<br><br>  </td></tr>
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<tr><td rowspan="3"></td><td>Probable causes</td><td colspan="3">It is highly probable that this accident, derailments of the train, was caused by the earthquake motion from the earthquake that occurred at 23:36:33 on March 16, 2022, which had its epicenter off the coast of Fukushima Prefecture.<br>It is possible that the process leading to the derailment have been the rolling of the car body caused by the strong shaking of the track surface due to the earthquake motion, which caused the left or right wheel to lift up and over the rail, leading to the derailment (rocking derailment). In addition, the rolling of the car body caused excessive deformation of the air springs, resulting in air spring air loss, it is possible that which have contributed to the derailment.<br>With regard to the deviation preventing guide or the rail guard mounting arm was off and deviated from the rail on some of the wheelsets, it is likely there are following possibilities: Continued seismic motion after the derailment caused the deviation preventing guide, which was preventing the deviation, to climb over the rails and deviate, or the deviation of the deviation preventing guide occurred after the rail guard mounting arm or gear box fell on the rail at the time of derailment.<br>In this accident, it is probable that the earthquake, which occurred approximately 2 minutes before, triggered the system to stop the train early enough, the train had already stopped at the time of derailment, and that the many deviation preventing guides and other devices functioned to prevent the train from deviating too far from the track, thereby preventing the damage from spreading.<br>*2“Rocking derailment” refers to, in case the track vibrates vertically or laterally due to an earthquake etc., a derailment due to the wheel set vibration in the roll direction along with a violent lateral vibration. Specifically, one wheel remains in contact with the rail, while the other wheel lifts off the rail, next the wheel that is in contact with the rail slides along the rail, the wheel set moves laterally, then the flange of the wheel that coming down rides on the rail, or off the rail and derails.<br>*3 The “rail guard mounting arm” here refers to a device installed under the journal box of the bogie for mounting rail guard (a device installed just in front of the wheel at the front end of the train to eliminate obstacles that may interfere with running safety), ceramic jetting device (a device that jets ceramic powder between the wheel and rail as adhesion improvement materials), etc.</td></tr>
<tr><td>Safety actions</td><td colspan="3">As Shinkansen trains are designed to run at high speed, in the event of a derailment and further deviation, it is assumed that significant damage will occur, so safety should be ensured to the maximum extent possible through countermeasures to prevent derailment and deviation, and further upgrading for the countermeasures should be considered and implemented to prevent derailment and deviation of Shinkansen trains in light of the recent accident.<br>In addition, in this accident, although many deviation preventing guides and other devices were functioning to prevent the car from deviating significantly from the track, some of them were not working as expected, and deviations occurred. Particularly, wheel sets with the rail guard mounting arm installed also include leading axles of a train. The leading axle of a train is not restrained by a coupled car, so, if the train derails and deviates while in running, there is a possibility that the deviation will be significant, and the damage will be extensive. Therefore, it is desirable to conduct sufficient deliberations in the future and implement effective countermeasures that minimize deviations.<br>Further, this accident was the train derailment and/or deviation due to the strong shaking of the track surface on the viaduct or other structure, and countermeasures to suppress vibration by improving cars and structures are considered effective, therefore, it is desirable to continue to promote research and technological development in order to implement these measures.</td></tr>
<tr><td>Report</td><td colspan="2">https://jtsb.mlit.go.jp/railway/rep-acci/RA2024-1-1.pdf (Japanese)</td><td></td></tr>
<tr><td rowspan="2">2</td><td>Date of publication</td><td>Date and accident type</td><td>Railway operator</td><td>Line section (location)</td></tr>
<tr><td>March 28, 2024</td><td>July 2, 2023<br>Level crossing accident</td><td>Kyushu Railway Company</td><td>Between Ogi Station and Kubota Station on the Karatsu Line (Saga Prefecture)<br>Niju-no-Tsubo Crossing (Class 4 level crossing without crossing gate nor road warning device)</td></tr>
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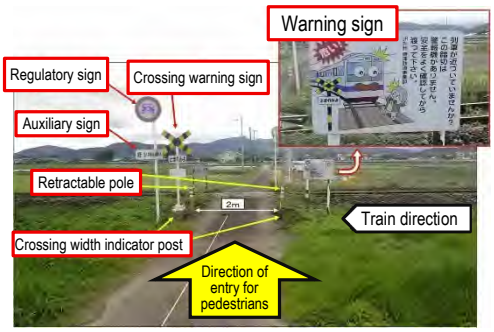
| | Summary | While running at approximately 76 km/h between Ogi Station and Kubota Station, the driver of the train recognized a pedestrian running in the direction of the crossing from the left side of the direction of travel (front, back, left, and right are based on the train's direction) at a point approximately 35 m in front of the Niju-no-Tsubo Crossing (Class 4 level crossing). The driver immediately sounded the horn, and initiated an emergency stop, but the train collided with the pedestrian and went approximately 260 meters past the crossing before stopping.<br>The fatality of the pedestrian was later confirmed.<br>  |
| | Probable causes | It is highly probable that this accident occurred because a pedestrian entered the Niju-no-Tsubo Crossing, a Class 4 level crossing that does not have a crossing gate or a road warning device, while the train was approaching, resulting in a collision.<br>The pedestrian probably entered the crossing while the train was approaching because he did not notice the approaching train. However, the details could not be clarified as the pedestrian was deceased. |
| | Safety actions | It is desirable to abolish Class 4 level crossings without crossing gates or road warning devices. If abolition is impossible, crossing gates should be installed to upgrade them to Class 1 level crossings. In addition, until abolition or upgrading to Class 1 level crossings is implemented, it is recommended that various safety measures for Class 4 level crossings be promoted, such as strengthening traffic regulations and installing warning signs. Furthermore, it is desirable that the Company, Ogi City, and Ogi Police Station of Saga Prefecture strive to raise safety awareness among pedestrians at the crossing to ensure that safety checks are carried out by stopping temporarily in front of the crossing. |
| | Report | https://jtsb.mlit.go.jp/railway/rep-acci/RA2024-1-2.pdf (Japanese only) |

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| 3 | Date of publication | Date and accident type | Railway operator | Line section (location) |
| | July 25, 2024 | June 2, 2023<br>Train derailment | Tosa Kuroshio Tetsudo (Railway) Co., Ltd. | Between Ariigawa Station to Tosa Shirahama Station, Nakamura Line (Kochi Prefecture) |
| | Summary | The train departed from the station approximately 30 minutes later than the scheduled time because of heavy rain. After entering the 7th Shirahama Tunnel, the driver of the train noticed some mud and sand on the track near the tunnel exit. The driver applied the brakes while traveling at a speed of about 61km/h. However, the train climbed onto the mud and sand at almost the same time as the brakes were applied. After the train ran over the sand, it continued for about 50 meters before coming to a stop. The train driver got off the train to check, and found that all two axles of the front bogie (the front, back, left and right are based on the direction of travel of the train) of the train had certainly derailed.<br>There were no passengers on the train, and one driver and one track maintenance worker were on board, but they were not injured.<br>  |

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| Probable causes | It is highly probable that this accident occurred when the train derailed after colliding with the sand and other materials that had flowed onto the tracks due to slope collapse, which occurred after the train had departed when the rainfall had reached the level of train operation prohibition.<br>The probable cause of the train departing under conditions when the rainfall had reached the level of train operation prohibition is that the train dispatcher did not give the driver notice of operation prohibition and allowed the train to depart from Nakamura Station.<br>The reason why the train dispatcher did not give the notice of the operation prohibition to the driver is probably because, when the rain gauge reached the regulation value, the train dispatcher did not promptly carry out operation control based on his own judgment, but instead carried out operation control after receiving instructions from the head of facility and rolling stock depot, which was contrary to the regulations.<br>With regard to the fact that the head of facility and rolling stock depot did not give instructions to the dispatcher to stop the train when the rainfall reached the level for prohibiting train operation, it is highly probable that it had become the norm to wait and see what would happen without immediately taking operational control when the rain gauge reached the regulated level, and that there was a low level of awareness of the need to ensure the safety of train operation during rainfall, which may have been due to a lack of understanding of the dangers of rainfall when it reached the regulated level. |
| Safety actions | It is highly likely that this accident occurred because the train departed when the rain gauge had reached the level of train operation prohibition and derailed when the train ran onto mud and sand that had flowed onto the track due to a slope collapse.<br>As a contributing factor to this accident, it is highly probable that the company had a regular practice of not promptly implementing operation controls when the regulatory value was reached during rainfall, and this was due to a low awareness of the need to ensure the safety of train operations during rainfall. This is a problematic corporate culture for a railway operator that should ensure the safety of train operations, and it is necessary to fundamentally reform the culture and rebuild safety measures from scratch. Specifically, the following measures are necessary.<br>(1) Operation control during rainfall<br>(i) It is necessary to establish functional system that allows the train dispatcher, who is constantly monitoring the operation conditions, to promptly issue instructions to slow down or stop the train, rather than the head of facility and rolling stock depot, who is not part of the chain of command for train operation.<br>(ii) Rather than observing the situation and making decisions based when the alarm buzzer on the rain gauge monitor sounds, it is necessary to establish a corporate culture that prioritizes safety by fully recognizing the need to promptly implement operation control when the rainfall reaches the regulated value, and paying sufficient attention to ensuring the safety of train operations during rainfall.<br>(2) Rain gauge monitor<br>(i) It is necessary to install the system in the control room where the train dispatcher is always present during train operation, or to construct a system that can always monitor the amount of rainfall in the control room.<br>(ii) The alarm buzzer on the rain gauge monitor should be designed so that it will not stop sounding unless a person presses a confirmation switch or the like, so that the alarm sound can always be confirmed.<br>(iii) In order to ensure safe transportation during rainfall, it is necessary to periodically check the operation of the rain gauge monitor.<br>(3) Due to the slope collapse, rocks, mud and sand, etc. flowed into the catch basin, and then flowed into the track, therefore, it is desirable to implement measures to prevent rocks from flowing into the catch basin entrance. It is also desirable to implement measures to prevent rocks from falling and slope protection work to prevent slope collapse near the accident site. |

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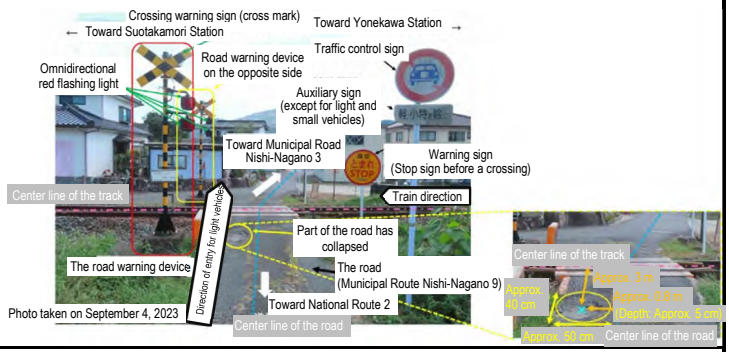
| | Report | https://jtsb.mlit.go.jp/railway/rep-acci/RA2024-2-1.pdf (Japanese) | | |
| 4 | Date of publication | Date and accident type | Railway operator | Line section (location) |
| | July 25, 2024 | September 3, 2023<br>Level crossing accident | West Japan Railway Company | Between Yonekawa Station and Suo-Takamori Station (Yamaguchi Prefecture) on the Gantoku Line<br>Nakahara Crossing (Class 3 level crossing without crossing gate, but with road warning device) |
| | Summary | The driver of the train, while running between Yonekawa Station and Suo-Takamori Station at a speed of about 54 km/h, recognized a light vehicle entering the crossing from the left side of the Nakahara Crossing (Class 3 crossing) (front, rear, left, and right are based on the train's direction). The driver immediately sounded the horn and initiated an emergency stop, but the train collided with the vehicle.<br>The accident resulted in the fatality of the car driver and injuries to the fellow passenger and one train passenger.<br>  | | |
| | Probable causes | It is highly probable that this accident occurred because a light vehicle entered Nakahara Crossing, a Class 3 level crossing equipped with a road warning device, while the train was approaching and the warning device was active, resulting in a collision.<br>Regarding the reason why the light vehicle entered the crossing while the train was approaching, it is possible that the driver did not notice the approach of the train, but it could not be clarified as the driver of the light vehicle was deceased. | | |
| | Safety actions | It is desirable to abolish Class 3 level crossings without crossing gates to improve safety. If abolition is impossible, crossing gates should be installed to upgrade them to Class 1 level crossings.<br>In addition, until abolition or upgrading to Class 1 level crossings is implemented, it is advisable for the Company and Iwakuni City to cooperate with the Iwakuni Police Station in Yamaguchi Prefecture and others to encourage pedestrians at similar level crossings to stop temporarily and check for safety before crossing by carrying out awareness-raising activities and installing warning signs, etc.<br>Additionally, since the Company and the City have Class 3 and Class 4 level crossings in addition to this level crossing, it is desirable that the Company and the local authorities continue to discuss the abolition or upgrading to Class 1 level crossings of these crossings as part of efforts to reach a consensus. | | |
| | Report | https://jtsb.mlit.go.jp/railway/rep-acci/RA2024-2-2.pdf (Japanese only) | | |
| 5 | Date of publication | Date and accident type | Railway operator | Line section (location) |
| | September 26, 2024 | November 18, 2023<br>Level crossing accident | Kyushu Railway Company | Between Sashiu Station and Kozaki Station on the Nippo Line (Oita Prefecture)<br>Sekita Crossing (Class 4 level crossing without crossing gate nor road warning device) |

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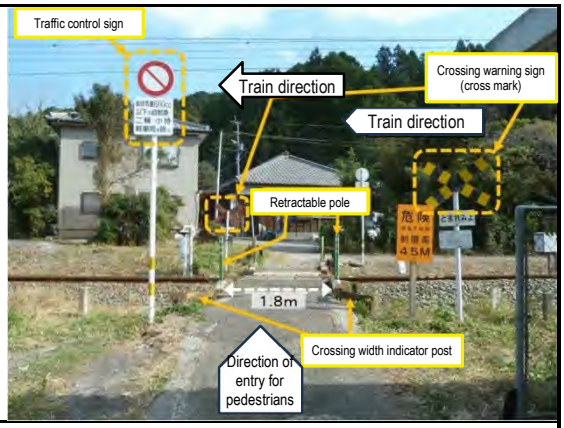
| | Summary | The driver of the train, while running between Sashiu Station and Kozaki Station, recognized a pedestrian entering from the left side just before Sekita Crossing (Class 4 level crossing) (front, rear, left, and right are based on the train's direction). The driver immediately sounded the horn and initiated an emergency stop, but the train collided with the pedestrian.<br>As a result of this accident, the pedestrian was fatally injured.<br>  |
| | Probable causes | It is highly probable that this accident occurred because a pedestrian entered Sekita Crossing (A Class 4 level crossing without a crossing gate or a road warning device) while the train was approaching, resulting in a collision.<br>Regarding why the pedestrian entered the crossing while the train was approaching, it is probable that the pedestrian did not notice the approaching train, but the details could not be clarified as the pedestrian was deceased. |
| | Safety actions | It is desirable to abolish Class 4 level crossings without crossing gates or road warning devices to improve safety. If abolition is impossible, they should be upgraded to Class 1 level crossings. Until abolition or upgrading to Class 1 level crossings is implemented, it is recommended to promote various safety measures for Class 4 level crossings, such as strengthening traffic regulations and installing warning signs. Furthermore, it is desirable that the Company, Oita City, and Oita Higashi Police Station of Oita Prefecture strive to raise safety awareness among pedestrians at the crossing to ensure that safety checks are carried out by stopping temporarily in front of the crossing. |
| | Report | https://jtsb.mlit.go.jp/railway/rep-acci/RA2024-3-1.pdf (Japanese only) |

| 6 | Date of publication | Date and accident type | Railway operator | Line section (location) |
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| | November 18, 2024 | August 5, 2023<br>Other accidents with casualties | East Japan Railway Company | In the premises of Ofuna Station on the Tokaido Line (Kanagawa Prefecture) |

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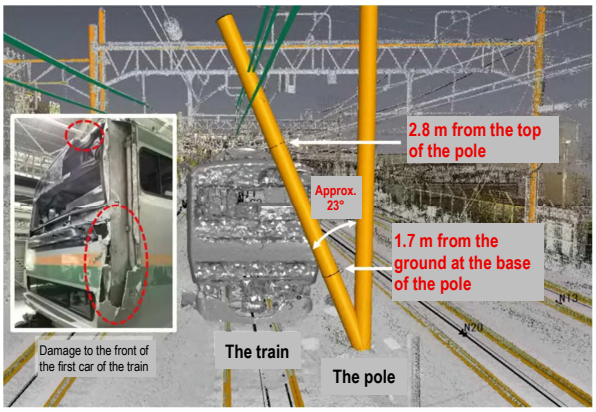
| | Summary | The train collided with a tilted utility pole while the train was running in the premises of Ofuna Station. The train traveled approximately 205 meters after colliding with the utility pole and then stopped. Afterward, upon inspecting the site, it was found that the front left side of the first car (cars are counted from the front, and front, back, left, and right are based on the train's direction) was severely damaged, the utility pole was broken, and the overhead wire was left hanging.<br>  <br>The train had approximately 1,500 passengers, one driver, and two conductors on board, of whom 4 passengers and one driver were injured. |
| | Probable causes | It is highly probable that this accident occurred because a heavily tilted utility pole collided with an approaching train, resulting in shock inside the train and an increase in the internal temperature due to power failure.<br>The heavily tilted utility pole is believed to have been caused by water entering from horizontal cracks near the ground level of the pole, leading to part of the PC steel bar[*1] corroding and breaking, which rendered the pole unable to withstand the bending moment.<br>The presence of horizontal cracks in the utility pole is thought to be due to the equipment conditions that subject the pole to relatively large bending moments compared to design values, which, under the influence of temporary bending moments from wind and earthquakes, caused excessive bending moments near the ground level, leading to horizontal cracks, and the continued state of these cracks |

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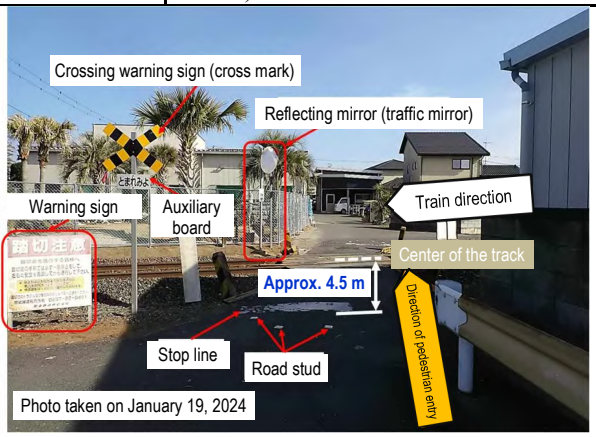
| | | not closing, as well as the inability to detect the cracks during regular inspections.<br><br>*1 A "PC steel bar" refers to a high-strength steel bar used as PC steel material that applies compressive stress to prestressed concrete. | | |
| | Safety actions | For utility poles similar to this case, which are subject to relatively large bending moments compared to the design values, it is necessary to review the design method and consider and implement measures such as reinforcement or rebuilding into a more robust structure for existing utility poles, as there is a risk of tilting if horizontal cracks occur. In addition, pending such measures, it is necessary to strive for more thorough detection of horizontal cracks by reviewing the inspection methods for utility poles. | | |
| | Report | https://jtsb.mlit.go.jp/railway/rep-acci/RA2024-4-1.pdf (Japanese only) | | |
| 7 | Date of publication | Date and accident type | Railway operator | Line section (location) |
| | November 28, 2024 | January 18, 2024<br>Level crossing accident | Kanto Railway Co., Ltd. | Between Mitsuma Station and Minami-Ishige Station on the Joso Line (Ibaraki Prefecture)<br>Heinai 2 Crossing (Class 4 level crossing without crossing gate nor road warning device) |
| | Summary | The driver of the train, while running between Mitsuma Station and Minami-Ishige Station, recognized a bicycle entering the crossing about 50 meters before Heinai 2 Crossing (Class 4 level crossing) from the left side (front, back, left, and right are based on the train's direction), sounded the horn, and initiated an emergency stop, but the train collided with the bicycle.<br>As a result of this accident, the pedestrian riding the bicycle was fatally injured. |  | |
| | Probable causes | It is highly probable that this accident occurred because a pedestrian riding the bicycle entered Heinai 2 Crossing, Class 4 level crossing without a crossing gate or a road warning device, while a train was approaching, and collided with the train.<br>The reason why the pedestrian entered the crossing while the train was approaching is likely because the pedestrian did not notice the approaching train, but the details could not be clarified as the driver was deceased. | | |
| | Safety actions | It is desirable to abolish Class 4 level crossings without crossing gates or road warning devices to improve safety. If abolition is impossible, level crossing safety equipment should be installed to upgrade them to Class 1 level crossings. It is considered necessary for railway operators, road administrators, residents, and other relevant parties to advance discussions toward the abolition of level crossings, etc., and to implement concrete measures as soon as possible.<br>Additionally, since there is a Class 1 level crossing nearby that serves as a detour, it is desirable for railway operators, road administrators, and other relevant parties to cooperate and promote awareness through educational activities that detouring to safer Class 1 level crossing will lead to reduce accidents, encouraging pedestrians to avoid using Class 4 level crossings as much as possible until specific measures are implemented. | | |
| | Report | https://jtsb.mlit.go.jp/railway/rep-acci/RA2024-4-2.pdf (Japanese only) | | |

**Published investigation report on a serious railway incident (2024)**

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| 1 | Date of publication | Date and incident type | Railway operator | Line section (location) |

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| February 29, 2024 | October 17, 2022<br>Dangerous trouble in vehicle | Kyushu Railway Company | Between Bungo-Ogi Station and Tamarai Station on the Hohi Line (Oita Prefecture) |

**Summary**

After the train departed from Bungo-Ogi Station on time and arrived at Bungo-Takeda Station, the driver of the train received a report from one of the passengers that "one of the doors opened while running."

The operating status recording device recorded that the command line[*1] for opening the passenger door on the right side (front, back, left, and right are based on the direction of travel of the train) was pressured[*2] while running, and it was also recorded that the door closed indicator lamp, which goes out when any passenger door opens, was extinguished.

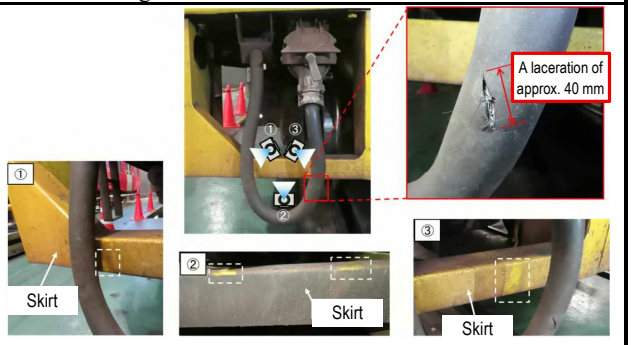
The train had 19 passengers and one driver on board, but there were no injuries from falls or other in this incidents.

[*1] The "command line" refers to the electric wire that transmits commands related to operations such as power running, braking, and door opening and closing to the equipment mounted on the vehicle.

[*2] Here, "pressurization" refers to the application of voltage to the electric wire.

**Probable causes**

It is probable that this serious incident occurred because when the door-closing safety circuit, which prevents the doors from opening even if Line 315, the door-opening command line on the right side of the train, is unintentionally pressurized while running, did not function properly, and control power voltage was temporarily applied to Line 315, causing the rear right door to open while the train was running.




Regarding the temporary application of control power supply voltage to Line 315, the cable of the jumper coupler[*3] was torn and Line 1, which is the positive side of the control power supply, was damaged. Accordingly, it is probably due to accidental contact with the higher voltage[*4] between Line 1 and Line 315 due to rainwater having entered from the torn part of the cable. Furthermore, it is possible that the tear in the cable occurred due to a collision with an animal between the most recent shift inspection[*5] and the day before this serious incident occurred.

As for why the Company was unable to find the tear in the cable, it is possible that the train's driver who operated the vehicle used after the most recent shift inspection before this serious incident did not notice the collision with the animal, or failed to report that the train had collided with the animal or the driver felt an unusual noise during the collision, and therefore did not inspect the cable at the rolling stock depo, etc.

Regarding the fact that the door closing safety circuit did not function properly, it is certain that this accident occurred because the power line of the speed detection auxiliary relay that constituted the door closing safety circuit was incorrectly wired.

It is probable that the power line of the relay was incorrectly wired when NIIGATA ENGINEERING CO., LTD. manufactured the vehicle.

(1) It is possible that workers were not thoroughly instructed to check whether the wiring was done according to the drawings after wiring work.

(2) It is probable that the Company did not carry out continuity inspection of the power supply line of the relay.

(3) It is probable that the Company did not carry out a functional test of the door closing safety circuit.

It is probable that the Company could not detect that the relay did not operate due to incorrect wiring before the occurrence of this serious incident because they did not conduct the operation confirmation of the relay when it was installed in the vehicle during the general inspection and main parts inspection.

[*3] A "jumper coupler" refers to a device that connects the train line provided in each vehicle to operate auxiliary circuit devices and control circuit devices in the formation.

[*4] "Accidental contact with higher voltage" refers to the phenomenon in an electrical circuit whereby the core wire comes into contact with another core wire.

[*5] "Shift inspection" is one of the inspections of internal combustion locomotives by the Company, and refers to an inspection conducted in the current situation regarding the state, action, and function of the

power generation device, power transmission device, running device, electrical device, braking device, body, etc. depending on the usage status of the internal combustion locomotive. This inspection is required to be conducted at intervals not exceeding 90 days.

*6 "General inspection" is one of the inspections of internal combustion locomotives by the Company, and refers to an inspection of the entire internal combustion locomotives by removing the main parts depending on the usage status of the internal combustion locomotive. This inspection must be conducted at intervals not exceeding 8 years. In addition, since the general inspection is an inspection equivalent to or exceeding the scope of the main parts inspection, an internal combustion locomotive that has undergone a general inspection can be said to have undergone a main parts inspection.

*7 "Main parts inspection" is one of the inspections of internal combustion locomotives by the Company, and refers to an inspection of the main parts of important devices depending on the usage status of the internal combustion locomotive. This inspection must be carried out every four years or before the mileage of the internal combustion locomotive exceeds 500,000 km (250,000 km for some vehicle types, but 500,000 km for Kiha 125), whichever is shorter.

**Safety actions**

The Company should take the following measures to prevent this serious incident recurring:

○ Following Measures to be taken by the Company

(1) The company was unable to detect that velocity synthetic aperture radar(VSAR)3 was not functioning due to incorrect wiring during shift inspections, therefore, it is necessary to test the function of the door closing safety circuit against the pressurization of the door opening command line during general inspections and main parts inspections, or visually confirm that VSAR2 and VSAR3 are working, to ensure that the relays used in the door closing safety circuit work while installed in the vehicle.

(2) It is highly probable that the train's driver who operated the vehicle (Kiha 125) immediately after the recent shift inspection before this serious incident did not notice the collision with an animal, or did not report that the train had collided with an animal or feel any unusual noise during the collision. As a result, the Company was unable to find the tear in the jumper line of the vehicle before the serious incident, therefore, it is necessary for the Company to thoroughly inform its drivers that they should contact a train dispatcher or station master as stipulated in the company's "Abnormal Handling Manual" when a train collides with an animal or when the driver felt an unusual noise.

○Measures to be taken by Niigata Transys Co., Ltd.*8

(1) It is possible that when the Kiha 125 series second batch was manufactured by NIIGATA ENGINEERING CO., LTD., some of the workers in charge of the driver's cab may have made a mistake in wiring Line 409 and Line 100a10, so Niigata Transys Co., Ltd. needs to establish in the wiring work manual, etc., that even if workers have wired incorrectly, they should perform checks after wiring to make them aware of the incorrect wiring, and thoroughly inform the workers about the established details.

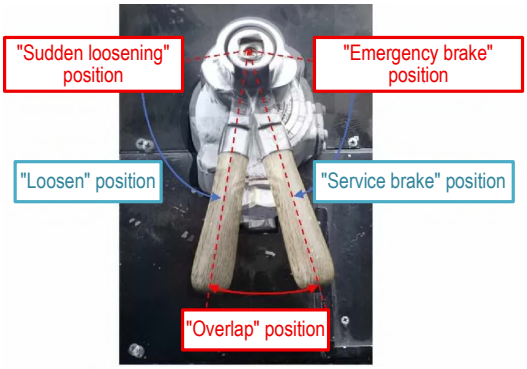
(2) It is probable that NIIGATA ENGINEERING CO., LTD., did not conduct wiring continuity tests to confirm that Line 409 was connected to Terminal block 1 of the socket of VSAR3 and that Line 100a10 was connected to the same Terminal block 11, but since incorrect wiring of the outfitted wiring impacts not only on the door closing safety circuit but also ATS and the braking circuit could affect the safety of train operation, Niigata Transys Co., Ltd. needs to confirm during the final inspection that the outfitted wiring is connected according to the drawings.

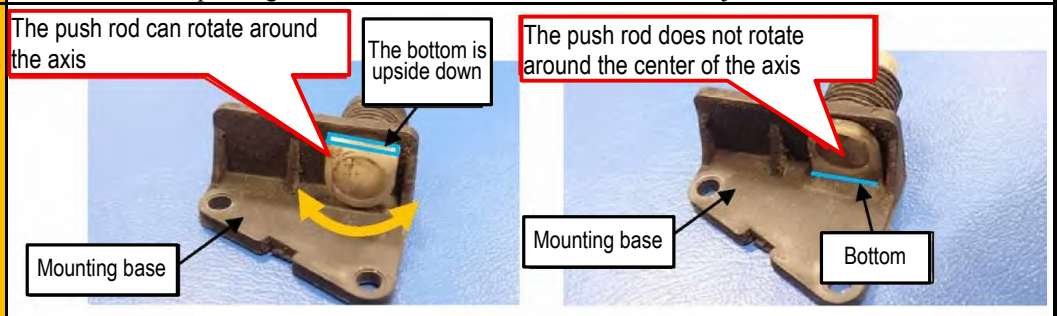
(3) It is probable that NIIGATA ENGINEERING CO., LTD., did not conduct functional tests of the door closing safety circuit against the pressurization of the door opening command line, so Niigata Transys Co., Ltd. needs to recognize that events may occur where the door opening command line is unintentionally pressurized while running due to accidental contact with higher voltage due to poor waterproofing of the jumper coupler or insulation failure of the wires, etc. and to conduct functional tests of the door closing safety circuit against the pressurization of the door opening command line.

*8 "Niigata Transys Co., Ltd." is a vehicle manufacturer established in February 2003 by integrating the railway vehicle divisions of NIIGATA ENGINEERING CO., LTD. and Fuji Heavy Industries Ltd.

**Report**

https://jtsb.mlit.go.jp/railway/rep-inci/RI2024-1-1.pdf (Japanese only)

<table>
<tr><td rowspan="4">2</td><td>Date of publication</td><td>Date and incident type</td><td>Railway operator</td><td colspan="2">Line section (location)</td></tr>
<tr><td>September 26, 2024</td><td>December 12, 2023<br>Main track overrun</td><td>Sapporo Transportation Service Promotion Corporation</td><td colspan="2">Between Nakajima-koen-dori Tram Stop and Yamahana-kujo Tram Stop on the Yamahana Line (Hokkaido)</td></tr>
<tr><td>Summary</td><td colspan="4">The driver of the tram, while getting off the stopped vehicle at Nakajima koen dori Tram Stop to use the station's telephone installed at the stop, recognized that the vehicle was moving toward Yamahana ku jo Tram Stop, subsequently, the driver ran toward the vehicle, boarded it, and used the brakes to stop the vehicle about 31 meters from Nakajima Park Station.<br>There were 21 passengers on board, but no one was injured.</td></tr>
<tr><td>Probable causes</td><td colspan="4">It is highly probable that this serious incident occurred because when the driver of the tram got off to use the station's telephone at Nakajima koen dori Tram Stop, causing the vehicle's brakes to release, the stopped vehicle ran away toward Yamahana ku jo Tram Stop with passengers on board, as it is on a downhill slope.<br>It is more likely that the vehicle's brakes became loose because the brake handle moved from the "overlap" position to the "loosen" position, resulting in a gradual decrease in the pressure of the vehicle's brake cylinder.<br>  <br><br>*This figure is a composite of multiple photographs.<br>It is more likely that the movement of the brake handle from the "overlap" position to the "loosen" position occurred because the overcoat[*1] worn by the driver came into contact with the brake handle. In addition, since the driver was wearing a thick overcoat, it is probable that the sense of touch was dulled, leading to the conclusion that the driver did not notice the contact with the brake handle.<br><br>[*1] The term "overcoat" here refers to the cold-weather clothing provided to the driver by the Public Corporation.</td></tr>
<tr><td></td><td>Safety actions</td><td colspan="4">(1) Safety Actions considered necessary for the Public Corporation<br>① It is necessary to establish handling procedures for when the driver leaves the vehicle.<br>② It is necessary to thoroughly instruct the drivers to handle operations as specified.<br>③ Regarding the means of communication between the drivers and the operations control room, it is desirable to establish the priority of the equipment to be used.<br>(2) Safety Actions considered necessary for Sapporo City Transportation Bureau[*2]<br>It is desirable to install devices on all vehicles owned that automatically activate the brakes when the driver leaves the driver's seat.<br><br>[*2] "Sapporo City Transportation Bureau" was separated into upper and lower sections in April 2020, with the Bureau owning the vehicles and facilities, and the Public Corporation managing the operation of trams and the maintenance of vehicles and facilities.</td></tr>
<tr><td>Report</td><td colspan="3">https://jtsb.mlit.go.jp/railway/rep-inci/RI2024-2-1.pdf (Japanese only)</td><td></td></tr>
</table>

| 3 | Date of publication | Date and incident type | Railway operator | Line section (location) |
|---|---|---|---|---|
| | November 28, 2024 | January 5, 2024<br>Dangerous trouble in vehicle | Kumamoto City Transportation Bureau | Between Kotsukyoku-mae Tram Stop and Misotenjin-mae Tram Stop on the Suizenji Line (Kumamoto Prefecture) |
| | Summary | The driver of this tram received a report from a passenger that the door was open immediately after departing from the Kotsukyoku-mae Tram Stop on the Suizenji Line, subsequently, the driver promptly applied the brakes to stop the vehicle.<br>The vehicle's dashcam footage recorded the vehicle departing from Kotsukyoku-mae Tram Stop with the passenger boarding and alighting door (hereinafter referred to as "the middle door") located near the center of the vehicle on the left side (front, back, left, and right are based on the train's direction) remaining open.<br>There were 11 passengers and 1 driver on board, but no one was injured. | | |
| | Probable causes |  <br>(a) For the middle door (b) Normal<br>It is certain that this accident occurred because the driver of the train departed without closing the middle door while the circuit to prevent the vehicle power running with the door open was not functioning properly.<br>The reason the circuit was not functioning properly is probably due to the fact that the push rod of the door open/close detection switch, which is pressed down when the door is closed, was installed in the opposite direction from its original mounting position. Accordingly, the switch was pressed even when the door was open, leading to the door being detected as closed.<br>Regarding the driver departing without closing the door, it is probable that the driver assumed the door was already closed and did not perform the door-closing operation, and did not recheck that the door was closed with an interior mirror before departure, and the door indicator light was on because the push rod for the open/close detection switch was held in a pressed state. | | |
| | Safety actions | (1) Prevention of incorrect installation of the push rod of the open/close detection switch<br>Since the push rod of the open/close detection switch was installed in the opposite direction from its original mounting position, it is necessary to check the installation direction of the push rods of similar switches during installation, etc. or to replace it with a type of open/close detection switch that does not risk the end face of the push rod and the mounting seat getting caught.<br>(2) Thorough check of door closing<br>It is more likely that no check as to whether the door was closed using the interior mirror at departure, so it is necessary to ensure thorough checking of the door closing confirmation operation. Additionally, to do so, it is desirable to consider measures from wide-ranging perspectives, such as the introduction of pointing and calling and structural measures on the vehicle side to prevent any inadvertent forgetting to close the door. | | |
| | Report | https://jtsb.mlit.go.jp/railway/rep-inci/RI2024-3-1.pdf (Japanese only) | | |

## 7 Provision of factual information in 2024 (railway accidents and serious incidents)

The information (on serious railway incidents) provided in 2024 was 1 case, the details thereof are as follows:

**The information provided on the serious railway incident (dangerous trouble in vehicle) that occurred on the Suizenji Line of Kumamoto City Transportation Bureau**
(Information provided on October 4, 2024)

The JTSB is currently conducting investigations and analyses regarding the serious railway incident (dangerous trouble in the vehicle) that occurred on September 2, 2024, on the Suizenji Line of Kumamoto City Transportation Bureau, and has provided information to the Railway Bureau of the Ministry of Land, Infrastructure, Transport and Tourism on October 4 regarding the facts that have been clarified in the investigation so far.

**1. Summary of the serious railway incident (dangerous trouble in vehicle)**

Date and time of occurrence: Around 7:35 on Monday, September 2, 2024

Place of occurrence: In the premises of Shin-Suizenji Tram Stop on the Suizenji Line (Kumamoto City, Kumamoto Prefecture)

Summary: The tram driver performed the door closing operation of the boarding/exiting doors at the Shin-Suizenji Tram Stop and powered up the tram. Immediately after that, when a passenger near the door of the train stepped down onto the boarding/exiting doors, the buzzer sounded, and the boarding/exiting doors opened. The driver of the tram noticed the abnormality and applied the brakes to stop the tram.

**2. Details of the information provided to the Railway Bureau of the Ministry of Land, Infrastructure, Transport and Tourism**

In the investigation of facts so far, the following facts have been clarified, and since there is a possibility that similar incidents may occur with other railway and tramway operators using the same type of door engine, the JTSB provided information to the Railway Bureau of the Ministry of Land, Infrastructure, Transport and Tourism:

(Information)

The folding doors of the vehicle where this serious incident (hereinafter referred to as "this incident") occurred open and close due to the door engine extending and retracting, and have a mechanism whereby two door opening/closing detection switches are physically pressed simultaneously by a rod connected to the piston of the door engine. (See Appendices 1 and 2.)

During this incident, it was found that one of the two door opening/closing detection switches was not pressed at the time of door closing. (See Appendix 3.)

*In the vehicle, the switch that was not pressed is used to cut off the power supply of a mat switch (used to prevent door pinching, installed on the floor surface of the step area.)

The relationship between this case and the content of the information provided is currently under investigation, and the JTSB are planning to conduct a detailed investigation regarding the cause of this case in future.

*The details of the information provided, including the Appendices, is included on the website of the JTSB.
https://jtsb.mlit.go.jp/iken-teikyo/kumamoto20241004.pdf (Japanese only)

# Chapter 5 Marine accident and incident investigations

## 1 Marine accidents and incidents to be investigated

**<Marine accidents to be investigated>**

**◎Article 2, paragraph (5), of the Act for Establishment of the Japan Transport Safety Board** (Definition of marine accident)

The term "Marine Accident" as used in this Act shall mean as follows:

1. Damage to a ship or facility other than a ship related to the operations of a ship.
2. Fatality or injury of the people related to the structure, equipment or operations of a ship

**<Marine incidents to be investigated>**

**◎Article 2, paragraph (6), item (ii) of the Act for Establishment of the Japan Transport Safety Board** (Definition of marine incident)

"Marine incident" is a situation prescribed by Order of the Ministry of Land, Infrastructure, Transport and Tourism (Article 5 of the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board), where deemed to bear a risk of Marine Accident occurring.

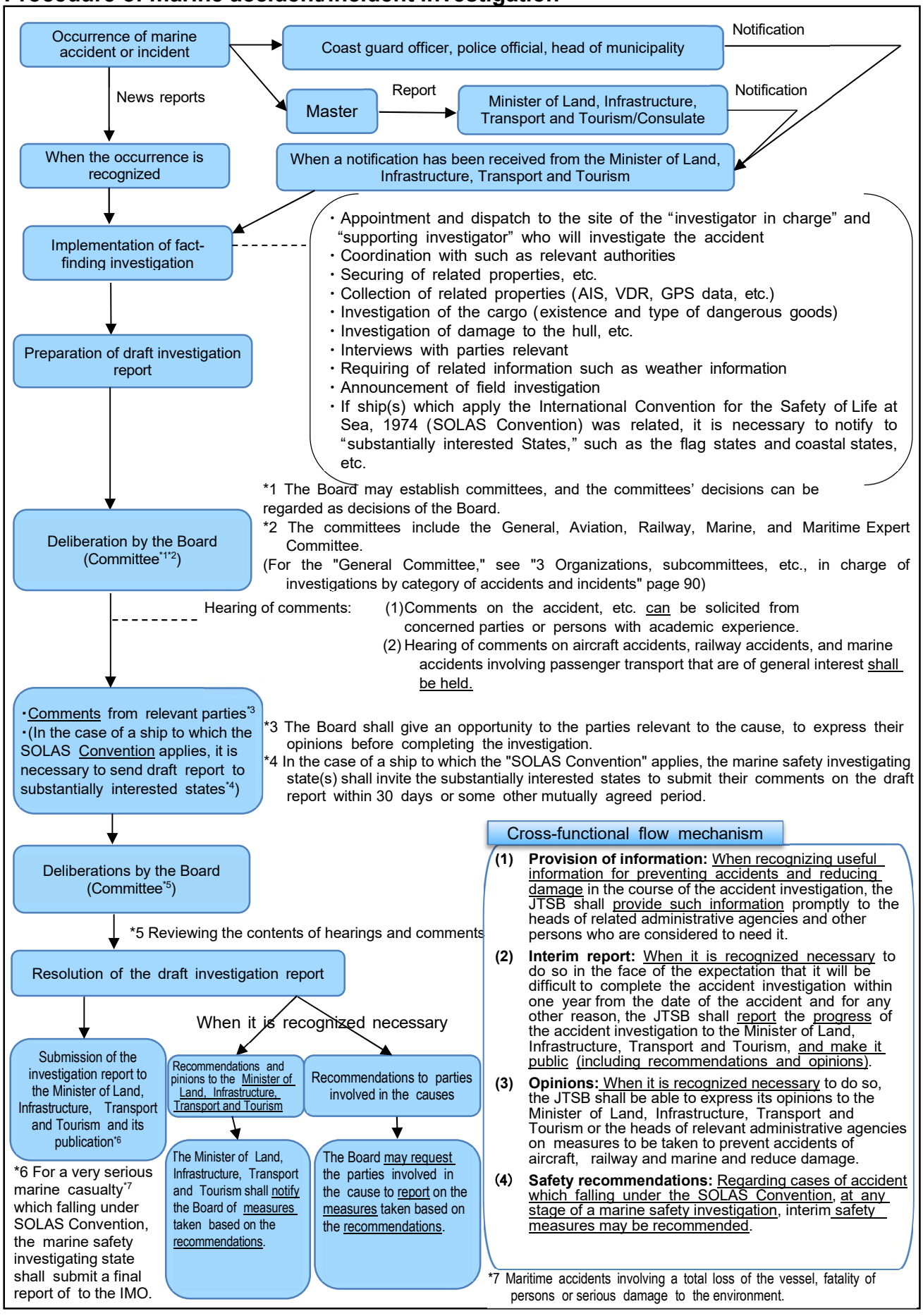
**○Article 5 of the Ordinance for Enforcement of the Act for Establishment of the Japan Transport Safety Board**

1. The situation wherein a ship became a loss of control due to any of the following reasons:
   (a) navigational equipment failure;
   (b) listing of a ship; or
   (c) short of fuel or fresh water required for engine operation.
2. The situation where a ship grounded without any damage to the hull; and
3. In addition to what is provided for in the preceding two items, the situation where safety or navigation of a ship was obstructed.

**Category of marine accident and incident**

| Marine accident and incident to be investigated | | Type of marine accident and incident |
|---|---|---|
| Marine accident | Damage to ships or other facilities involved in ship operation | Collision, Grounding, Foundering, Flooding, Capsizing, Fire, Explosion, Missing, Damage to facilities |
| | Fatality or injury related to ship structures, equipment or operations | Fatality, Fatality and injury, Missing person, Injury |
| Marine incident | Navigational equipment failure | Loss of control (engine failure, propeller failure, rudder failure) |
| | Listing of ship | Loss of control (extraordinary listing) |
| | Short of fuel or fresh water required for engine operation | Loss of control (fuel shortage, fresh water shortage) |
| | Grounding without hull damage | Stranded |
| | Obstruction of ship safety or navigation | Safety obstruction, Navigation obstruction |

## 2 Procedure of marine accident/incident investigation



## 3 Organizations, Committees, etc., in charge of investigations by category of accidents and incidents

"Serious marine accidents and incidents" shown in the table below are investigated by marine accident investigators of the secretariat in Tokyo, and deliberations are conducted at the Marine Sub-Committee. Incidentally, "Particularly Serious Accident[*1]" and "Very Serious Accidents[*2]" are deliberated at the General Committee, etc.

"Marine accidents and incidents" shown in the table below are investigated by local accident investigators at regional offices in eight locations across Japan, and deliberations are conducted at the Maritime Expert Committee.

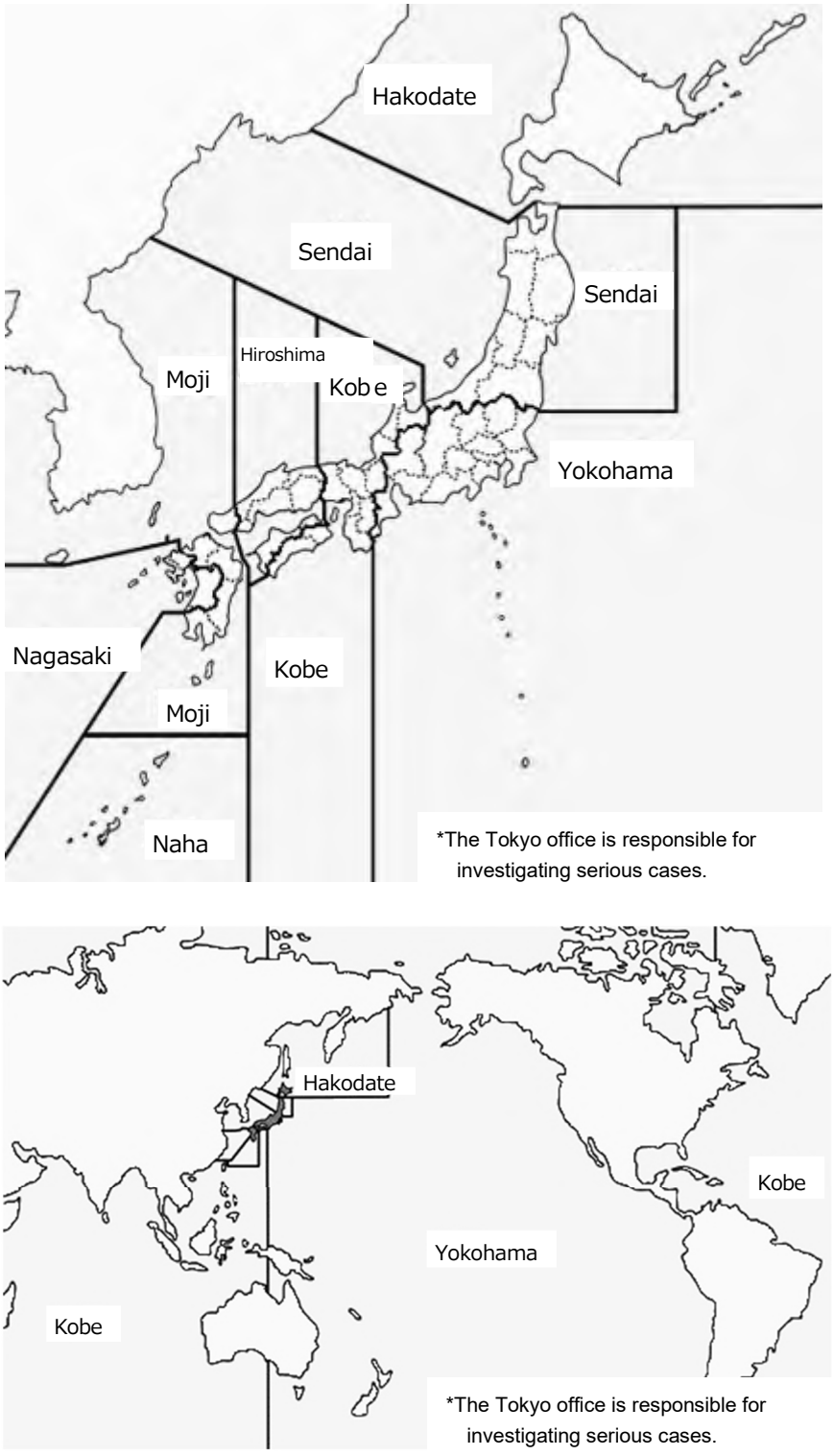
*1 The General Committee is responsible for matters related to the following particularly serious accidents (aircraft accidents, railway accidents, and marine accidents, excluding those deliberated by the Aircraft Committee, the Railway Committee, the Marine Committee, and the Maritime Expert Committee) and matters deemed necessary by the Board (Article 1, paragraph (2) of the Rules of Management of the Japan Transport Safety Board).
(1) Accident in which 10 or more people were fatally injured or missing (In the case of aviation accidents and marine accidents, only those involving aircraft or ships used for business that transports passengers. The same shall apply to (2).)
(2) Accident in which 20 or more people were fatally injured, missing or seriously injured.

*2 The resolution on very serious accidents recognized by the Board and on matters deemed necessary by the Board shall be taken at the Board in consideration of the occurrence situation of damage, social influence and other circumstances (Article 2, paragraph (5) of the Rules of Management of the Japan Transport Safety Board).

<table>
<tr><td>Serious marine accidents and incidents</td><td>Office in charge of investigation: Marine accident investigators in the Headquarters<br>Committee in charge of deliberation and adoption: Marine Committee</td></tr>
<tr><td colspan="2">Definition of "serious marine accidents and incidents" (Article 9, Paragraph (1) of Ordinance on Organization of Secretariat of the Japan Transport Safety Board)<br>・accident involving passenger was fatally injured, missing or two or more passengers were seriously injured<br>・accident involving five or more persons were fatally injured or missing<br>・marine accident of a ship[*2] engaged in international voyage[*1], in which caused total loss of the ship, or which resulted in fatality or missing to a person.<br>*1 meaning a voyage from a country to which the SOLAS Convention applies to a port outside such country, or conversely.<br>*2 excluding vessels used for the business of transportation of goods with a gross tonnage of less than 500 gross tonnage to be used to be used for shipping service of the goods, and also excluding all fishing vessels.<br>・accident which caused a serious impact on environment by spilling of oil, etc.<br>・marine accident, etc. or a marine accident as a result of which any unprecedented damage has arisen<br>・in addition to what is listed in the preceding items, the accident determined by the Board to fall under any the following items (a) to (c) inclusive<br>a) accident which had particularly serious influence on the society<br>b) accident the identification of the cause of which is extremely difficult; and<br>c) accident which would teach an important lesson for prevention of marine accident, etc. and in the event of a marine accident for alleviating damage in the cases where marine accident takes place.</td></tr>
<tr><td>Less serious marine accidents and incidents</td><td>Office in charge of investigation: Regional investigators in the regional offices<br>Committee in charge of deliberation and adoption: Maritime Expert Committee</td></tr>
</table>

## 4 Jurisdiction of the Offices over Marine Accidents and Incidents

Our jurisdiction covers marine accidents and incidents in the water areas around the world, including rivers and lakes in Japan, and regional accident investigators placed in regional offices (8) are in charge of marine accidents other than serious accidents.




**Local Office Jurisdiction Map**

## 5 Statistics of investigations of marine accidents and incidents

(As of end of December 2024)

The JTSB carried out investigations of marine accidents and incidents in 2024 as follows:

In 2024, 604 accident investigations had been carried over from 2023, and 610 accident investigations were newly launched. Besides, 638 investigation reports were published in 2024, and thereby 576 accident investigations were carried over to 2025.

Moreover, 148 incident investigations were carried over from 2023, and 94 incident investigations were newly launched in 2024. Furthermore, 162 investigation reports were published in 2024 and thereby 80 incident investigations were carried over to 2025.

Among the 800 investigation reports published, none was issued with recommendations, and one was issued with opinions.

Investigations of marine accidents and incidents in 2024

(Cases)

| Category | Carried over from 2023 | Launched in 2024 | Transferred to Tokyo Office | Total | Published investigation reports | (Recommendations) | (Safety Recommendations) | (Opinions) | Carried over to 2024 | (Interim report) |
|---|---|---|---|---|---|---|---|---|---|---|
| Marine accident | 604 | 610 | 0 | 1,214 | 638 | (0) | (1) | (1) | 576 | (6) |
| Tokyo Office (Serious cases) | 16 | 9 | 1 | 26 | 12 | (0) | (1) | (0) | 14 | (6) |
| Regional Offices (Less serious cases) | 588 | 601 | △1 | 1,188 | 626 | (0) | (0) | (1) | 562 | (0) |
| Marine incident | 148 | 94 | 0 | 242 | 162 | (0) | (0) | (0) | 80 | (0) |
| Tokyo Office (Serious cases) | 0 | 0 | 0 | 0 | 0 | (0) | (0) | (0) | 0 | (0) |
| Regional Offices (Less serious cases) | 148 | 94 | 0 | 242 | 162 | (0) | (0) | (0) | 80 | (0) |
| Total | 752 | 704 | 0 | 1,456 | 800 | (0) | (1) | (1) | 656 | (6) |

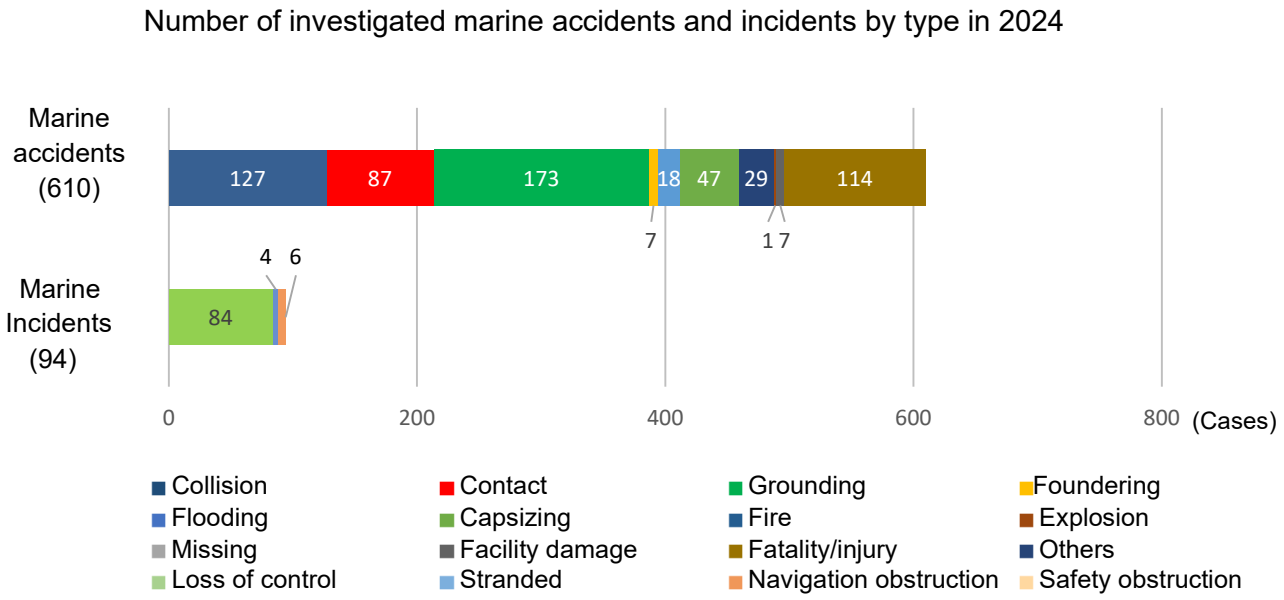
Note 1: The figures for “Launched in 2024” includes cases which occurred in 2023 or earlier, and which the JTSB was notified of in 2023 as subjects of investigation.

Note 2: The column “Transferred to Tokyo Office” shows the number of cases where the investigation found out that it was serious and the jurisdiction was transferred from the regional office to the Tokyo Office.

## 6 Statistics of investigated marine accidents and incidents (As of end of December 2024)

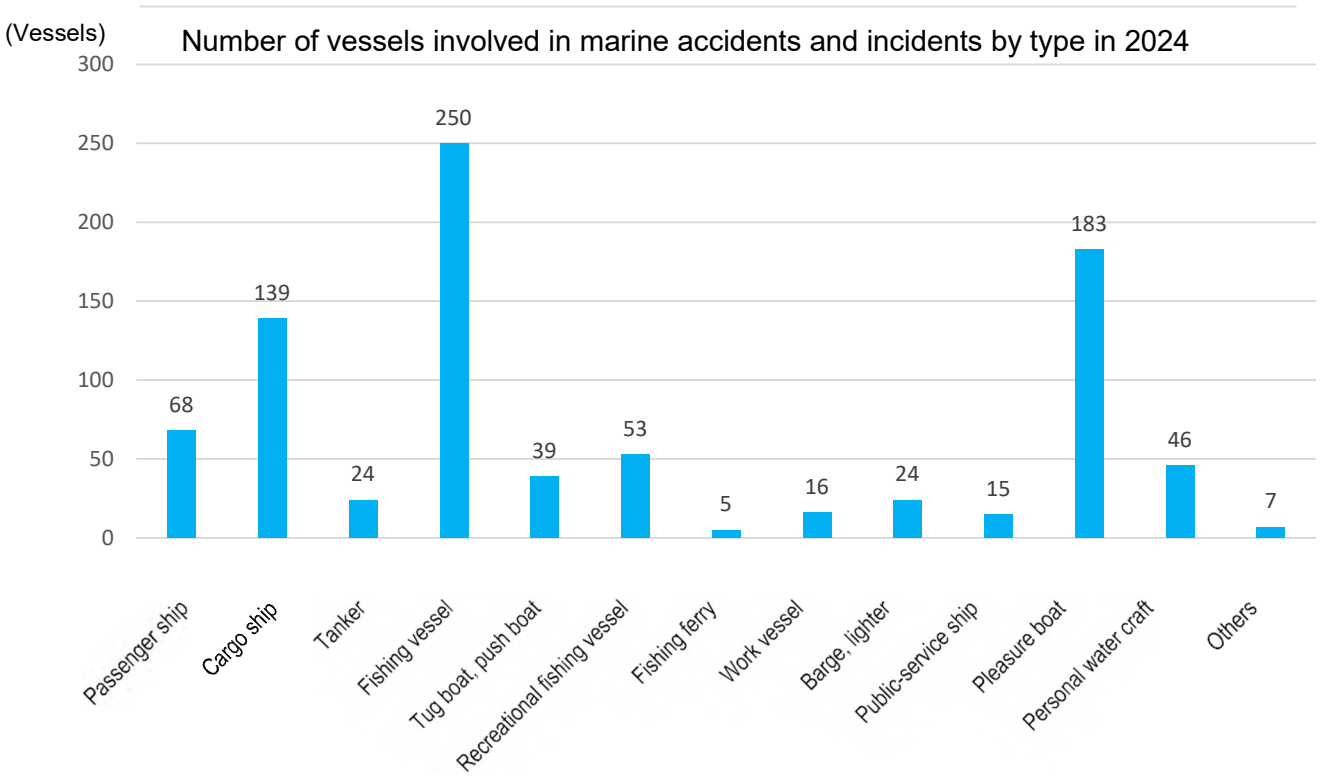
(1) Types of accidents and incidents

The breakdown of the 610 new investigations launched in 2024 by type of accidents and incidents is as follows: The marine accidents, in descending order included 173 cases of grounding, 127 cases of collision, 114 cases of fatality/injury (not involved in other types of accidents), and 87 cases of contact. The marine incidents included 84 cases of loss of control, six cases of navigation obstructions, and four cases of stranded. Objects that contacted with ships included quays in 21 cases, breakwaters in 15 cases, piers in 11 cases, and light buoy in 9 cases.




(2) Types of vessels

The number of vessels involved in marine accidents and incidents was 869. By type of vessel, they included 250 fishing vessels, 183 pleasure boats, 139 cargo ships, 68 passenger ships, and 53 recreational fishing vessels.



The number of foreign-registered vessels involved in marine accidents and incidents was 32, and they were classified by accident type as follows: 16 vessels in collision, ten vessels in contact, three vessels in grounding, and two vessels in loss of control. As for the flag of vessels, twelve vessels were registered in Panama, five vessels in Republic of Korea, four vessels in the Republic of Liberia, two vessels in the Republic of the Marshall Islands, and two vessels in the Commonwealth of The Bahamas.

Number of foreign-registered vessels by flag

(Vessels)

| | | | | | |
|---|---|---|---|---|---|
| Panama | 12 | Republic of Korea | 5 | Republic of Liberia | 4 |
| Commonwealth of The Bahamas | 2 | Republic of the Marshall Islands | 2 | Others | 7 |

(3) Number of fatality, injury or missing persons

The number of fatality, injury or missing person was 333, consisting of 87 fatality, 16 missing persons, and 230 injured persons. By type of vessel, 106 persons in fishing vessels, 52 persons in passenger ships, and 45 persons in pleasure boats. By type of accident, 120 persons in fatality/injury, and 23 persons in capsizing, 74 persons in collision, 68 persons in contact, and 29 persons in grounding.

With regard to the number of person's dead or missing, 53 persons were involved in fishing vessel accidents, 24 persons in pleasure boat accidents, and ten persons in tanker accidents, indicating fatality or missing cases occurred frequently in fishing vessels.

Number of fatality, missing or injury (marine accident)

(Persons)

| 2024 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vessel type | Dead | | | Missing | | | Injured | | | Total |
| | Crew | Passengers | Others | Crew | Passengers | Others | Crew | Passengers | Others | |
| Passenger ship | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 41 | 2 | 52 |
| Cargo ship | 4 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 5 | 16 |
| Tanker | 8 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 12 |
| Fishing vessel | 41 | 0 | 2 | 10 | 0 | 0 | 51 | 0 | 2 | 106 |
| Tug boat, push boat | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 5 |
| Recreational fishing vessel | 1 | 1 | 0 | 0 | 0 | 0 | 5 | 47 | 0 | 54 |
| Fishing ferry | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Work vessel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Barge, lighter | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Public-service ship | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 4 |
| Pleasure boat | 14 | 0 | 7 | 3 | 0 | 0 | 9 | 2 | 10 | 45 |
| Personal water craft | 2 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 18 | 30 |
| Others | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 4 |
| Total | 73 | 2 | 12 | 16 | 0 | 0 | 96 | 92 | 42 | 333 |
| | 87 | | | 16 | | | 230 | | | |

*The figures above include accidents under investigation and therefore are subject to change depending on the course of investigations and deliberations.

## 7 Summaries of serious marine accidents and incidents which occurred in 2024

The serious marine accidents which occurred in 2024 are summarized as follows.

(Marine accident)

| | | |
|---|---|---|
| 1 | Date and location | Vessel type and name, accident type |
| | January 16, 2024<br>Orido Bay, Shimizu Ward, Shizuoka City, Shizuoka Prefecture | Towed vessels 13<br>Capsizing |
| | Summary | While the vessel was being towed and sailing, it capsized.<br>One fishing passenger on the vessel was thrown out and rescued, but was unconscious and transported to hospital, later fatality of the passenger was confirmed. |
| 2 | Date and location | Vessel type and name, accident type |
| | March 20, 2024<br>Off Mutsurejima, Shimonoseki-shi, Yamaguchi Prefecture | Chemical Tanker KEOYOUNG SUN<br>Capsizing |
| | Summary | Chemical Tanker KEOYOUNG SUN was capsized off Mutsurejima, Shimonoseki-shi, Yamaguchi Prefecture |
| 3 | Date and location | Vessel type and name, accident type |
| | May 20, 2024<br>Ishinomaki Port Hibarino North Pier, Ishinomaki-shi, Miyagi Prefecture | Bulk Carrier EVER FELICITY<br>Injury and Fatality of Stevedores |
| | Summary | While the bulk carrier EVER FELICITY berthed at quay, two stevedores engaged in cargo handling operations and were found collapsed inside a cargo hold. Both of Stevedores were transported to a hospital; one was later pronounced fatality. |
| 4 | Date and location | Vessel type and name, accident type |
| | July 2, 2024<br>Tomakomai Port, Tomakomai City, Hokkaido | Passenger car ferry SILVER BREEZE<br>Collision (with tetrapods) |
| | Summary | The passenger car ferry Silver Breeze (8,901 tons, 21 crew members and 119 passengers) collided with a tetrapod revetment in the western part of the port while entering Tomakomai Port. |
| 5 | Date and location | Vessel type and name, accident type |
| | July 28, 2024<br>Sakaiminato | Recreational fishing vessel DAINI AI MARU<br>Collision (with tetrapods) |
| | Summary | The recreational fishing vessel Daini Ai Maru collided with wave-absorbing tetrapods of the Sakaiminato second breakwater while returning to Sakaiminato. |
| 6 | Date and location | Vessel type and name, accident type |
| | October 16, 2024<br>Off the east coast of Ogawa Island, Karatsu City, Saga Prefecture | Recreational fishing vessel TOMIFUKU MARU<br>Fatality |
| | Summary | When the recreational fishing vessel Tomifuku Maru was sailing off the east coast of Ogawa Island, Karatsu City, one fishing passenger fell overboard and was killed. |
| 7 | Date and location | Vessel type and name, accident type |
| | November 10, 2024<br>Off the coast of Oshima, Munakata City, Fukuoka Prefecture | Minesweeper UKUSHIMA<br>Fire |
| | Summary | A fire broke out in the engine room of the minesweeper UKUSHIMA.<br>One crew member of the minesweeper Ukushima was missing, and one person sucked smoke and was transported to the hospital. |
| 8 | Date and location | Vessel type and name, accident type |

| | | |
|---|---|---|
| | November 23, 2024<br>Around the Kobe West Route, Kobe Ward, Hanshin Port | Cargo ship YIANNIS N.G (Vessel A)<br>Pushboat Shoei Maru (Vessel B) Barge Chuo 2000<br>Collision |
| | Summary | The cargo ship YIANNIS N.G. and the barge Chuo 2000 collided near the Kobe West Route, and Vessel B capsized. |

The above details may change depending on the progress of the investigation

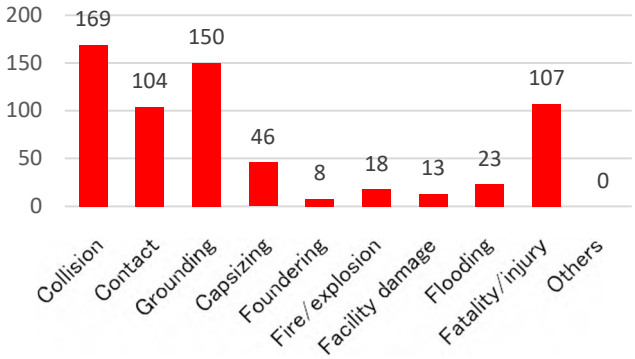
## 8 Publication of investigation reports

The number of investigation reports of marine accidents and incidents published in 2024 was 800, consisting of 638 marine accidents (among them, 12 were serious) and 162 marine incidents.

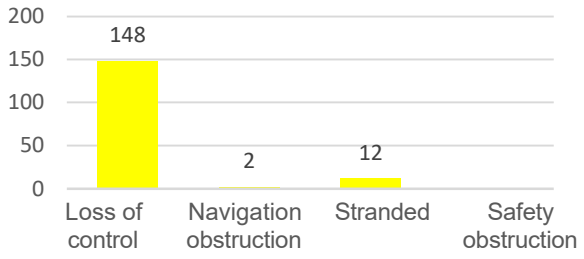
Breaking them down by type, the marine accidents included 169 cases of collision, 150 cases of grounding, 107 cases of fatality/injury, and 104 cases of contact. The marine incidents included 148 cases of losses of control, (139 cases of navigational equipment failure, nine cases of fuel shortages, etc.), 12 cases of stranded, two cases of navigation obstruction, and one case of safety obstruction.

As for the objects of contact, 31 were quays, 16 were breakwaters, and 11 were tetrapods

Marine accidents (638 cases)
reports publicized in 2024




Marine incidents (162 cases)
reports publicized in 2024




The number of vessels involved in marine accidents and incidents was 1,005. Breaking them down by type, the marine accidents involved 261 fishing vessels, 187 pleasure boats, 126 cargo ships, 63 personal water crafts, and 53 passenger ships. The marine incidents involved 101 pleasure boats, 17 cargo ships, 16 fishing vessels, and 8 recreational fishing vessels.

**Number of vessels by type involved in marine accidents and incidents for which reports were publicized in 2024**

(Vessels)

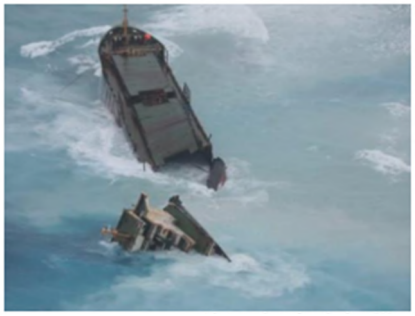
| Classification | Passenger ship | Cargo ship | Tanker | Fishing vessel | Tug boat, Push boat | Recreational fishing vessel | Fishing ferry | Work vessel | Barge, lighter | Public-service ship | Pleasure boat | Personal water craft | Others | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Marine accident | 53 | 126 | 29 | 261 | 33 | 63 | 2 | 18 | 18 | 13 | 187 | 31 | 7 | 841 |
| Marine incident | 5 | 17 | 3 | 16 | 3 | 8 | 0 | 3 | 1 | 1 | 101 | 6 | 0 | 164 |
| Total | 58 | 143 | 32 | 277 | 36 | 71 | 2 | 21 | 19 | 14 | 288 | 37 | 7 | 1,005 |
| Composition ratio (%) | 5.8 | 14.2 | 3.2 | 27.6 | 3.6 | 7.1 | 0.2 | 2.1 | 1.9 | 1.4 | 28.7 | 3.7 | 0.7 | 100.0 |

The marine accidents and serious incidents which occurred in 2024 are summarized as follows:

Marine serious accident reports published in 2024

<table>
<tr><td rowspan="4">1</td><td>Date of publication</td><td>Date and location</td><td>Vessel type and name, accident type</td></tr>
<tr><td>February 29, 2024</td><td>November 30, 2020<br>Off the northwest coast of the Hawaiian Islands, U.S.A.</td><td>Container Ship ONE APUS<br>Damage to container hatchcover,etc.</td></tr>
<tr><td>Summary</td><td colspan="2">While the vessel, with the master and 23 other crew members on board, was proceeding east-southeast off the west-northwest coast of Niihau Island, Hawaiian Islands, U.S.A., the cargo shifted due to horizontal shaking, causing containers to fall into the sea.<br>The vessel had holes, etc. in the container loading platform.<br>  </td></tr>
<tr><td>Probable causes</td><td colspan="2">It is probable that the cause of the Accident was that, at night when the vessel was proceeding east-southeast off the west-northwest coast of Niihau Island in the Hawaiian Islands, when the ship was experiencing swells of approximately 5 to 6 m from the northwest and north-northwest directions on the port side and stern, and the master attempted to reduce the rolling. As the ship was sailing on a course of approximately 140°, the direction of the swell was close to the danger zone where the ship received waves from 30° to 60° to port stern, resulting in a roll angle of over 20° and the first cargo collapse.<br>After that, the master felt the rolling become even more intense, changed the course to approximately 120° and continued sailing, causing the direction of the swell to shift from the stern of the ship to 30° to 60° to port.<br>It is thought that this caused the cargo to enter the danger zone, resulting in a roll angle of 25 ° or more, and the second collapse of the cargo occurred.<br>It is probable that the cargo on the ship collapsed, causing the loaded containers to collapse and damage to container hatch cover and other equipment on deck leading to this accident. The master set the course at approximately 140° and the direction of the swell was close to the danger zone. probably due to the fact that he could not properly assess the sea conditions at night.<br>The vessel is considered to have proceeded under conditions that were prone to parametric rolling[*1] from about 21:40 on November 30, when the rolling began, to about 00:59 on December 1, when the ship changed course significantly.<br>[*1] Parametric roll is a resonance phenomenon in which the roll of a ship is rapidly amplified when the roll period of the ship and the encounter period of waves are in a certain relationship.</td></tr>
<tr><td>Safety actions</td><td colspan="2">Company A should continue to establish a system to assist masters, as necessary, in determining passage plans when heavy weather is expected, such as parametric rolling, etc.</td></tr>
<tr><td>Report</td><td colspan="2">https://jtsb.mlit.go.jp/ship/rep-acci/2024/MA2024-2-1_2022tk0001.pdf (Japanese<br>https://jtsb.mlit.go.jp/eng-mar_report/2024/2022tk0001e.pdf (English)</td></tr>
<tr><td rowspan="3">2</td><td>Date of publication</td><td>Date and location</td><td>Vessel type and name, accident type</td></tr>
<tr><td>March 28, 2024</td><td>January 24, 2023<br>Off the northwest of Taketomi Island, Taketomi Town, Okinawa Prefecture</td><td>The cargo ship XIN HAI ZHOU 2 (Panama)<br>Grounding</td></tr>
<tr><td>Summary</td><td colspan="2">The cargo ship was drifting for the purpose of time adjustment off the west of Ishigaki Island, Ishigaki City, Okinawa Prefecture, when she was pushed by the wind and waves. She therefore started her main engine and navigation; however, she continued to be pushed without gaining sufficient propulsion or rudder effect and ran aground on a shallow reef off the northwest of Taketomi Island. The cargo 2's hull subsequently broke in two at her center section.</td></tr>
</table>

**Probable causes**



Provided by the Japan Coast Guard

It is probable that the accident occurred when, under conditions in which a gale warning for the sea south of Okinawa and southern part of the East China Sea as well as a high winds advisory and heavy seas warning for Ishigaki City and Taketomi Town had been issued, the Vessel drifted off the west of Ishigaki Island, where the Shallow Reef exists to the south, received northerly wind and waves from her port side and was pushed south; she continued to drift even after the wind and waves intensified until her distances to the Shallow Reef reached about 3 M; and she subsequently started her main engine and began navigating in an attempt to proceed north but could not gain sufficient propulsion and rudder effect to overcome the external forces, and therefore she continued to be pushed in an uncontrollable state and ran aground on the Shallow Reef.

It is somewhat likely the Vessel could not gain sufficient propulsion and rudder effect after she started her main engine because the Master continued to use the main engine at half-ahead revolutions and did not use the maximum available output, resulting in main engine output that was approximately 40% of the MCR.

It is probable that the Vessel drifted off the west of Ishigaki Island, where the Shallow Reef existed to the south and where she received wind and waves from the north, without taking refuging steps, such as heaving to[*1] using the main engine, because the Master thought based solely on weather information he obtained from on overseas weather information website that the weather and sea conditions would not present a problem for navigation if they were as forecasted.

It is probable that the Vessel continued to drift even after the wind and waves intensified until her distance to the Shallow Reef reached about 3 M because the Master thought the weather and sea conditions would not present a problem for navigation if they were as forecasted and therefore did not instruct the officer of the watch to monitor and maintain the Vessel's position during drifting and did not specify matters to be reported to the Master concerning changes in weather and sea conditions, etc., or the timing of such reports.

[*1] "Heaving to" is a method of ship maneuvering for keeping a vessel in place by using enough forward propulsion from the main engine to maintain the rudder's effectiveness during stormy weather and catching the wind and waves at slight angle to the bow.

**Safety actions**

The following measures are possible to prevent recurrence of and mitigate the damage caused by similar accidents:

- In cases where a passage plan must be changed, the master of a vessel should obtain the latest data and information on the revised destination and weather and sea conditions from the ship management company or local ship's agent.
- The master should make weather predictions based on comprehensive judgments from multiple sources of weather information, including forecasts from local weather authorities. When weather and sea conditions are expected to worsen and a safer anchorage is available inside port, the master should coordinate with their ship's agent[*2] or other concerned party to permit early port entry. If a suitable place to refuge is unavailable, the master should consider moving to safe waters away from the shore and using the main engine to turn the bow to windward or heave to.
- When drifting, the master should select a drifting location with no shallow reefs or other such features downwind that is suitable for the forecasted weather and sea conditions as well as geographical conditions.
- The master should confirm in advance the possibility of arranging a tugboat in case the vessel's control becomes difficult. When intending to use a tugboat, the master should request it with plenty of time to spare.
- When drifting, the master should give clear instructions to the officer of the watch concerning monitoring and maintaining the ship's position and specify the matters to be reported to the master concerning changes in weather and sea conditions, etc., and the timing of such reports, and should have officers of the watch make reports to the master so that moving to a safe area can be completed as soon as possible before the danger of approaching a shallow reef, etc., increases.
- The master and officers should, based on a full understanding of the vessel's maneuvering performance and engine performance, handle the main engine within a range that extends to its maximum available output so that sufficient propulsion can be obtained for early movement to a safe area if the vessel encounters stormy weather.

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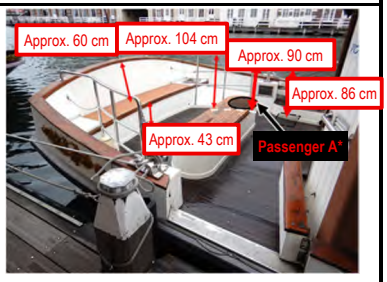
| | | ・The master should share information on the status of ship operations, use of the main engine, and other matters between the bridge and the engine room, and should establish an operating environment that allows him or her to receive advice on the use of the main engine not only from the crew members on the bridge but also from those in the engine room.<br><br>*2"Ship's agent" refers to a business operator who, based on a contract, acts as an agent for the shipping company or master of a vessel when the vessel enters or leaves a port. The agent secures the wharf and other facilities, coordinates cargo handling arrangements, completes procedures for entering/leaving port with concerned government agencies, arranges for pilots and tugboats, and handles other necessary matters. | |
| | Report | https://jtsb.mlit.go.jp/ship/rep-acci/2024/MA2024-3-1_2023tk0001.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-mar_report/2024/2023tk0001e.pdf (English) | |
| 3 | Date of publication | Date and location | Vessel type and name, accident type |
| | April 25, 2024 | April 12, 2023<br>Sasebo City, Nagasaki Prefecture | Passenger ship DELFT<br>Fatality |
| | Summary | While the passenger ship DELFT, operated by the master alone, with seven passengers on board, was sailing through a canal in a theme park, one passenger fell overboard and died. | |
| | Probable causes | It is probable that the accident occurred during the night, while the vessel was sailing in the canal in Huis Ten Bosch, Passenger A fell overboard and drowned. It is likely that Passenger A fell overboard from near the gangway of the port side on the stern deck, but as there were no witnesses and no objective information was available, the situation that led to Passenger A falling into the water could not be clarified.  | |
| | Safety actions | The vessel is an attraction for the theme park as well as a vessel engaged in regular ferry line service for general passengers. It is desirable that the operators, including the company, who operate the vessels in theme parks, take safety measures based on both tangible and intangible elements to reassure passengers.<br>The company suspended the operation of the Canal Cruiser after the accident, but resumed operation on April 18, 2023 after taking the following measures.<br>・It was decided that passengers on the stern deck should be requested to wear lifejackets, and the company posted that on the stern deck (in four languages (Japanese, English, Korean and Chinese)) as well as informed the passengers (in four languages) through broadcasting before boarding and at the time of departure, and it equipped lifejackets on the stern deck. Safety management regulations were also revised.<br>・It was decided that passengers should not move from their seats while the boat was in motion, and the company posted that on the stern deck (in four languages) and informed (in four languages) through broadcasting before boarding and at the time of departure.<br>・A camera with a recording function was installed on the stern deck and the rear of the cabin, and a monitor installed in the cockpit was displayed.<br>・A message requesting passengers not to lean forward was posted on the stern deck in larger letters than before the accident (in four languages).<br>・In addition to the rope on the gangway, a rope was also installed on the inside.<br>・The vessel and outboard motor boat were equipped with portable lights to help ensure the safety of passengers at night.<br>In addition, it is probable that the following measures will help mitigate damage in similar accidents in future.<br>・It is desirable to conduct drills assuming various accident responses that may occur during operation, such as searching for water droppers at night and rescuing unconscious men overboard. | |
| | Report | https://jtsb.mlit.go.jp/ship/rep-acci/2024/MA2024-4-1_2023tk0005.pdf (Japanese only) | |
| 4 | Date of publication | Date and location | Vessel type and name, accident type |

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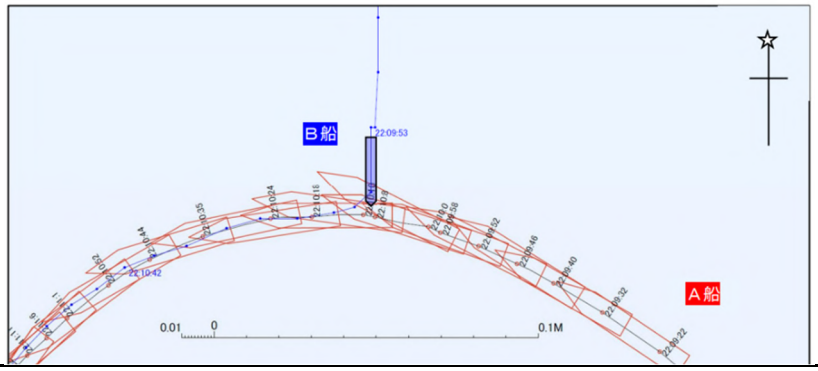
| | May 30, 2024 | February 29, 2020<br>Off the east coast of Nakayamazaki, Rokkasho village, Aomori Prefecture | Cargo Ship, GUO XING 1(Vessel A, Belize)<br>Fishing Vessel, TOMI MARU No. (Vessel B)<br>Collision |
| | Summary | Vessel A with the master and 13 crew members on board, was heading north toward Dangjin, Republic of Korea, and the fishing vessel TOMI MARU No. 8, with the master and 14 crew members on board, was heading south toward Hachinohe Port, Aomori Prefecture.<br>  | |
| | Probable causes | The JTSB concludes that the probable cause of this accident was that, when Vessel A was heading north toward the Republic of Korea and Vessel B was heading south toward Hachinohe Port after fishing operation at off the east coast of Nakayamazaki Rokkasho Village, during night, since Vessel A turned to starboard and sailing the course which was east side of extended course of Vessel B and Vessel A approached around 0.6M to Vessel C which was forward sailing toward south of east side of vessel B, Vessel A turned to port exponentially and sailing toward north-west under same speed and Vessel B was also sailing same course and speed continuously. Therefore, it is probable that two vessels were collided.<br>It is probable that Vessel A turned to port exponentially and sailing toward north-west under same speed after heading to the east of the extended course of Vessel B in order to avoid to collider with Vessel C. However, since the Officer A2 who was navigational watch on duty of Vessel A was disappearance, it could not be determined why especially the cause to turn to port exponentially.<br>When Chief fisherman B saw two lights of which were red light (port side light) and masthead light, he seemed that Vessel A sailed around 020° on the course. Since he believed that Vessel A could pass in forward of the Vessel B safely and Vessel A could pass port to port with Vessel C, Chief Fisherman B was watching the fish finder continuously and he could not find to be approach from Vessel A. Therefore, it is probable that Vessel B was sailing continuously under same speed and same course. | |
| | Safety actions | The master and navigational watch officer should be following measures in order to prevent the recidivating similar accidents and mitigate the damage caused by the accident.<br>(1) Officer of the Watch should confirm the surroundings of the vessel properly using radar etc., if they take action to avoid collision with other vessel, it should take care that the vessel does not approach to other vessel such as the course should be substantially changed and speed should be substantially decreased.<br>(2) If Officer of the Watch sees other vessel which is approached to this vessel, they should properly monitor the movement of another vessel until the vessel passes, even if the situation of two vessels can safely pass each other.<br>(3) If Officer of the Watch sees several vessels which are sailing same course without distance each other, since it may difficult to avoid from other vessels when the vessel enter in the extended course of other vessels, the vessel should be away from course of other vessels as soon as possible.<br>(4) If the vessel flood during to sail by accidents, the master should stop the running of Main Engine immediately and judge of status of the danger. If the vessel is in danger, the master should order and action to abandon from ship. If the abandon ship is ordered, crews should wear clothing possible to prevent loss of body heat and wear life jackets (or carry them if there is no time to put them on). In addition, the equipment listed on Master List (EPARB[*1], radar transponder and other radio life-saving equipment, blankets and other cold protection equipment, food and drinking water, and designated documents) should carry and go to a designated master station.<br>The master of the vessel shall ensure that the crews are familiar with the life-saving appliances | |

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| | | on board, such as life rafts, immersion suits, radio life-saving appliances, etc., and that they are proficient in their use.<br><br>*1 "EPARB : Emergency Position Indicating Radio Beacon" refers to a buoy-type radio device that emits a distance signal to a satellite and is automatically levitated by a water pressure sensor when a vessel sinks and sends out a distress signal. | |
| | Report | https://jtsb.mlit.go.jp/ship/rep-acci/2024/MA2024-5-1_2020tk0003.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-mar_report/2024/2020tk0003e.pdf (English) | |
| 5 | Date of publication | Date and location | Vessel type and name, accident type |
| | May 30, 2024 | April 2, 2023<br>Off the west coast of Kamo Fishing Port, Oga City, Akita Prefecture | Recreational fishing vessel KIMIMARU<br>Fatality of Passenger |
| | Summary | While the vessel, operated by the master alone, with three anglers on board, was drifting for recreational fishing off the west coast of Kamo Fishing Port in Oga City, one angler fell overboard and died. | |
| | Probable causes | It is probable that this accident occurred while the vessel was drifting for recreational fishing off the west coast of Kamo Fishing Port in Oga City, Passenger A fell overboard and drowned.<br>It is possible that Angler A fell overboard from a crouching or standing position while the hull was rolling somewhere on the port side of the vessel, but the witness was not present and the situation of falling water could not be clarified. | |
| | Safety actions | The following matters, which may be useful for preventing any similar accidents from recurring and mitigating damage in future should be heeded:<br>・Masters of recreational fishing vessels, regardless of whether sailing or harvesting aquatic animals and plants, shall pay the utmost attention to ensuring passenger's safety by constantly monitoring the conditions of the passengers on board.<br>・Masters of recreational fishing vessels shall check whether lifejackets brought by passengers are those for small vessels that conform to the type approval standards of the Ministry of Land, Infrastructure, Transport and Tourism, and in case they do not conform to the standards, shall ensure passengers wear lifejackets that conform to said standards on board.<br>・It is desirable that lifejackets worn by passengers of recreational fishing vessels should be of the crotch string type.<br>・Passengers of recreational fishing vessels shall, when wearing lifejackets, tighten fasteners, etc. securely, adjust them to suit their bodies, and wear them appropriately to ensure they remain in place if the passenger falls overboard. The crotch string should always be used if present. | |
| | Report | https://jtsb.mlit.go.jp/ship/rep-acci/2024/MA2024-5-2_2023tk0004.pdf (Japanese only) | |

| 6 | Date of publication | Date and location | Vessel type and name, accident type |
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| | July 25, 2024 | November 9, 2021<br>Akaishi, Komatsushima District, Tokushima Komatsushima Port, Tokushima Prefecture - 10m berth | Container Ship DONGJIN FORTUNE (Republic of Korea)<br>Fatality of the Linesman |
| | Summary | When the vessel with master and 16 crew members on board were during an operation of berthing on the Akaishi-10m berth with starboard side, a linesman who was working at the berth to connect the ship's mooring line to the bollard was seriously injured when he was hit by a mooring line bouncing up, and he had subsequently died.<br>  | |
| | Probable causes | Under the subject vessel was berthing operation at Komatsushima District, Tokushima Komatsushima Port, Tokushima Prefecture, when this spring line caught on the underside of this fender and receiving the tension, the linesman A looked diagonally downward from near upper edge of the berth located this fender in order to confirm the status of this spring line. When this spring line came off from underside of this fender and bounced up, since linesman A's head was entered in the area that this spring line was bounced up and this spring line hit to his head, it is probably that this accident had occurred. | |
| | Safety actions | It was probably that the following measures are useful in preventing the recurrence of similar accidents in the future.<br>・ The company contracting the mooring line work must conduct specific safety training to the linesman of the mooring work at shore such as inform the accident example and clearly indicating of the dangerous area, regarding the risk of snapback which the mooring line under tension is ruptured and bounced back, and risk of the mooring line of tautness was released and bounced up after the mooring line catch on the obstacle and pull. Also, during field meetings prior to work, when the mooring line is caught between the hull and the fender and the mooring line is receiving tension, specific precautions for each stage of work must be clearly indicated and strictly observed such as requiring ships leaving or arriving at the berth to loosen the mooring line.<br>・ The company contracting the mooring line work is advisable to decide on signals in advance, and ask your business partners to help publicize and utilize the information in order to improve the communication between crew members of docking and departing vessels and workers on shore.<br>The company has implemented the following measures to prevent the occurrence of similar accidents.<br>・ Since the company has been conducted re-evaluation of the organizational structure within the company and Safety and Health Manager has been provided to each department of assuming field work, a more detailed safety management system has been established.<br>・ The company organized the hand signals for mooring work (hereinafter referred to as "hand signals") in order to improve communication with the ship's side, and the documents which was described the explanation and how to use of hand signal have been distributed to the business acquaintance trough agents and requested the ship's side to use them and cooperate with us.<br>・ During the mooring work, the observer has been provided in addition to the lines man who are engaged in the mooring work, in order to observe the condition of work of the crew on bord ship leaving and berthing as well as overall mooring work status, communicate with ship side by hand signal, and provide necessary safety instructions.<br>・ The company has been created the documents of the mooring work procedure which is described specific precaution statement such as the substance and procedure of the field work, setup and function of Observer, communication with Ship side by hand signal, and the marking of the dangerous area during the work. In this regard, the company has conducted the confirmation of the | |

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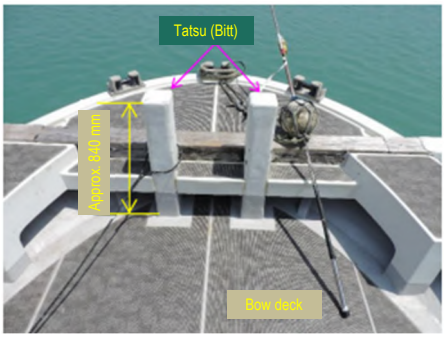
| | | substance and procedure of the field work and safety guidance by using this document in the meeting prior to commencing work.<br>・ The company has held a safety and health meeting once a month at each branch and each office, and provided safety guidance and education to linesman using work procedures and accident examples.<br>・ The company has collected various risks during field work, compile them into near-miss reports along with improvement measures, etc., and share and inform each department within the company and each field. |
| | Report | https://jtsb.mlit.go.jp/ship/rep-acci/2024/MA2024-7-1_2022tk0005.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-mar_report/2024/2022tk0005e.pdf (English) |

| 7 | Date of publication | Date and location | Vessel type and name, accident type |
|---|---|---|---|
| | July 25, 2024 | May 7, 2023<br>Off the south coast of Kudaka Island, Nanjo City, Okinawa Prefecture | Recreational fishing vessel SEISHOMARU<br>Injury of Passenger |
| | Summary | While the vessel, operated by the master alone, with ten anglers on board, was proceeding off the south-southeast coast of Kudakashima Island, two anglers on the bow were injured when the bow rolled up and down violently.<br>  |
| | Probable causes | It is probable that this accident occurred because under conditions of swell and waves from the south, while proceeding south-southeast at a speed of about 9 knots off the south coast of Kudakashima Island, the master thought that the speed of the main engine had been lowered sufficiently and continued to navigate with the anglers on the bow deck. Therefore, when the bow was struck by waves about 2.0 m high at the bow and the bow rolled violently up and down, Angler A suffered injury to the buttocks and back when colliding with the bow deck and the left face of Angler B collided with the bow, injuring him. |
| | Safety actions | The following matters, which may be useful for preventing any similar accidents from recurring and mitigating damage in future should be heeded.<br>・Masters and other responsible parties of recreational fishing vessels, etc. should comply with the departure cancellation standards stipulated in the operational guidelines, obtain the latest weather and sea conditions information in advance, and determine whether or not to depart.<br>・Masters and other responsible parties of recreational fishing vessels, etc. should ensure that users observe the precautions before boarding the vessel, such as the risk of the bow rolling up and down violently due to the vessel's motion, which may pose an injury risk and that they wear lifejackets except in the cabin while on board the vessel.<br>・Masters and other responsible parties of recreational fishing vessels, etc. should pay attention to the height and direction of the waves during navigation, and when the vessels are rolling due to the impact of waves, taking the rolling characteristics during navigation, etc. into consideration, should comply with accident prevention provisions for users due to rolling in the operational guidelines, in accordance with the contents of the opinions expressed by the JTSB to the Director-General of the Fisheries Agency on February 16, 2023, e.g. by reducing rolling by changing the course to the waves and reducing to a sufficiently safe speed, and instructing users from the central part to the rear of the hull.<br>・It is desirable that the masters of recreational fishing vessels and recreational fishing vessel operators take measures to ensure that precautions, etc. are communicated to foreign users by, for |

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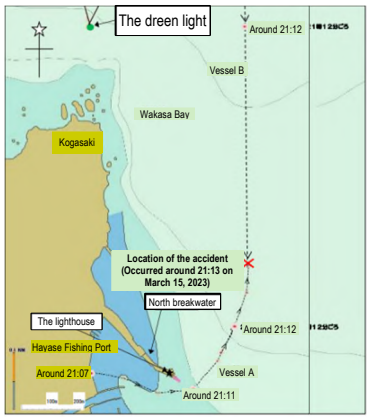
| | | example, distributing leaflets translated into multiple languages using easy-to-understand illustrations to users and utilizing tablet terminals with multilingual voice translation applications, assuming that foreign tourists use recreational fishing vessels.<br>・In view of the fact that the accident occurred that the recreational fishing vessel was suddenly hit by a wave about 2.0 m high while navigating on the ocean with waves about 1.5 m high, it is desirable for the master of the recreational fishing vessel to review the objective departure cancellation standards and return navigation standards stipulated in the operational guidelines from the perspective of both the safe operation of the recreational fishing vessel and ensuring passenger safety. |
| | Report | https://jtsb.mlit.go.jp/ship/rep-acci/2024/MA2024-7-2_2023tk0006.pdf<br>(Japanese only) |

| 8 | Date of publication | Date and location | Vessel type and name, accident type |
|---|---|---|---|
| | August 29, 2024 | March 15, 2023<br>Off the northeast coast of Hayase Fishing Port, Mihama Town, Fukui Prefecture | Recreational fishing vessel SHINGYOMARU (Vessel A)<br>Recreational fishing vessel SEA BRAVO (Vessel B)<br>Collision |
| | Summary | While Vessel A was proceeding north toward the fishing spot, and Vessel B was proceeding south after completing recreational fishing, both vessels collided. On Vessel A, one of the anglers died, one was seriously injured, one was slightly injured, and a crushing injury occurred between the starboard bow and the starboard side of the wheelhouse. In addition, Vessel B sustained a rupture to the bow and the starboard bottom.   |
| | Probable causes | It is probable that the accident occurred, while Vessel A was proceeding north off the northeast coast of Hayase Fishing Port at night, while Vessel B was proceeding south after completing recreational fishing, Master A, who was distracted by a conversation with a fellow shipmate on the mobile phone, continued to navigate while watching the Green Light on the port bow, which is the course target, and did not keep a proper lookout on the right ahead. In addition, Master B thought that there were no other vessels at about 1 M from Hayase Fishing Port that would interfere with the navigation, continued to navigate with a blind spot created by the bow lift, and did not keep a proper lookout to compensate for the blind spot on the bow. Accordingly, the two vessels approached each other unawares and collided. |
| | Safety actions | The following matters may well be useful in preventing similar accidents from recurring in future.<br>・Masters should always keep an appropriate lookout, even in sea areas familiar to them, without relying solely on empirical trends in ship traffic over time to determine the presence or absence of other ships<br>・Masters should keep an appropriate lookout over the entire circumference near the altering course point without focusing excessively on specific objects such as the altering course target.<br>・In situations requiring particular attention, such as when entering or leaving port, near an altering course point, or when approaching another ship, masters should refrain from making calls using mobile phones or radio and concentrate on navigation.<br>・Since the existence of other vessels may be interrupted by port facilities such as breakwaters, masters of vessels entering and departing ports should navigate at a safe speed at which measures to give way can be taken, even if the other vessel is viewed from a short distance away.<br>・Masters operating vessels with blind spots at the bow should fill in the blind spots in every way possible and endeavor to detect other vessels approaching at an early stage, such as shaking the bow to the left and to the right, taking a face out of the wheelhouse, and utilizing radar.<br>・It is desirable for masters to install navigational radar reflectors even on small vessels which are exempt from this requirement, from the viewpoint of ensuring safety. |

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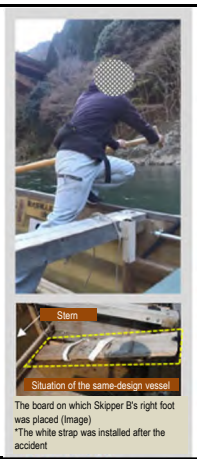
| | | ・It is desirable that shipowners should, as far as possible, ensure bow visibility when constructing or modifying ships.<br>Master A took the following measures after the accident; an infrared camera was installed at the bow to strengthen the lookout at night.<br>Master B took the following measures after the accident:<br>(1) The radar was renewed to enable the use.<br>(2) A trim tab (mounted on the stern and movable blades which control the inclination of the hull by adjusting the angle by the hydraulic pressure) was installed at the stern to reduce bow lift, and the blind spot in the bow was eliminated. |
| | Report | https://jtsb.mlit.go.jp/ship/rep-acci/2024/MA2024-8-1_2023tk0002.pdf<br>(Japanese only) |
| 9 | Date of publication | Date and location / Vessel type and name, accident type |
| | September 26, 2024 | March 28, 2023<br>Hozugawa River behind the mountain at Shinochooji, Kameoka City, Kyoto Prefecture<br>Passenger ship No. 9<br>Capsizing |
| | Summary | While the vessel, operated by four skippers and with 25 passengers on board, was sailing downstream in Hozu River, it capsized after landing on a rock field on the left bank, killing two skippers and injuring 19 passengers.<br>The vessel sustained damage to the port bow and the bottom of the port stern and starboard bow. |
| | Probable causes | It is probable that this accident occurred while the vessel was sailing along the normal route, when Skipper B fell overboard after being struck by the tiller and the wooden tiller extension went into the river. Skipper C hurriedly took over steering but was unable to regain control of the rudder. The vessel veered off course toward the port bank, and the bow struck rocks on the left bank, subsequently the vessel then capsized.<br>  <br>The board on which Skipper B's right foot was placed (Image)<br>*The white strap was installed after the accident |
| | Safety actions | The following matters may well be useful in preventing similar accidents from recurring and mitigating damage in future.<br>・Measures to prevent shippers from falling overboard (Analysis (2)①)<br>River rafting operators should take measures to prevent helmsmen from losing their balance and falling overboard, such as by providing them with a foothold.<br>・Measures to prevent rudder misalignment (Analysis (2)②)<br>River rafting operators should take measures to prevent rudder misalignment so that helmsmen can keep rudders operable even in the event that helmsmen have let go of rudders.<br>・Thorough enforcement of lifejacket wearing for skippers (Analysis (4)①a)<br>River rafting operators should check the lifejacket situation of each skipper when departing and thoroughly enforce the wearing of lifejackets, and ensure that lifejackets worn are of an appropriate size for their bodies.<br>・Thorough enforcement and providing sufficient explanation of the need to wear lifejackets for passengers(Analysis (4)①b)<br>River rafting operators should thoroughly enforce the wearing of lifejackets for passengers, ensure that both adults and children wear lifejackets of an appropriate size for their bodies, and provide sufficient explanations on wearing lifejackets, emergency operation methods, etc.<br>・Regular inspection of lifejackets, etc. (Analysis (4)①b)<br>River rafting operators should regularly inspect inflation devices (gas cylinders) of lifejackets, etc. and replace them if a certain period has elapsed and replacement is recommended.<br>・Securing communication means and establishing a communication system (Analysis (4)②)<br>River rafting operators should secure communication means, such as deploying IP radios on all boats, and check in advance the locations where calls and communications are possible along the operating route, share this information with the entire organization, and develop communication |

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| | | procedures and establish a communication system to enable rapid contact with rescue agencies in emergencies.<br>・Conduct regular training (Analysis (4)③)<br>River rafting operators should develop rescue procedures, establish rescue systems, when necessary, stipulate them in manuals and conduct practical training sessions based on these procedures at least once a year.<br>・Review of operational suspension standards (Analysis (5)①)<br>River rafting operators should take measures enabling safer operations, such as revising the water level criteria for suspending operations as needed.<br>・Training of skippers, maintenance and improvement of navigation skills (Analysis (5)②)<br>To maintain and improve skippers' maneuvering skills, river rafting operators should regularly assess the level of their skippers' maneuvering skills, provide necessary training and nurturing, and conduct regular training sessions, etc. Additionally, they should compile manuals on the skipper's maneuvering techniques, etc., as necessary.<br>・Identifying hazardous areas and sharing information (Analysis (5)③)<br>River rafting operators should take measures to ensure that all personnel involved in operations are aware of hazardous areas along the route, and should also share information about near misses and dangers during navigation. |
| | Report | https://jtsb.mlit.go.jp/ship/rep-acci/2024/MA2024-9-1_2023tk0003.pdf<br>(Japanese only) |

| 10 | Date of publication | Date and location | Vessel type and name, accident type |
|---|---|---|---|
| | September 26, 2024 | August 16, 2023<br>Off the Northwest coast of Shimoji Island, Miyakojima City, Okinawa Prefecture | Diving vessel CRYSTAL M<br>Capsizing |

**Summary**

While the vessel, operated by the master alone, with 12 diving passengers and seven instructors, was sailing off the northwest coast of Shimoji Island, it flooded and capsized.

The vessel sustained damage such as water damage to the engine room.



**Probable causes**

It is probable that this accident occurred off the northwest coast of Shimoji Island, when the wind direction changed from southwest to northwest while passengers were diving heavy winds and rain and high waves caused, the vessel continued to anchor with the open transom[*1] type stern facing northwest, with the anchor in from the stern, causing waves to crash onto the upper deck from the stern, and seawater, etc. flowing into the engine room from the stern storage, etc., reducing the freeboard. Furthermore, with passengers on board, the vessel continued to navigate with the stern lowered while being hit by waves approximately 2 m high without being able to drain off the water. As a result, water continued to flood the vessel as the upper deck at the stern became submerged, the main engine stopped, the vessel became uncontrollable, and the vessel capsized.

It is probable that the waves crashed into the stern because the bulkhead at the stern had been removed, and the weight of the diving equipment on board had reduced the freeboard at the stern. In addition, it is highly probable that seawater, etc., which had entered the storage at the stern, flowed into the engine room because the ship had left the openings and penetrations open without sealing them after the hydraulic piping was repaired.

It is probable that the reason the vessel continued to anchor with its stern facing northwest, in the same direction as the wind and waves, was because the master of the vessel recognized that there would be no problem even if waves crashed into the vessel, since any water that entered the upper deck would be discharged overboard without remaining inside the vessel.

It is possible that the master of the vessel failed to detect the adverse weather conditions at an

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| | | early stage based on the latest meteorological and oceanic information, cloud formation, etc., and was unable to make decisions such as evacuating the area before the weather and sea conditions worsened, which may have contributed to the occurrence of this accident.<br>*1 Wide-open stern section |
| | Safety actions | (1) Response to changes in stern shape<br>The modification to the stern shape by removing the partition plate after the vessel's first regular inspection falls under "changes that may significantly affect stability." However, the vessel's owner did not report this change, and it was not identified during subsequent regular inspections by the Japan Craft Inspection Organization (JCI), therefore, it appears this modification was overlooked.<br>(2) Effect of carrying diving equipment on stability<br>It is probable that on the day of the accident, the vessel was carrying approximately 1,000 kg of diving equipment, mainly on the upper deck at the stern, and the loading of this equipment reduced the freeboard at the stern, which may have contributed to the deterioration of stability, as described in the cause of the accident. It is more likely that in general, diving vessels, like the vessel, navigate with heavy diving equipment loaded on them, meaning that ensuring stability becomes an issue.<br>(3) Involvement of relevant administrative authorities<br>It is probable that Company A carried approximately 4,500 diving passengers (including about 1,000 people on the vessel) in 2022, operating repeatedly under an operating agreement between the operator and the diving company, however, as described in "Guidance by relevant agencies for diving vessels, etc." and "Analysis of guidance provided by relevant authorities, etc.," the initiatives of relevant administrative authorities are currently not necessarily sufficient. |
| | Safety actions | The following matters may well be useful in preventing similar accidents from recurring and mitigating damage in future.<br>Masters of the diving vessels, diving vessel owners, and the operators involved in the operation of diving vessels should take the following measures to prevent similar accidents on diving vessels:<br>(1) Masters<br>・For open-truss diving vessels with a small stern freeboard, be aware that the structure is prone to wave intrusion from the stern. Especially when at anchor, if wave intrusion is expected, position the anchor at the bow.<br>・Understand the drainage capacity and structure of their vessels. If water ingress is detected, immediately confirm the flooded areas and flood volume. If there is a risk to the safety of the hull, take necessary emergency measures such as requesting immediate drainage and rescue.<br>・Always collect the latest weather and information on sea conditions. If they detect a deterioration in weather conditions while offshore, such as changes in cloud cover, immediately stop diving and begin evacuation.<br>・When there is a risk of capsizing, sinking, etc., work with the instructor on board to guide passengers to safety. In this case, the instructor should assist the master in preventing panic, wearing lifejackets, and contacting rescue services, etc. After diving passengers and crew have evacuated to the sea, the instructor should work to ensure buoyancy, visibility with portable floats, and prevent drifting and dispersion.<br>(2) Diving vessel owners<br>・If they make any modifications that could significantly affect stability, such as changes to the stern structure, report to the JCI and undergo a special inspection.<br>・If there are openings in compartments below the upper deck, water ingress, such as from waves, can spread to other compartments, leading to dangerous conditions like capsizing or sinking, so seal the openings with boards or other materials to prevent the spread of water ingress.<br>・It is desirable to install a water ingress alarm system, etc. to detect flooding early.<br>・If loading diving equipment significantly changes the draft, etc., report this to the JCI and receive guidance to ensure the stability of the diving vessel.<br>(3) Operators involved in the operation of diving vessels<br>・Operators who, like Company A, operate diving vessels with a set number of passengers in response to the needs of diving businesses, should clearly define operational standards such as wave height and wind speed in writing, taking full consideration of the seaworthiness of the managed vessels, so that they can make appropriate decisions regarding evacuation, etc. in the event of sudden changes in the weather.<br>・Establish a system for communicating with fellow businesses in the area in case of emergencies and sharing information on weather and sea conditions, etc. |

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| | Safety actions | (1) Ensuring the effectiveness of stability inspections<br>Changes to the stern structure and the loading of heavy diving equipment affect vessel stability. While vessel owners must naturally exercise caution themselves, in cases where structural changes are clearly visible during inspection or where interviews about the vessel's purpose suggest inadequate stability, the JCI should provide appropriate suggestions and advice to enhance the effectiveness of visual inspections, even when the inspection applicant has not requested approval for structural changes.<br>(2) Initiatives of relevant administrative authorities<br>① Necessity of multi-layered initiatives, etc.<br>To ensure the safe navigation of diving vessels and the safety of the many passengers on board, in addition to the voluntary operational control by operators, we believe that relevant government agencies should also strive to grasp the actual operation of diving vessels, examine the current state of initiatives, and provide multi-layered safety management and guidance regarding safe operation, etc.<br>② Guidance and raising awareness by relevant administrative authorities on site, etc.<br>From the perspective of ensuring the safety of diving vessel operations and diving passengers, it is desirable for the 11th Regional Coast Guard Headquarters and the Okinawa General Bureau of the Cabinet Office to provide guidance and raising awareness for diving vessel operators on how to prevent similar accidents through safety campaigns, etc. | |
| | Report | https://jtsb.mlit.go.jp/ship/rep-acci/2024/MA2024-9-2_2024tk0003.pdf<br>(Japanese only) | |

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| 11 | Date of publication | Date and location | Vessel type and name, accident type |
| | October 31, 2024 | September 21, 2023<br>K-1 Wharf, No.2 District and Kudamatsu Area, Tokuyama Kudamatsu Port, Yamaguchi Prefecture | Coal Carrier<br>ENERGIA CENTAURUS<br>Fatality of a crewmember |
| | Summary | Coal Carrier "ENERGIA CENTAURUS" was moored and was loading cargo handling operation at K-1 Wharf, No.2 District and Kudamatsu Area, Tokuyama Kudamatsu Port, a boatswain was performing an inspection work on the upper deck, and then, the boatswain was caught between her structure on the upper deck and the cargo unloading device, which had been running, and then was pronounced dead. |  |
| | Probable causes | The JTSB concludes that the probable cause of this accident was more likely that Boatswain entered around the Travelling Rail in Warning Area for the purpose of HO Pipe Inspection after completing the switching operation of the hatch covers, and subsequently, his body was caught between the SUL Traveler which was travelling to the fore side and the Stanchion, and was injured while the Vessel was moored and was loading cargo handling operation at K-1 Wharf during the night.<br>It is probable that Boatswain entered around the Travelling Rail in Warning Area for the purpose of HO Pipe Inspection because it is more likely he thought HO pipe Inspection would be completed immediately in a short time before beginning to conduct HO Pipe Inspection, and furthermore, he thought it was enough to report the situation after specifying oil leakage point.<br>It is probable that the SUL was travelling to the fore side because the hatch covers of No.2 cargo hold, etc. had been opened and the Stevedores conveyed to CHO Officer, etc. that the un-loading work was going to restart. In addition, Boatswain and Crewmember A did not contact CHO Officer before beginning to conduct HO Pipe Inspection.<br>It is probable that Boatswain continued to conduct HO Pipe Inspection around the Travelling Rail because he was standing and leaning against the Stanchion for observing Crewmember A's state entered under the Stage, etc., and then his visibility was restricted and he did not hear the warning sound during the SUL travelling, and subsequently, he did not notice the SUL approaching.<br>It is certain that the TSS did not detect Boatswain who was at around the Travelling Rail and did not operate emergency stop of the SUL because the SUL was equipped with the TSS on the SUL Traveler, and also the fore side TSS flame of the TSS was narrowed at left and right width and there was a clearance of approximately 400 mm between the end of the TSS flame and the Stanchion. | |

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| | Safety actions | The following measures are possible to prevent recurrence of and mitigate the damage caused by similar accidents:<br>・Master should instruct crewmembers to reconfirm the SMS manual and the arrangements and the procedures, and then repeatedly instruct them not to enter risk areas for conducting inspection work and maintenance work during cargo handling operation. In addition, when crewmembers have necessity for similar inspection work, etc., crewmembers must report the work to responsible persons in charge of cargo handling operation on board and accept permission, and then they must confirm via contact with responsible persons that stevedores are not operating the SULs, and then must conduct the inspection work, etc. by securing safety measures, e.g. assignment of watchmen.<br>・Master and personnel in charge of safety in each department should reinstruct crewmembers to make planning and conduct inspection work and maintenance work and for cargo handling apparatus in appropriate period when they could secure safety.<br>・Master and ship management company, etc. should conduct inspection of safety devices for cargo handling apparatus on a daily basis, and also collect near-miss reports concerning operation of cargo handling apparatus and conduct risk assessment[*1] based on the result of the near-miss report, and subsequently take risk mitigation measures, e.g. improvement and modification safety devices.<br>[*1] "Risk assessment" means an overall process of risk specification, risk analysis and risk evaluation in some work. Business operator and company were required to decide risk mitigation measures and to take appropriate safety measures based on the result. | |
| | Report | https://jtsb.mlit.go.jp/ship/rep-acci/2024/MA2024-10-1_2023tk0008.pdf (Japanese)<br>https://jtsb.mlit.go.jp/eng-mar_report/2024/2023tk0008e.pdf (English) | |

| 12 | Date of publication | Date and location | Vessel type and name, accident type |
|---|---|---|---|
| | November 28, 2024 | December 6, 2023<br>Miyazaki Port, Miyazaki City, Miyazaki Prefecture | Recreational fishing vessel<br>GOROKUMARU<br>Capsizing |
| | Summary | While the vessel, operated by the master alone, with five anglers on board, was returning to its mooring at Miyazaki Port, it capsized near the entrance to the port's southern channel.<br>As a result, the master and one angler died, four anglers were injured, and the vessel sustained damage to its hull. | |
| | Probable causes | It is probable that this accident occurred when the vessel was attempting to enter the southern channel to return to its mooring at Miyazaki Port. Near the channel entrance at the mouth of the Oyodo River (east of the training walls), there were approximately 2-meter waves with surf and triangular wave patterns. As the master approached at reduced speed with the stern facing the waves, a wave overtook the vessel, lifting the stern on its descending slope and causing the vessel to accelerate. This drove the bow down into the wave ahead, submerging the port bow bulwark and causing the vessel to capsize.<br>  | |
| | Safety actions | The following matters may well be useful in preventing similar accidents from recurring in future.<br>Masters of small vessels using Miyazaki Port should:<br>・Consider the use of the northern sea route and other ports in advance because the southern route is set at the mouth of the Oyodo River which faces the open sea, and waves may increase to dangerous levels or surf may occur due to weather and sea conditions. | |

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| | | ・Gather sufficient weather and sea condition information before setting sail because navigating in high following seas increases the risk of capsizing, and postpone departure, return early, or enter a safe port if they feel that navigation is dangerous based on their vessel's maneuverability.<br>The above details may also be useful for the masters of small vessels navigating the mouth of the Hitotsegawa River, where five capsizing accidents have occurred in the past. | |
| | Report | https://jtsb.mlit.go.jp/ship/rep-acci/2024/MA2024-11-1_2023tk0010.pdf<br>(Japanese only) | |

## 9 Provision of factual information in 2024 (marine accidents and incidents)

The JTSB provided one factual information (a marine accident) in 2024, the details of which are as follows:

**Provision of factual information on passenger injuries caused by impact when passenger ships are docked**

(Factual information provided on November 28, 2024)

JTSB provided factual information to the Maritime Bureau of the Ministry of Land, Infrastructure, Transport and Tourism and the Japan Passengerboat Association on November 28 in relation to factual information revealed in the course of the investigation to date and the occurrence of similar accidents in the past regarding injury accidents involving a passenger on the passenger car ferry MIKADO at Mitarai Port, Kure City, Hiroshima Prefecture on May 2, 2024.

**1. Summary of the Marine accident**

Date and time of occurrence: Around 12:10 on May 2, 2024
Place of occurrence: Kubi No. 2 Pier, Mitarai Port, Kure City, Hiroshima Prefecture

Events leading to the Accident: The passenger car ferry MIKADO, with the master, one other crew member and five passengers on board, departed Mikado Port in Kure City, Hiroshima Prefecture, and when it arrived at Kubi No. 2 Pier, three passengers fell over due to the impact of contact with the pier, resulting in injuries.

**2. Contents of factual information provided**

The facts revealed in the investigation to date are as follows.
(1) Outline of the Vessel
Total Tons: 19 tons
Maximum carrying capacity: 32 people (30 passengers, 2 crew)
Passage: Mitarai Port (Mikado Port) - Kubi No. 2 Pier
(2) Injuries: 3 passengers (minor injuries)
(3) Calling for attention when docking
The master did not alert the passengers to the fact that there was a risk of falling due to the impact when docking, or to prepare for the impact, before docking.

**3. Occurrence of similar accidents in the past**

The JTSB published investigation reports by the end of October 2024 on 27 cases in which passengers were injured due to impact when docking (hereinafter referred to as "accidents resulting in passenger injuries when docking",) resulting in 72 injured passengers.

Three recent accidents involving passenger injuries when docking, including this accident, occurred between September 2023 and May 2024, in which five passengers were injured.

The master did not alert the passengers to the fact that there was a risk of falling due to the impact when docking, or to prepare for the impact, before docking. Of these three cases, the investigation reports of two cases (see Attached Table) published in November 2024 presented the following safety actions to prevent recurrence of similar accidents and mitigate damage.

i) Operators of passenger ships shall instruct the crew members to alert the passengers to the fact that there are risks of accidents including fall over due to the impact of docking, and to prepare for the impact, before docking.
ii) Crew members shall alert passengers to the fact that there are risks of accidents including fall over due to the impact of the docking, and to prepare for the impact, before docking.

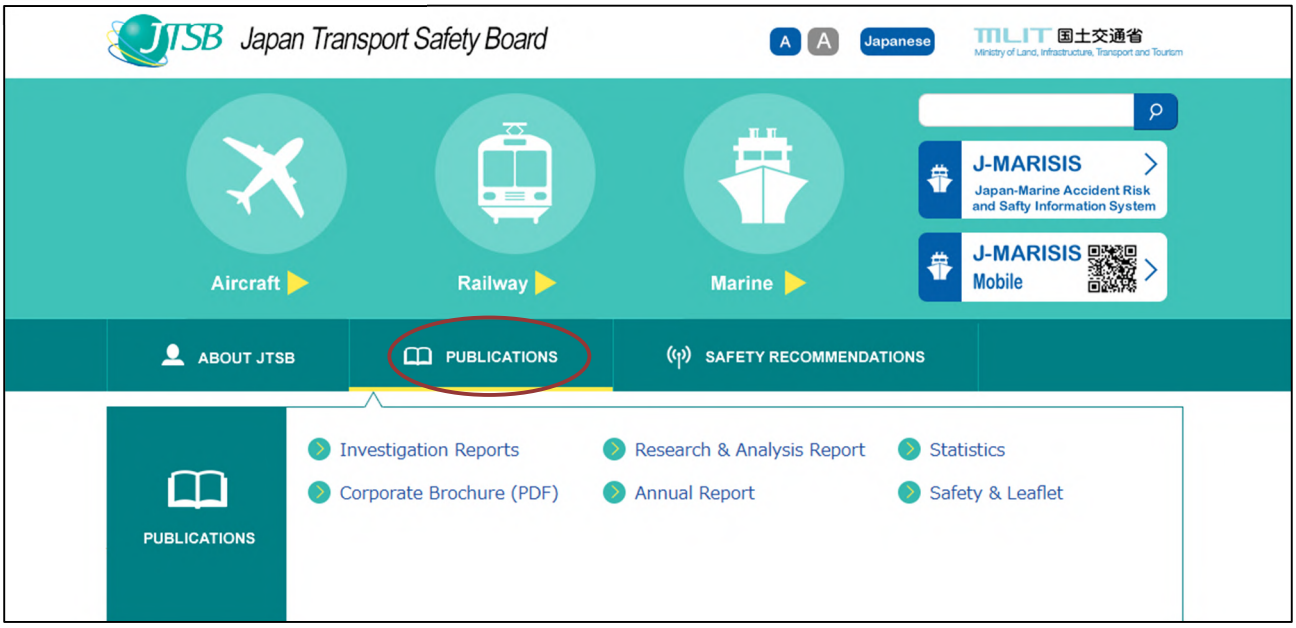
※The information provided, including Appendices, is available on the JTSB's website.
https://jtsb.mlit.go.jp/iken-teikyo/s-teikyo21_20241128.pdf (Japanese only)

# Chapter 6 Information dissemination for accident prevention

## 1 Information dissemination for accident prevention

The JTSB prepares various materials and web content in addition to individual investigative reports and disseminates related information on its website, to explain efforts to prevent recurrence more clearly and help prevent accidents. We will also inform you of the latest status of these issues through X (formerly Twitter) and e-mail newsletters.

JTSB Website




## 2 Issuance of the JTSB Digest

With the aim of fostering awareness of safety, and preventing similar accidents from occurring, we issue “JTSB Digests.” This publication reports statistics-based analyses, typical accident or accident cases requiring special attention, etc.

We also issue the English version of “JTSB Digests” as part of our efforts to disseminate information.

In 2024, we released four issues of “JTSB Digest” (March, April, November, and December: Issue Nos. 44 to 47).

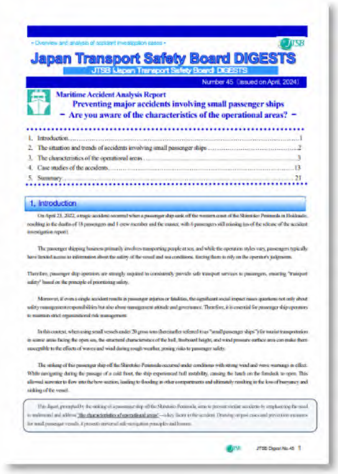
### (1) JTSB Digest No. 44 [Digest of Aviation Accident Analyses] "-Preparing for sudden turbulence during flight- Preventing accidents caused by aircraft turbulence" (issued on March 26, 2024)


The Digest analyzes investigative reports of turbulence accidents that have occurred in the past 20 years up to 2023, and introduces necessary measures to prevent the recurrence of similar accidents, statistical analysis results, accident investigation examples, and airline efforts to prevent accidents.

- Occurrence of aircraft turbulence-related accidents
- Case studies and analysis of aircraft turbulence-related accidents
- Measures to prevent aircraft turbulence-related accidents
- Column "Efforts to reduce injury risks in the cabin"
- Column "Efforts to share real-time turbulence information utilizing new technologies"

The content of the digest was introduced in a news program in preparation for the peak summer vacation season.

### (2) JTSB Digest No. 45 [Digest of Maritime Accident Analysis] [Preventing major accidents involving small passenger ships - Are you aware of the characteristics of the operational areas? -(issued on April 23, 2024)




In the passenger ship transportation business, passenger safety is the top priority, and appropriate operation is required at all times. Among them, small passenger vessels are susceptible to wind and waves in the event of stormy weather due to the structural characteristics of the hull and the freeboard height, which puts passengers safety at risk. In response, this issue clearly introduces the importance of understanding the characteristics of the weather, sea conditions, topography, and other characteristics of the operating sea area, which are prerequisites for appropriate operation at all times under an effective safety management system.

- The situation and trends of accidents involving small passenger ships
- The characteristics of the operational areas
- Case studies of the accidents
- Column "Operational standards", etc.

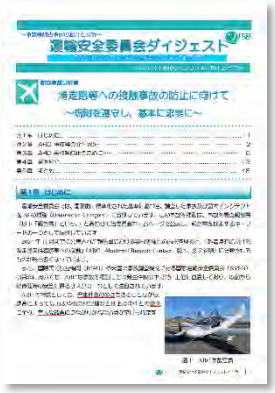
### (3) No. 46 [Digests of Analyses of Railway Accidents] "Toward the Prevention of Railway Accidents Caused by Snow" (issued on November 26, 2024)

Railways are an indispensable means of transportation, regardless of weather conditions, but accidents caused by meteorological phenomena frequently include those caused by snow, and those occurring outside heavy snowfall areas. As well as presenting the actual situation of these issues, analyzes each issue, introduces the characteristics of accidents, current problems, and necessary measures, including actual accident cases.


- Status of occurrence of accidents due to snow and melting snow
- Characteristics of accidents and case studies of accident investigations
- Column "Measures to prevent railway driving accidents during snowfall," etc.

### (4) No. 47 [Aviation Accident Analysis Digest] "Toward the Prevention of contact accidents with runways, etc. ~ Comply with the rules and stick to the basics ~" (issued on December 17, 2024)

This issue takes up the occurrence situation and investigates examples of contact with a runway or landing strip during takeoff and landing, which is the most common type of accident in the aircraft accident/serious incident investigative reports published to date and serious incidents (Abnormal Runway Contact: ARC), analyzes the causes of accidents and related factors, and introduces measures to prevent accidents, etc.




- Status of occurrence of ARC
- To prevent ARC
- Case studies and others

[Link to the page featuring the “JTSB Digests” Back Number]

https://jtsb.mlit.go.jp/bunseki-kankoubutu/jtsbdigests/jtsbdi_backnumber.html (Japanese)

https://jtsb.mlit.go.jp/jtsbdigests_e.html (English)

## 3 Issuance of the Analysis Digest Regional Office Edition

The JTSB has issued the analysis digest in the regional office edition (only available in Japanese). It has issued this publication to provide various kinds of information to help prevent marine accidents. The information is based on the analyses made by our regional offices and relates to specific accidents that occurred in their respective jurisdictions. This information focuses on cases in each responsible water area with characteristic features such as the sea area, vessel type, and accident type.

(Analysis Digest Regional Office Edition in 2024)

| | | |
|---|---|---|
| Hakodate | **Accidents of fatality/injury that occurred during fishing operations on the deck**<br><br>(Main contents)<br>・Occurrence of accidents during fishing operations<br>・Cases of accidents during fishing operations<br>・Matters to prevent recurrence and mitigate damage<br>・Conclusion |  |
| **Yokohama** | **Hazard map of pleasure boat-related accidents in Ise Bay and Mikawa Bay**<br><br>(Main contents)<br>・Introduction of the Marine Accident Hazard Map<br>・Occurrence of pleasure boat-related accidents, etc.<br>・Causes, measures to prevent recurrence, and cases of accidents in marine areas where accidents occur frequently<br>・Conclusion |  |
| **Kobe** | **Points for preventing marine accidents and incidents in Lake Biwa**<br>**To enjoy water sports safely**<br><br>(Main contents)<br>・Occurrence of marine accidents and incidents in Lake Biwa<br>・Introduction of ordinances in Lake Biwa<br>・Cases of accidents and incidents that occurred in Lake Biwa<br>・Points for preventing accidents and incidents in Lake Biwa |  |

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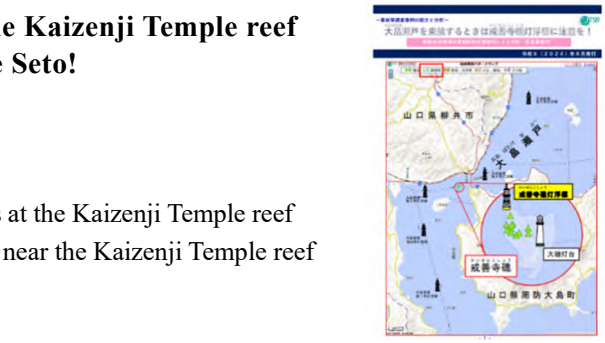
| **Hiroshima** | **Focus on the light buoy of the Kaizenji Temple reef when sailing east of Obatake Seto!**<br><br>(Main contents)<br>・Obatake Seto<br>・Trends in grounding accidents at the Kaizenji Temple reef<br>・Accidents and incidents cases near the Kaizenji Temple reef<br>・Conclusion |  |
| **Moji** | **Accident prevention with the proper use of GPS plotters**<br><br>(Main contents)<br>・Involvement in GPS plotter usage in grounding accidents<br>・Accident cases ~ Progress and recurrence prevention ~<br>・Conclusion - Toward accident prevention |  |
| **Nagasaki** | **Prevention of collisions with fictitious facilities**<br><br>(Main contents)<br>・Occurrence of accidents<br>・Factors causing accidents and prevention measures<br>・Conclusion |  |
| **Naha** | **An episode of mold growing in fuel oil**<br><br>(Main contents)<br>・Cases of blockage of the fuel oil piping system<br>・Growth of mold hyphae in fuel oil<br>・Measures to prevent recurrence of accidents and incidents caused by the growth of mold hyphae in fuel oil<br>・Conclusion |  |

[Analysis in regional offices]

https://jtsb.mlit.go.jp/bunseki-kankoubutu/localanalysis/localanalysis_new.html (Japanese)

As you read these regional office digests, you can not only find out the circumstances of local accidents, but can also gain some tips for accident prevention. The regional offices will make further efforts to regularly issue the analysis digest regional office editions. By doing so, they will ensure that you will be provided with more satisfactory content.

## 4 Issuance of the JTSB Annual Report


To publicize the JTSB's general activities in 2023 and prevent the occurrence of accidents based on what was learned in past accidents, the JTSB issued the "JTSB Annual Report 2024" in March 2024.

As part of our efforts to provide information overseas, we issued the English version of the report "Japan Transport Safety Board Annual Report 2024" in November 2024 in order to let people overseas know about the topics in this Annual Report.

[Japan Transport Safety Board Annual Report]

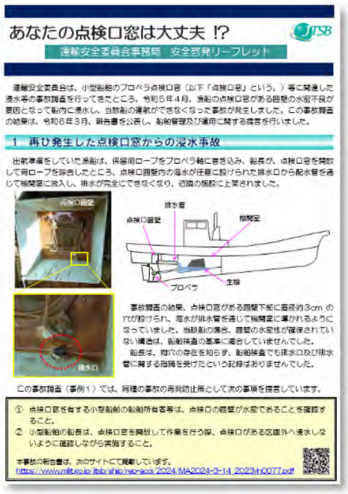
https://jtsb.mlit.go.jp/bunseki-kankoubutu/jtsbannualreport/jtsbannualreport_new.html (Japanese)

https://jtsb.mlit.go.jp/jtsbannualreport2024.html (English)

## 5 Preparation of safety leaflet

The JSTB creates leaflets that concisely summarize information useful for accident prevention, in addition to posting information on the website, we also distribute it to related parties through related organizations and attendees of outreach lectures ("9 Outreach lectures (dispatch of lecturers to seminars, etc.)" page 125), and disseminate information that contributes to everyone's safety through proactive safety awareness and public awareness activities.

In March 2024, in response to a marine accident in which the engine room was flooded via a propeller inspection hole window opened by the master during departure preparations, we issued an opinion to the Fisheries Agency regarding measures to be taken, given that there have been 15 similar accidents to date. In line with this, we have prepared a leaflet to inform many people of the dangers of flooding through the inspection hole window.




Safety leaflet
"Is your inspection window okay!?"

[Safety leaflet]

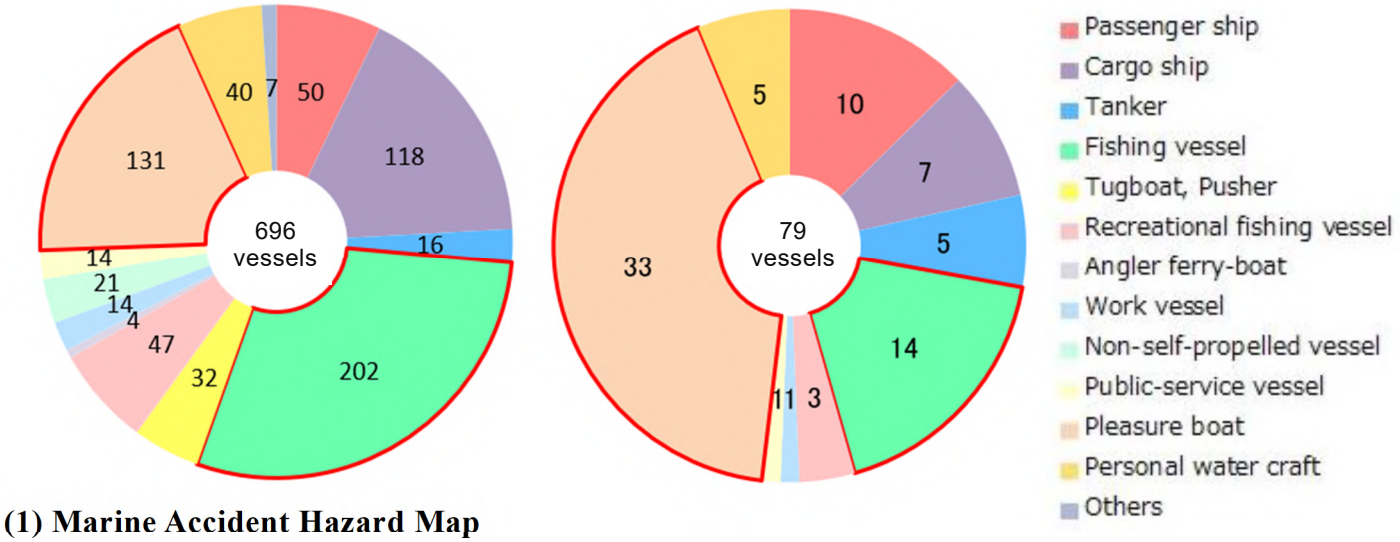
https://jtsb.mlit.go.jp/keihatuleaflet.html (Japanese only)

## 6 Dissemination of information to prevent marine accidents

Regarding the number of vessels by ship type involved in marine accidents in 2024 and investigated by the JTSB, two types of vessels comprise nearly 50% of the total, namely fishing vessels with 202 (29.0%), as the most common category, followed by, and pleasure boats with 131 (18.8%).

Next, regarding the number of vessels by ship type involved in marine incidents in 2024, the same two types of vessels also comprised nearly 60% of the total, namely pleasure boats with 33 (41.8%), as the most common, and category, followed by fishing vessels with 14 (17.7%).

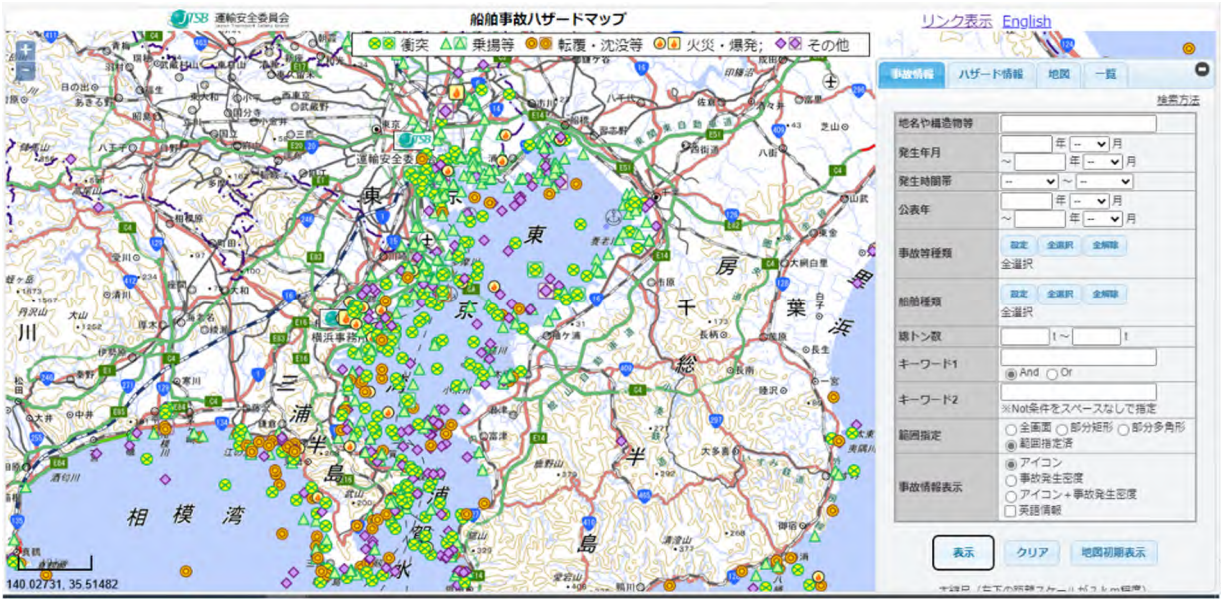
Number of ships involved in marine accidents and incidents occurred in 2024
(Accidents on the left and Incidents on the right)




### (1) Marine Accident Hazard Map

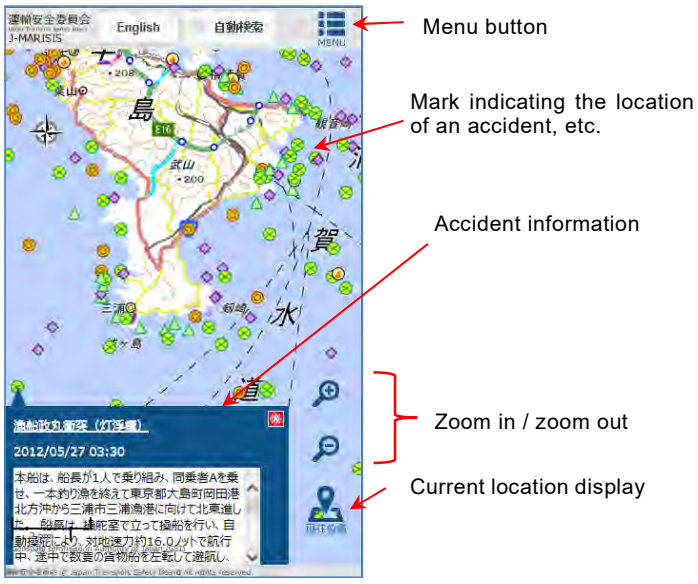
The JTSB has published a "Marine Accident Hazard Map", allowing users to search and display accident locations, types, and summaries based on the accident investigative reports that have been published to date, so that it can be visually confirmed where and what kind of accident has occurred.

[Marine Accident Hazard Map] Example of search and display screen from the website]



Besides the web version, a mobile version of the marine hazard map is also available for operators to use on-site. In the Mobile Version of the Marine Accident Hazard Map features touch panel-compatible buttons and layout for improved usability, and it uses the mobile device's GPS function to display information near the users' current locations, making it easy for users of small vessels such as pleasure boats and recreational fishing vessels to check accident information and navigation-related information for the intended navigation areas.

[Mobile Version of Marine Accident Hazard Map] Awareness leaflet and example of display screen


### (2) Engine Trouble Search System

Of the marine accidents having occurred in 2024 and investigated by the JTSB, looking at the number of accidents involving medium- and large-sized vessels with a gross tonnage of 20 tons or more by ship type, two types of vessels comprised about 70% of the total, namely 122 cargo ships (53%), as the most common, and category, followed by 33 passenger ships.

In terms of accident type, collisions and groundings comprised about 70% of the total, namely 91 collisions at 43% and 52 groundings at 25%.

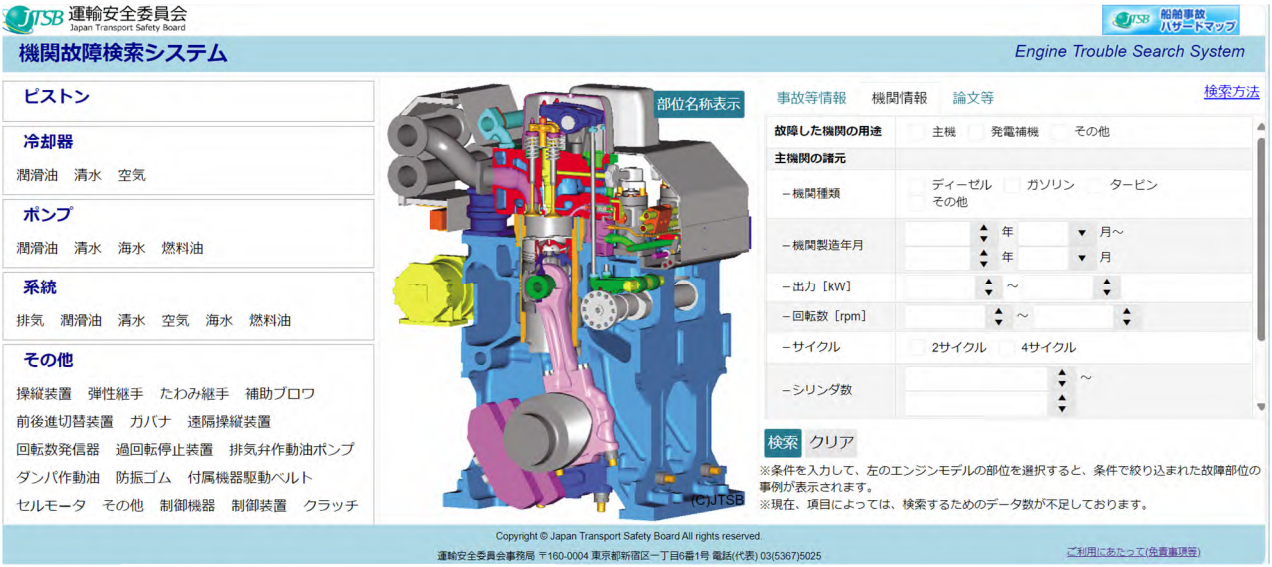
In addition, with regard to medium- and large-sized vessels of 20 gross tons or more, 25 incidents were due to poor engine maintenance and loss of power supply. Incidents such as loss of propulsion can often lead to serious secondary disasters, so it is important to prevent the recurrence and occurrence of such incidents in addition to the above-mentioned accidents.

Accordingly, to prevent accidents affecting medium- and large-sized vessels of 20 gross tons or more, ship owners and operators have also published the "Engine Trouble Search System (ETSS)" in addition to the digests and analysis digest regional office edition provided by the JTSB.

The Engine Trouble Search System (ETSS) has been built and operated by the JTSB since April 2019 in response to a request from maritime officials to search for and utilize related accident investigative reports for accidents caused by engine failure parts and components. The system allows users to easily view the desired accident investigative report by searching for the engine part or component on the web

screen Engine Trouble Search System.

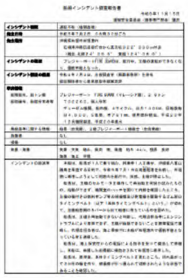
Example of use of [Engine Trouble Search System (ETSS)]




Select the parts of the engine you want to search from **"Information on accidents and incidents"** or **"Information on engine"**

**"Cases where the specified part is broken"** will appear.


By clicking on the relevant part of the accident and incidents name, etc., you can view the investigative report.



Furthermore, the JTSB provides an overview of the usage of the Small Ship Engine Trouble Search System (S-ETSS), which allows users to search for accidents involving specific engine types or parts of small ships of 20 gross tons or less. The JTSB encourages the organic use of these resources to help prevent accidents.

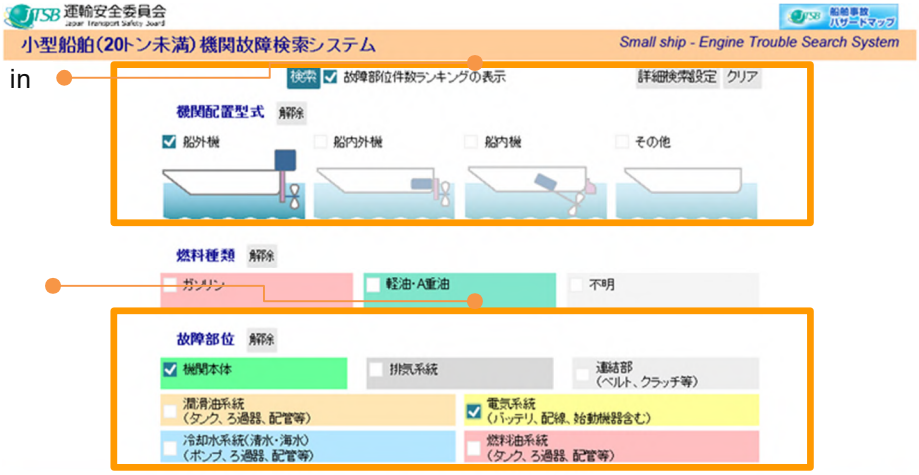
[Small ship Engine Trouble Search System (S-ETSS)] Usage examples

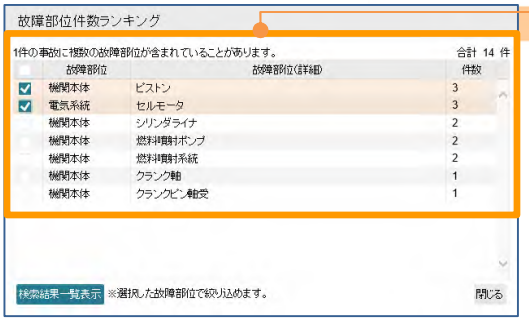
When searching an accident involving an engine itself and an electrical system in the engine layout of your vessel

Select a type of your vessel in the "Engine layout model" field (here, outboard motor)

Select failure part you are concerned with in the "Failure parts" field (here, Engine itself and Electrical system)

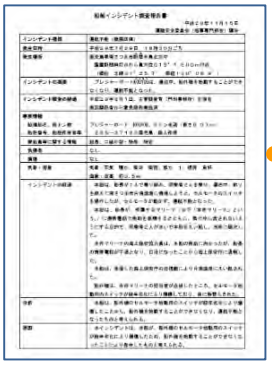
Click the 検索 button.




The "Ranking of the cases with the failure parts" will appear. Select the parts (details) you concern. (Here, the piston and the cell motor)

Click the 検索結果一覧表示 button.

Clicking the relevant part of the accident name field enables you to see the details of the investigative report.

### (3) For Safe Navigation of Pleasure Boats

Of the marine accidents and incidents that occurred in 2024 and were investigated by the JTSB, pleasure boats were involved in just under 20% of accidents such as collisions and groundings, while incidents such as loss of control or navigation obstruction comprised a large proportion of 40% or more of cases. Accordingly, as part of efforts to help prevent the recurrence and occurrence of such incidents, the content "For Safe Navigation of Pleasure Boats" is always published on the website with a banner displaying, including points on pre-departure inspections, maintenance, and lookout methods, as well as warning information for each sea area. We are striving to strengthen the dissemination of information on safety awareness in addition to updating publications such as digests, analysis digest regional office edition, safety awareness leaflets, and web search systems such as hazard maps.

"For Safe Navigation of Pleasure Boats" page


* The Marine Accident Hazard Maps introduced here are available free of charge. (Communication charges apply.)

[Marine Accident Hazard Map]

https://jtsb.mlit.go.jp/hazardmap/ (Japanese)

https://jtsb.mlit.go.jp/hazardmap/index_en.html (English)

[Japan Transport Safety Board - Engine Trouble Search System (ETSS)]

https://jtsb.mlit.go.jp/hazardmap/etss/ (Japanese)

[Japan Transport Safety Board - Small ship Engine Trouble Search System (S-ETSS)]

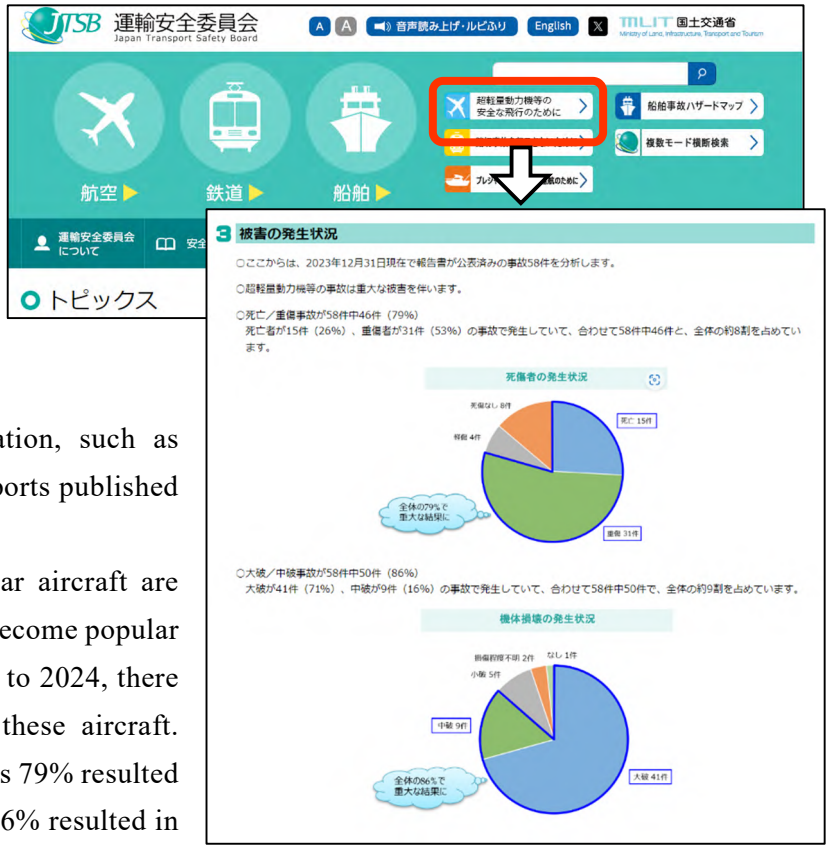
https://jtsb.mlit.go.jp/hazardmap/s_etss/ (Japanese)

[For Safe Navigation of Pleasure Boats]

https://jtsb.mlit.go.jp/guide/pleasure.html (Japanese)

## 7 Website summarizing information on the prevention of aircraft accidents —For safe flight of ultralight planes and other aircraft

On February 27, 2024, the content of the special page "For safe flight of ultralight planes and other aircraft" has been updated, which summarizes information on the prevention of accidents involving ultralight aircraft, gyroplanes, and self-built aircraft published on the JTSB's website. We have added the latest information, such as analytical results of investigative reports published up to 2023.




Banner and part of the contents from the special page

In addition, ultralight and similar aircraft are simple-structured aircraft that have become popular for sky leisure activities. From 2001 to 2024, there have been 59 accidents involving these aircraft. Among these accidents, the damage is 79% resulted in fatalities or serious injuries, and 86% resulted in destroyed or substantially damaged to the aircraft. This rate is higher than that of small aeroplanes and helicopters, indicating that ultralight aircraft and similar aircraft accidents lead to more severe consequences.

In order to prevent accidents, it is effective to reduce risks by focusing on the underlying factors (safety risks) that lead to the causes of accidents and avoiding the situations that cause them. This special page highlights the main factors contributing to accidents (inappropriate piloting, weather (wind) influences, lack of knowledge, skill, or experience, issues with the aircraft or parts, and improper inspections, maintenance, and assembly that causes the issues) identified from analyzing accident investigative reports. It introduces safety points along with case studies of accidents.

Please note that this special page will be updated periodically with new information. Use it as a reference to enjoy safe flying.

[For Safe Flight of Ultralight Planes and Other Aircraft]

https://jtsb.mlit.go.jp/guide/microlight.html (Japanese only)

## 8 Website summarizing information on the prevention of level crossing accidents —To prevent level crossing accidents from occurring


In March 2024, the JTSB updated the content of the "To prevent level crossing accidents from occurring," summarizing information on the prevention of level crossing accidents, on our website.

We have added the latest information, such as analytical results of the investigative reports published up to 2024.

Level crossing accidents comprise a large percentage (33.0%) of the overall railway operation accidents (in 2022).

In particular, level crossings (classes 3 and 4) where crossing gates are not installed have higher accident risk, comparing to level crossings (class 1) where level crossing safety equipment (crossing gate, road warning device) is installed, therefore it is important to comply with rules when crossing level crossings, and also take measures, such as abolishing level crossings without such safety equipment or installing such safety equipment (i.e., upgrading to class 1 level crossings).

The promotion of such measures needs to be understood by many people, including the users. Therefore, the JTSB has been calling for complying with the rules for crossing level crossings with slogans, e.g., “Stop, look, and listen” for users of level crossings. Moreover, for railway operators, road administrators, and other relevant parties, we provide examples of initiatives, e.g., abolishing level crossings, as references for proceeding with discussions and taking measures in order to prevent accidents, so we recommend referring them in order to reduce level crossing accidents.

[To prevent level crossing accidents from occurring]
https://jtsb.mlit.go.jp/guide/fumikiri.html(Japanese only)

## 9 Outreach lectures (dispatch of lecturers to seminars, etc.)

The JTSB holds a series of outreach lectures as part of its efforts to raise awareness on the work of JTSB, and to create an opportunity for collecting the feedback and opinions from general public. Seminars that lecturers can be dispatched to cover topics that are useful in preventing or reducing damage from aircraft, railway, and marine accidents. The JTSB staffs are dispatched to or remotely participated in various seminars and schools as lecturers.

Scene of an outreach lecture

We can provide flexible support for the content of lectures, such as by incorporating content to match the needs of participants, based on courses chosen by requesting groups. In 2024, a total of 23 outreach lectures were conducted, including those held by regional offices.

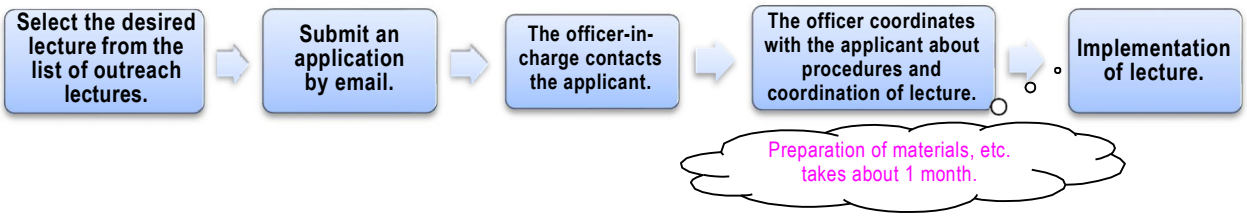
List of outreach lectures

| No. | Course | Main targets | Contents |
|---|---|---|---|
| 1 | About the Japan Transport Safety Board | General (High school students and older), transportation businesses, etc. | Easy-to-understand explanation about the organizational background, work etc. of the JTSB |
| 2 | What is accident investigation? | Elementary school students and older | Easy-to-understand explanation about accident investigation for elementary school students and older |
| 3 | About aircraft accident investigation | General (High school students and older), aviation businesses, etc. | Easy-to-understand explanation about aircraft accident investigations, including the background, concrete examples, etc. |
| 4 | About railway accident investigation | General (High school students and older), railway businesses, etc. | Easy-to-understand explanation about railway accident investigations, including the background, concrete examples, etc. |
| 5 | About marine accident investigation | General (High school students and older), maritime businesses, etc. | Easy-to-understand explanation about marine accident investigations, including the background, concrete examples, etc. |
| 6 | About marine accident investigation (fire, explosion, engine failure) | General (High school students and older), maritime businesses, etc. | Explanation about marine accident investigations related to fire, explosion and engine failure, including the background, concrete examples, countermeasures, etc. |
| 7 | About the JTSB Digests | General (High school students and older), transportation businesses, etc. | Introduction to case studies of accidents and explanation of various statistical materials across various modes, based on the JTSB Digests that have been issued to date. |
| 8 | About the JTSB Digests (Analyses of Aircraft Accidents) | General (High school students and older), aviation businesses, etc. | Explanation about various themes taken up in the analyses of aircraft accidents in the JTSB Digests. |
| 9 | About the JTSB Digests (Analyses of Railway Accidents) | General (High school students and older), railway businesses, etc. | Explanation about various themes taken up in the analyses of railway accidents in the JTSB Digests. |
| 10 | About the JTSB Digests (Analyses of Marine Accidents) | General (High school students and older), maritime businesses, etc. | Explanation about various themes taken up in the analyses of marine accidents in the JTSB Digests. |
| 11 | Trends in the occurrence of marine accidents, and preventing recurrence | General (High school students and older), maritime businesses, etc. | Schematic explanations about risks and waters where marine accidents frequently occur using the J-MARISIS, and explanations about accident prevention methods. |

| | | | |
|---|---|---|---|
| 12 | Analysis digests regional office edition (marine accident- related) [each regional office in Hakodate, Sendai, Yokohama, Kobe, Hiroshima, Moji, Nagasaki, and Naha] | General (High school students and older), maritime businesses, etc. | Explanations on each topic regarding analysis digests from regional offices.<br>*Lists can be found by clicking the link below.<br>https://www.mlit.go.jp/jtsb/bunseki-kankoubutu/localanalysis/localanalysis_new.html |

*No. 12, in principle, is restricted to requests from the areas under the jurisdiction of the regional office.

Flow chart from application to implementation of lecture




[Link to the page for outreach lectures]

From the link below, you can check the list of outreach lectures, how to apply for them, and the past records by year.

https://jtsb.mlit.go.jp/demaekouza.html (Japanese only)

## 10 Activities of the Accident Victim Information Liaison Office

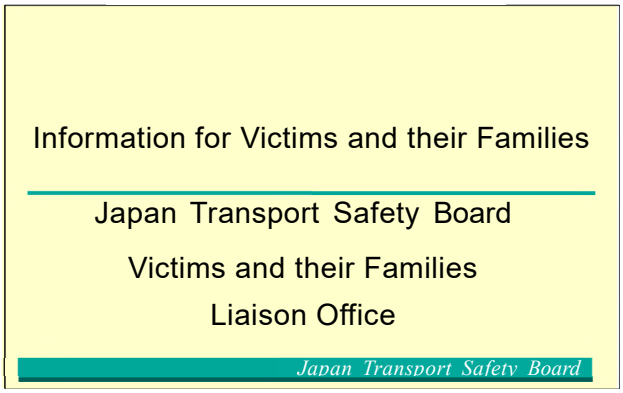
The JTSB gives full consideration to the emotions of the victim and their families, as well as bereaved families. In addition to providing information on accident investigations in an appropriate manner at the appropriate time, a contact point for providing accident investigation information to victims, etc. was established in April 2011 with the aim of providing attentive response to opinions and feedback. Furthermore, in order to promote the provision of information, the Accident Victim Information Liaison Office was established under the directive of the organization in April 2012. Contact points for the provision of information were also set up in regional offices to provide integral support alongside with Tokyo.

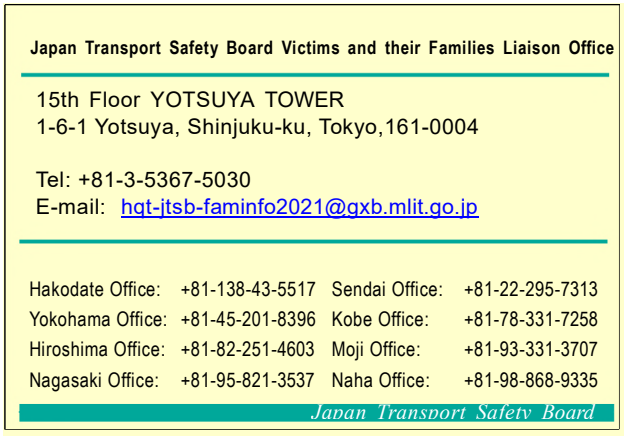
In 2024, information on accident investigation and other matters was provided to 17 persons, including the 11 cases of aircraft/railway/marine accidents.

The Accident Victim Information Liaison Office hands out “Contact Information Cards” to victims of accidents.

The Office receives inquiries and consultation about the accident investigations from victims and families of accidents, as well as bereaved families. Please feel free to contact the following where necessary.

<Contact Information Card>

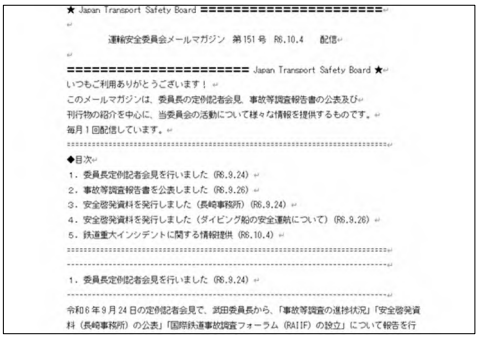


## 11. Dissemination of information through e-mail newsletters and official SNS

Once a month, the JTSB distributes the "JTSB E-Mail Magazine" in text format to subscribers to inform them of the latest activities, such as the publication of accident investigative reports and the introduction of various publications.

In addition, to disseminate information more promptly, the JTSB has opened an official account on X and is disseminating information on a daily basis. For more information, see "Bridge to Safety" (page 148).


★ Japan Transport Safety Board ==========

運輸安全委員会メールマガジン 第151号 R6.10.4 配信

========== Japan Transport Safety Board ★
いつもご利用ありがとうございます！
このメールマガジンは、委員長の定例記者会見、事故等調査報告書の公表及び刊行物の紹介を中心に、当委員会の活動について様々な情報を提供するものです。
毎月1回配信しています。

◆目次
1．委員長定例記者会見を行いました（R6.9.24）
2．事故等調査報告書を公表しました（R6.9.26）
3．安全啓発資料を発行しました（長崎事務所）（R6.9.24）
4．安全啓発資料を発行しました（ダイビング船の安全運航について）（R6.9.26）
5．鉄道重大インシデントに関する情報提供（R6.10.4）

1．委員長定例記者会見を行いました（R6.9.24）

令和6年9月24日の定例記者会見で、武田委員長から、「事故等調査の進捗状況」「安全啓発資料（長崎事務所）の公表」「国際鉄道事故調査フォーラム（RAIIF）の設立」について報告を行

Example of e-mail newsletter distribution

[Japan Transport Safety Board E-mail Newsletter]

https://jtsb.mlit.go.jp/haisin.html (Japanese)

[Japan Transport Safety Board Official X]

https://x.com/JTSB_unyuanzen (Japanese)

# Chapter 7 International efforts for accident prevention

## 1 Objectives and significance of international cooperation

The investigative scope employed by the JTSB when investigating accidents and serious incidents include that international in nature as aircraft and marine accidents. Creating and operating systems for these kinds of investigations therefore involve international organizations. Also, it will be necessary to cooperate and collaborate with accident investigation authorities in interested states, etc. during the investigation process.

In addition to the nation where an aircraft accident occurred, the state of registry, the state of the operator and the state where the aircraft was designed and manufactured are the states concerned. An annex to the Convention on International Civil Aviation (the Chicago Convention) states that the state of occurrence is responsible for starting and accomplishing an accident investigation while the other states also have the right and responsibility to appoint a representative to participate in the investigation. Proper cooperation with the accident investigation authorities of those states concerned is necessary for the accomplishment of the investigation.

Similarly, in marine accidents involving vessels above a certain level, the International Convention for the Safety of Life at Sea (SOLAS) places the obligation of investigation on the flag state of the vessel. Additionally, other states concerned, such as coastal states in whose territory the marine accident occurs and the state(s) of victims are entitled to investigate the accident. The convention defines the standard framework of marine accident investigations. The flag state and states concerned must cooperate with each other in multiple ways, such as through information sharing, when conducting accident investigations.

Based on this background, a variety of international meetings are held for each mode, which JTSB actively participates in. The meetings are for the purpose of facilitating collaboration in the case of accidents or incidents, sharing information on accidents and investigation methods on a regular basis, and achieving results of prevention for repeated accidents all over the world. Additionally, for the investigation of railway accidents, for which there is no international organization, various international seminars to exchange information on accident and incident investigations are held in major countries. Because in regards to this area, the fundamental investigation system of each state is generally standardized. Furthermore, some universities overseas have specialized training courses for accident and incident investigations, to which JTSB is also actively dispatching investigators.

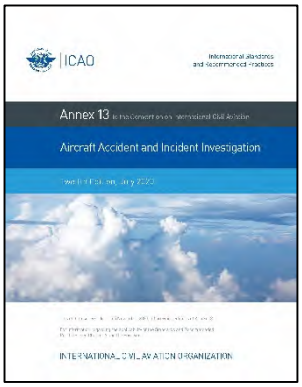
As shown above, JTSB aims to improve transport safety in Japan and all over the world through sharing of our findings worldwide, which have been acquired in individual accident and incident investigations. Relating to this, the following sections introduce each of our international activities in 2024.

## 2 Efforts of international organizations and JTSB's contributions

### (1) Efforts of the International Civil Aviation Organization and JTSB's involvement

The International Civil Aviation Organization (ICAO, Headquarters: Montreal, Canada) is a United Nations specialized agency established in 1947. Japan acceded to it in 1953. ICAO comprises the Assembly, Council, and Secretariat, and as of August 2024, 193 states are members of ICAO. The Council has subordinate bodies, such as Air Navigation Commission, Legal Committee, Air Transportation Committee, Joint Operation Committee, and Finance Committee. In addition, it has regional offices in seven locations, including Bangkok, Cairo, and Paris. Besides, there are expert meetings such as Air navigation conference, a variety of working groups, and panel meetings which are called in for certain projects.

The objectives of ICAO are provided in Article 44 of the Convention on International Civil Aviation as being "to develop the principles and techniques of international air navigation and to foster the planning and development of international air transport." ICAO is engaging in a wide variety of activities, including the drafting of conventions regarding international air transport services and aviation security such as countermeasures against hijacking. It also engages in audits of contracting states' safety monitoring systems, and responses to environmental problems.




Annex 13 to the Convention on International Civil Aviation

ICAO establishes the Annexes of the Chicago Convention for items that must be covered by globally unified rules. The Annexes determines the rules for 19 fields, including personnel licensing, rules of the air, registration of aircraft, airworthiness, aeronautical telecommunications, search and rescue, security, and the safe transport of dangerous goods and safety management. Among them, Annex 13 establishes the international standards and recommendations for aircraft accident and incident investigations. In addition, the Act for the Establishment of the Japan Transport Safety Board states that: “The Board shall conduct investigations (omitted) in conformity with the provisions of the Convention on International Civil Aviation and with the Standards, Practices and Procedures adopted as Annexes thereto.” (Article 18).

The Accident Investigation Panel (AIGP), which is a subordinate organization of the Air Navigation Commission, is mainly a forum for discussion on the revision to Annex 13 and the preparation of guidance materials. The JTSB has participated as a member since the 4th meeting held in May 2018. The 9th Accident Investigation Panel Meeting (AIGP/9) was held in Montreal, Canada in September 2024, in which panel members and aircraft accident investigators of the JTSB participated. Regarding the working groups (WGs) established under the panel, the JTSB participated in the “Safety Recommendation of Global Concerns WG” and the “Family Information WG” in 2024.

(2) Efforts of the International Maritime Organization and JTSB’s involvement

The International Maritime Organization (IMO, Headquarters: London, United Kingdom) was established in 1958 as a specialized agency of the United Nations. It was originally called as the Inter- Governmental Maritime Consultative Organization (IMCO). The IMO comprises the Assembly, the Council and five committees. These are the Maritime Safety Committee (MSC), Legal Committee (LEG), Marine Environmental Protection Committee (MEPC), Technical Cooperation Committee (TC) and Facilitation Committee (FAL). In addition, there is a Secretariat, and the MSC (and MEPC) has seven subcommittees. As of October 2024, IMO has 176 member states and three regions as associate members.

IMO engages in various activities, such as the facilitation of intergovernmental cooperation, effective safety measures and drafting of conventions that relate to technical and legal problems with safety of life at sea and safe navigations.

The Sub-Committee on Implementation of IMO Instruments (III) is a subordinate group of MSC and MEPC. It discusses how to ensure the responsibility of the flag state, including the investigation of marine accidents and incidents. III analyzes the accident or incident investigation reports submitted from states based on SOLAS and the International Convention for the Prevention of Pollution from Ships (MARPOL) to draw lessons from, which III subsequently makes public on the IMO website. By doing so, III promotes activities for the prevention of the repeated occurrence of marine accidents.

The Correspondence Group (which undertakes analysis during periods outside of the sessions) and the Working Group (which verifies the analysis results during the session period) comprises volunteer investigators from some member states. They discuss these analysis results, which the III plenary subsequently approves. Depending on the matter in question, if III determines that further discussion is required for a convention revision, it will submit recommendations or information to MSC, MEPC and other IMO subcommittees. The 10th session of the Sub-Committee on Implementation of IMO Instruments (III 10) was held in London, UK in July 2024. A JTSB marine accident investigator became the group member and conducted analyses of accident and incident investigation reports submitted by each member states. The provisional translation of the past analysis results is shown in the JTSB website:

(URL: https://www.mlit.go.jp/jtsb/casualty_analysis/casualty_analysis_top.html [Japanese])

## 3 Cooperation and information exchange with foreign accident investigation authorities and investigators

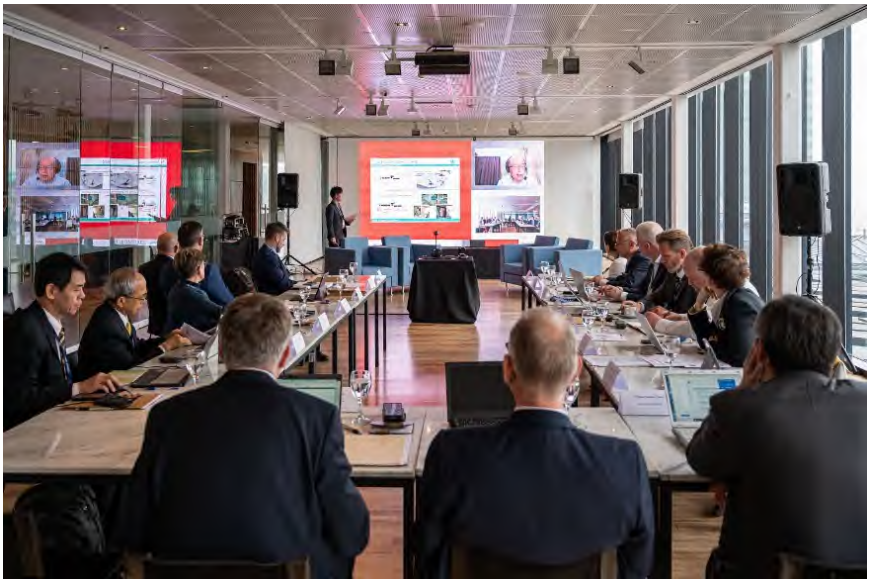
(1) Participation in international meetings

i) Chairperson meeting of the International Transportation Safety Association

The International Transportation Safety Association (ITSA) was established by accident investigation boards from the Netherlands, the United States, Canada, and Sweden in 1993. As of May 2024, the international organization has members from the transport accident investigation authorities of 18 countries and territories. Organizations that are permitted to join must be permanent accident investigation authorities that are independent from any regulatory authority. Based on the idea that any findings from an accident and incident investigation in one field can be used as a lesson for another field, ITSA holds annual chairperson meetings where the participating accident investigation authorities present their experiences in accident investigation. These presentations are for all the modes of aviation, railway, and marine accidents and incidents. The chairpersons learn about the causes of accidents and the methodologies of accident investigations, thus aiming to improve transport safety in general.

As for Japan, the Aircraft and Railway Accidents Investigation Commission was approved for accession in June 2006. The board has participated in all the meetings held after 2007. It was held in Buenos Aires, Argentina in May 2024.

At this conference, a panel discussion was held in which each country introduced research examples and initiatives for each theme. The chairman of the JTSB gave a presentation on recent accidents on the theme of ensuring safety on runways. In addition, JTSB members gave presentations on cases; how to respond to accident victims and how accident investigations have progressed by communicating with accident victims.



Presentation by the Chairperson of the JTSB at the ITSA2024

ii) International Society of Air Safety Investigators and Asian Society of Air Safety Investigators

The International Society of Air Safety Investigators (ISASI) has been organized by national aircraft accident investigation authorities. The purpose of this society is to support accident investigations aimed at preventing repeating occurrences of aircraft accidents and incidents. This aim is to be achieved by improving further a cooperative system of investigation authorities, through the facilitation of communications between member countries about their experience and knowledge, as well as information about the technical aspects of aircraft accident investigations.

ISASI holds annual seminar each year, and Japan has participated in each one of them since the establishment of Japan Aircraft Accident Investigation Commission in 1974. In this seminar, working groups including the Flight Recorder Working Group, the Investigator Training and Education Working Group, the Cabin Safety Working Group, and the Government Air Safety Investigators Group are held in parallel with the general meeting. Japan also participates in these working groups to endeavor to improve investigation technologies for aircraft accidents and incidents.

In September 2024, the Annual Seminar was held in Lisbon, Portugal. This seminar provided three keynote speeches and 25 presentations and the JTSB also gave a presentation on the analysis of helicopter accidents, and participated in a tutorial on improving investigative techniques and group meetings of regional association of ISASI, the Asia Society of Air Safety Investigators (AsiaSASI). The current president of the AsiaSASI is the Indonesian National Transportation Safety Committee, the vice president is the Taiwan Transportation Safety Board, and the secretariat is the Singapore Transport Safety Investigation Bureau. The JTSB serves as an executive committee member. ISASI has other regional associations in Australia (ASASI), Canada (CSASI), Europe (ESASI), France (ESASI French), Korea (KSARAI), Middle East and North Africa (MENASASI), Latin America (LARSASI), New Zealand (NZSASI), Pakistan (PakistanSASI), Russia (RSASI), the United States (USSASI). Each of these associations also holds their seminars.

Presentation by the aircraft accident investigator from the JTSB at ISASI in 2024

iii) Accident Investigator Recorder (AIR) Meeting and Asia (and Oceania) Accident Investigator Recorder Meeting and the Accident Investigation Body – Technical Group (AIB-TG) Meeting

The Accident Investigator Recorder (AIR) Meeting is an international conference for aircraft accident investigators who analyze digital flight data recorders (DFDR) and cockpit voice recorders (CVR). At this meeting, aircraft accident investigation analysts from all over the world share know-how by exchanging their experience, knowledge, information relating to the analysis of DFDR, and discuss the relevant technologies on DFDR. The conference aims to further develop the technical capacity of accident investigation authorities. Initially, aircraft accident investigators who analyze flight data recorders (FDR) and cockpit voice recorders (CVR) mainly participated. However, recently, the scope has broadened to include other fields due to the applicability of these technologies.

This meeting was established in 2004, and the accident investigation authorities of each country hold a meeting every year. JTSB has participated in nearly all the conferences since 2006. It was held in Reykjavik, Iceland, and aircraft accident investigators from the JTSB participated in 2024.


Presentation by the aircraft accident investigator from the JTSB at AIR in 2024

The Accident Investigation Body - Technical Group (AIB-TG) Meeting has been held since 2023, and was attended by analysts who handle electronic records of vessels (VDR, AIS, GPS, ECDIS, CCTV, etc.) at accident investigation organizations in each country, with the aim of sharing research cases related to analysis work specialized in marine accidents and considering solutions to issues in each country.

To share analysis and research cases, and the latest knowledge and technologies from other countries, as well as establish and maintain mutual cooperative relationships with accident investigation agencies in each country, the JTSB also has participated in this conference since its inception.

Continuing from the previous time, it was also held in Southampton, UK in 2024, during which the JTSB marine accident investigators participated.

Presentation by the Marine Accident Investigator from the JTSB at the AIB-TG in 2024

iv) Accident Investigators on Material Analysis Meeting (AIM Meeting)

Accident Investigators on Material Analysis Meeting (AIM Meeting) is held every one to two years to share research cases on materials analysis and consider solutions to issues in each country, and attended by accident investigators who are in charge of analyzing materials such as alloys and composites used in aircraft fuselages and hulls as part of accident investigation authorities in each country. The host country is rotated and it was held in the United States in 2024.

In response to the growing need for materials analysis technology in accident investigations in recent years, the staff in charge of analysis from the JTSB participated for the first time to refine the ability to investigate accidents, etc., by grasping the latest international trends in materials analysis and gaining knowledge of the latest specialized technologies by exchanging opinions with members of the participating countries.

v) Railway Accident Investigation International Forum (RAIIF)

The Railway Accident Investigation International Forum (RAIIF) was established at the suggestion of Japan, based on international achievements and connections cultivated by the JTSB to date, in the field of railway accident investigation, where no public framework established by international organizations had existed to date.

Through this forum, we aim to improve the safety of global railways through active information exchange and strengthening cooperation among relevant organizations in countries and regions worldwide.

The first event was held in Tokyo in October 2024. For details, please see 9 (page 18) of “Major activities in the past year.”

vi)Marine Accident Investigators' International Forum

The Marine Accident Investigators' International Forum (MAIIF) is an international conference held annually since 1992. It was originally based on a proposal from the Transportation Safety Board of Canada. Its purpose is to maintain and develop international cooperation among marine accident investigators and to foster and improve international cooperation in marine accident investigations and thus, advancing maritime safety and prevent marine pollution. In 2008, MAIIF was granted the status of an Inter-Governmental Organization (IGO) in IMO.

Under this forum, marine accident investigators around the world take the opportunities to exchange frankly opinions and share information on marine accident investigations. Recently, there has been more demand to make use of the findings obtained from the marine accident and incident investigations in the discussions in IMO. In 2009, MAIIF made a proposal based on the investigation results from the state investigation authorities to IMO for the first time. The JTSB has joined the forum every year since the third conference. The 31st conference was held in Beijing, China, in September 2024, attended by a marine accident investigator from the JTSB.

vii)Marine Accident Investigators Forum in Asia

The Marine Accident Investigators Forum in Asia (MAIFA) was established by a proposal from Japan to build a mutual cooperation system for marine accident and incident investigations in the Asia region and to assist developing countries in enhancing their investigation systems. Since 1998, meetings have been held annually, and Japan has been playing a leading role in this forum, including the sponsorship of the 13th meeting in Tokyo in 2010. The network of investigators that has been established through the forum is now effective in its promotion of rapid and smooth international cooperation in accident and incident investigations. Encouraged by the success of MAIFA, E-MAIIF was established in Europe in 2005. A-MAIF was then established in North, Central and South Americas in 2009. These trends contribute more than ever in furthering the exchange and cooperation between marine accident investigators in each region. In the Asia region, there are not only a lot of straits with sea traffic congestion, but also severe weather and hydrographic phenomena that often give rise to tragic marine accidents. While tragic marine accidents have occurred, some countries have insufficient capacities or systems for accident investigations. This situation makes the regional forum very important. The 24th meeting was held in Boracay Island, Philippines, in September 2024, attended by a marine accident investigator.

(2) Examples of international cooperation among accident investigation agencies in individual cases

For the aircraft accident and incident investigations, based on the provisions in Annex 13 of ICAO, the state where an aircraft accident occurred must notify the state of registry, the state of design/manufacturing, and the state of operation. If necessary, these states concerned may appoint their own Accredited Representative (AR) to join the investigation.

Regarding the collision between a Bombardier DHC-8-315 of the Japan Coast Guard and an Airbus A350-941 of Japan Airlines Co., Ltd. at Tokyo International Airport on January 6 2024, we have conducted an investigation in cooperation with Canada, the country in which the Japan Coast Guard aircraft was designed and manufactured, France, the country in which the aircraft fuselage belonging to Japan Airlines Co., Ltd. was designed, Germany, the country in which the engine of the same aircraft was designed, the United Kingdom, the country in which it was manufactured and the United States, the country in which the equipment of both aircrafts were manufactured.

Other cases included one where injuries occurred when a rotorcraft made a precautionary landing, one where AR was appointed in the United States where the aircraft was designed and manufactured, one where an object fell to the ground from a rotorcraft, and one where AR was appointed in Italy, the country of manufacture of the aircraft.

In marine accident and incident investigations, the IMO Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (Casualty Investigation Code) states that the interested states, including the flag state of the ship and the coastal state of the accident, must cooperate in the marine accident investigation. Also in Japan, if a marine

accident or incident occurs that concerns more than one state, Japan's accident investigators are to collaborate with the accident investigation authorities of the other interested states to obtain information about the accident.

Regarding the case where Cargo ship XIN HAI ZHOU 2 ran aground on a shallow reef off the northwest coast of Taketomi Island in January 2023, we made an inquiry to Panama, which is a flag state, before the accident investigation report was released.

Among the marine accident and incident investigation reports that were published in 2024, the JTSB sent two draft reports to the flag states and other interested states upon request to invite their comments.

## 4 Technical cooperation

In response to requests from overseas railway accident investigation organizations, the JTSB implements human resource development support including the training of railway accident investigators. So far, we have not only participated in the field of railway accident investigation in the “Indian Railway Safety Capability Enhancement Project” implemented as a technical assistance project of the Japan International Cooperation Agency (JICA), but also have been contributing to the improvement of overseas railway safety by recently establishing a department to investigate railway accidents to provide Japanese railway accident investigation technologies according to their challenges, including the provision of training to overseas railway accident investigation organizations which have started railway accident investigations as a technical aid to them.

These efforts contribute to the initiative “to support efforts related to technology transfer and human resource development to allow overseas countries to properly operate and maintain their own railway” in the “Infrastructure Systems Overseas Expansion Action Plan 2023 of the Ministry of Land, Infrastructure, Transport and Tourism” which summarizes its projects to promote the expansion of the infrastructure systems to overseas and we will continue to work for improving the transportation safety in the future through technical cooperation with overseas accident investigation organizations.

## 5 Participation in overseas training

The JTSB is making efforts to advance the capacity of accident investigators through measures such as training and international information exchanges to investigate accidents accurately, and also actively participates in overseas training for accident investigations.

Additionally, every year, aircraft or marine accident investigators are sent to Cranfield University in the UK, which has a track record of accident investigation training, the JTSB aircraft accident investigators participated in 2024. The training covers a wide range of topics, from the basics to specialized knowledge of accident investigation. After the training, the participants disseminate the results to other accident investigators in each transportation mode, aiming to improve the overall capabilities of the accident investigators.

# Bridge to Safety

The JTSB staff, including accident investigators, are working daily to help improve transportation safety. In this section, we will introduce the various activities of our staff. I would be happy if this gives you fresh insights into our organization.

**- Bridges with Foreign Countries -**

## Overseas business trips for aircraft accident investigations

**Aircraft accident investigators**

Since we had the opportunity to conduct an overseas investigation regarding serious aircraft-related incidents, I would like to take this opportunity to give more details.

Aircraft accident investigators investigate aircraft accidents and serious incidents (hereinafter referred to as "accidents and incidents"). In cases where the designers and manufacturers of the aircraft, engines, etc. are located overseas, investigations will be conducted in cooperation with the accident investigation authorities of the states concerned in accordance with international agreements.

This time, to investigate the foreign-made engine, we sent the engine to the factory of the designer and manufacturer located in Cardiff, UK, and carried out detailed investigations, together with investigation members from the state concerned.

In foreign investigations, many matters have to be resolved before traveling, such as consideration of how to transport engines broken in accidents and incidents, and arranging on-site investigation schedules. We will also conduct these adjustments in cooperation with investigation members from the states concerned. Given the numerous procedures that also apply to investigators traveling abroad, we will proceed while receiving support from the JTSB administrative department. After such adjustments and preparations, it was decided to leave for the UK, but since the end date would change depending on the progress of the on-site investigation, the return date was undecided at the time of departure.

We arrived safely in the UK, and the investigation finally began. The priority on the first day was to arrive on time from our accommodation to the factories where the investigations were being carried out. We finally arrived as scheduled using the trains and buses we had checked in advance. We used trains and buses daily during our 11-day stay in the UK, and everything was on schedule and very convenient.

City of Cardiff (around 19:30)

The investigation at the factory was carried out together with investigation members such as investigators from accident investigation authorities in the states concerned and staff of the designer and manufacturer of the aircraft and engine. The engine was disassembled little by little, and we checked and recorded them down to the individual parts. Each time, we checked the status while exchanging opinions with the investigation members. It was very steady work, but crucial as part of efforts to determine the cause.

The investigations were conducted all day long, from 8:00 am to around 6:00 pm. Although we felt like taking a break once we returned to the accommodation, having come all the way to the UK, we went out for dinner. There were many restaurants in the city offering delicious but pricey dishes, costing around 5,000 yen each time. We enjoyed the exotic atmosphere by eating delicious meat dishes etc. at restaurants for a few days, but on the other days, we ate bread, salad, and fruit bought at supermarkets in the city, and packed cooked rice, and ready meals brought from Japan.

While in the accommodation, we woke up in the middle of the night and could not get back to sleep due to jet lag. Fortunately (or unfortunately), technology has progressed so far that we were more or less able to do all the jobs we had left behind in Japan, despite being overseas. We therefore used the time difference as an opportunity to progress on our work from Japan in the middle of the night.

The investigation was progressing smoothly, but as we reached the midway point, the members involved also seemed tired, so we decided to take a day off just during weekend and I could refresh myself by walking around Cardiff and its suburbs.

After this short break, the second half of the investigation got underway. Despite the fact a final verdict remained pending, since the end date was finally in sight, we also extended our accommodation reservation.

The second half of the investigation progressed smoothly right up to the final day. All investigation members confirmed the investigative results, which rounded off the investigation in the UK.

Investigations will continue even after returning to Japan. Through on-site investigation in the UK, we will continue to carry out investigations while cooperating with investigation members from the states concerned that we actually met and with whom we talked.

## Participation in the 6th International Conference on Railway Technology: Research, Development and Maintenance

**Railway accident investigators**

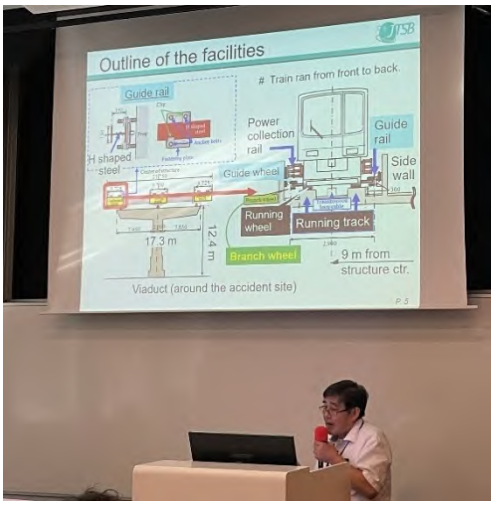
Railways 2024: The 6th International Conference on Railway Technology: Research, Development and Maintenance is an international conference held once every two years, in which railway accident investigators from the JTSB have been participating since the third such event.

The 6th conference was held in the Czech Republic capital, Prague, as a joint event with STECH2024: the 10th International Symposium on Speed-up and Sustainable Technology for Railway and Maglev Systems.

Prague is the largest city in the Czech Republic, and Prague Main Railway Station, the largest station in the city, is where most international trains arrive and depart. It is also connected to all Czech railway lines and Prague metro systems. The Prague Metro has three lines (A, B, and C) with a total of 58 stations. I also rode on the train, and the interior was barrier-free and quiet, with minimal shaking and a comfortable ride. Trams (streetcars) crisscross Prague and while many are low-floor cars, there are also older models, making for a diverse fleet. Numerous routes and operations make them very convenient, and they blend seamlessly into the city.

The international conference drew a total of 296 participants from 30 countries, not only from Western Europe, China and Japan, but also Eastern Europe. There were a total of 260 presentations, with many university personnel, railway operators and engineers from manufacturers. We have participated in this conference ever since the third event and have been striving to disseminate information about Japan's know-how on accident investigations and recurrence prevention, as well as collect the latest knowledge and information on railway safety, share information and exchange opinions with relevant parties from other countries.

The main conference sessions included presentations on aerodynamics and crosswind issues, noise, vibration and comfort, wheel-rail contact boundary issues, railway vehicle design, manufacturing and




Presentation by the JTSB

Trams in Prague

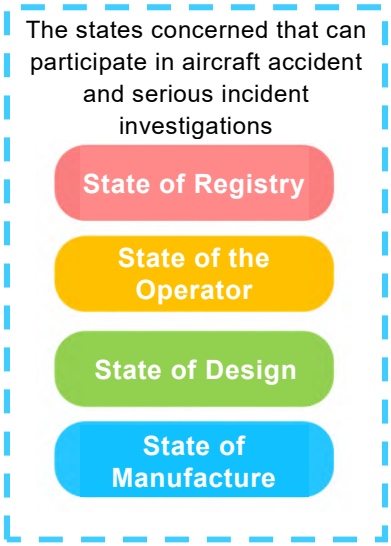
maintenance, accident analysis, condition monitoring technology and simulation, etc. There was also lively discussion about various condition monitoring technologies and data analysis techniques, and we gained insights into new technologies as well as overseas trends in matters directly relevant to our accident investigations. We would like to use the knowledge and information we gained through the conference to further improve our technology for accident investigations going forward.

## Acceptance of AR in aircraft accidents investigation

**International Affairs Office**

Do you know the term "AR" in aircraft accident investigations? The recently popular “Augmented Reality” may come to mind, but in the context of aircraft accident investigations, it refers to an "Accredited Representative." "AR" may not be very familiar to dear readers, but I will take this opportunity to introduce how it works and the support that the International Affairs Office provides.

The second sentence of Article 26 of the Convention on International Civil Aviation (Chicago Convention) requires the State where an accident occurs to give the State of registry of the aircraft the opportunity to appoint persons to attend the investigation, and Annex 13 to the Convention stipulates that these persons are known as ARs and Advisers. ARs and advisors from the states concerned (see figure on the right) will participate in investigations in the investigating countries within the scope stipulated in the Annex.




Even when ARs and advisors participate in investigations, they rarely conduct actual on-site investigations. In most cases, communication is completed through written documents or emails. However, in accidents where the states concerned are of great interest, ARs may conduct on-site investigations, and the International Affairs Office, which is responsible for liaison and coordination with the states concerned and international organizations, will support their visit to Japan as necessary.

<Major support examples>

- Liaison and coordination with ARs and advisors prior to their arrival in Japan
- Necessary tasks and coordination when they come to Japan such as accompanying ARs and advisors to the accident sites, guiding them, managing schedules.
- Setting up meetings between the states relevant to the accident and the JTSB

In the case of the collision accident that occurred at Haneda Airport in January 2024, ARs and advisors from the states concerned such as France and the UK came to Japan, and the International Affairs Office provided support to ensure that the investigation proceeded smoothly. Although this meant viewing the accident site in person and coordinating with the parties involved and imposed tasks on us that were completely different from our usual duties, we were able to flexibly resolve the issues that arose on-site. All the experiences and lessons learned from this accident will be accumulated as knowledge and used to help investigate future accidents.

# － Bridging Technology －

## Improving the JTSB's accident investigation capabilities
## - Development of research and analysis personnel and technology -

Research and Analysis Office

To ensure accurate accident investigations, as well as factual investigations such as obtaining feedback from the parties involved, work to inspect properties, collect materials and scientifically and objectively investigate data in line with information technology of various transportation systems is crucial and entails advanced and specialized data analytical technology.

As transportation systems have become increasing complex and diversified with advancing information technology, the Research and Analysis Office (hereinafter referred to as the "Analysis Office") of the JTSB has strengthened its analysis system by appointing the Director for Information Technology of the Accident Investigation, a newly established position in April 2024, to oversee the office and increasing the number of office staff from 10 to 15. Under this new organizational structure, the Analysis Office is engaged in daily operations with two themes: "advancing technological capabilities in accordance with the times" and "improving technological capabilities as an organization."

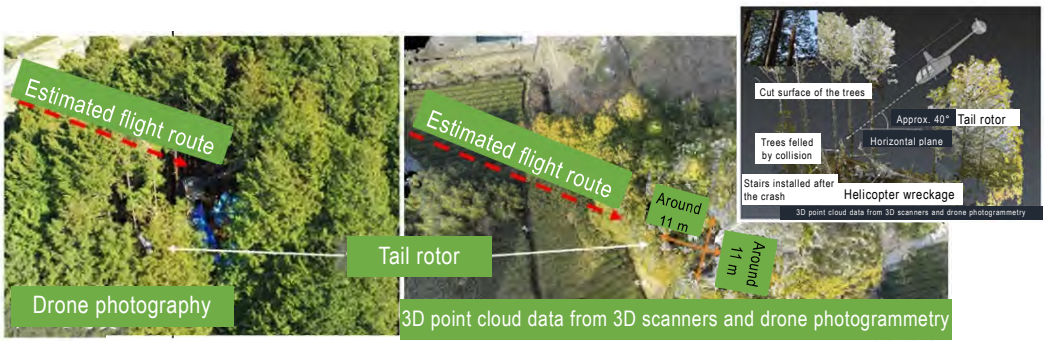
In recent years, demonstration experiments of flying cars, autonomous railways and Maritime Autonomous Surface Ships (MASS) have been progressing and data analysis will become increasingly important in future accident investigations, given that the operation of such next-generation transportation systems reduces the human factor involved. Accordingly, we are promoting efforts to acquire such analytical skills by participating in various IT analysis training programs held by other ministries and agencies and the private sector. We are also striving to improve our technical capabilities in IT analysis, such as investigating the latest trends in next-generation transportation systems that are expected to be practically applied in future.

At the same time, steadily passing on and refining the analytical technology cultivated by the JTSB remains important. With this in mind, we are also actively engaged in HR development to improve our technical capabilities, including training in aircraft digital data via external experts on flight data recorders, instruction in high-level analytical techniques from skilled to newly appointed personnel through OJT and developing and maintaining various manuals.

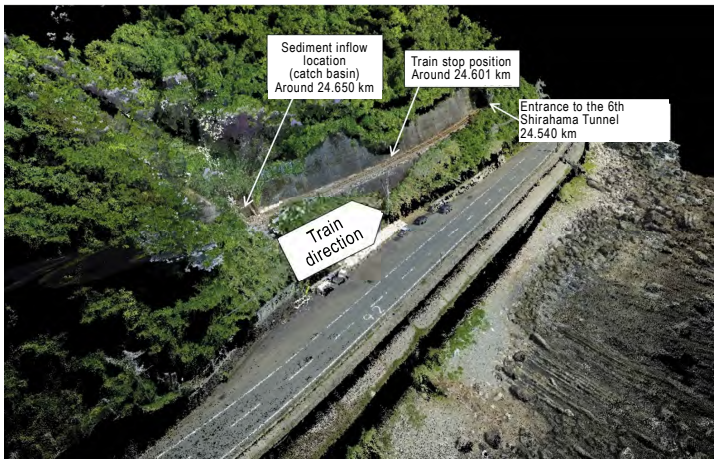

Staff of Research and Analysis Office (JTSB Lab)

The JTSB also actively utilizes various investigative tools in a timely manner to improve its investigative capabilities. For example, this includes promoting the use of aerial photography via small UA (drones) and 3D scanners. Given the effectiveness of using 3D models created using these two instruments alone or in combination to understand the circumstances at accident sites, we are actually using them in aircraft, railway and marine accident investigations (see figure below). Drones in particular require appropriate knowledge and skills to operate, as well as photographing, surveying and flexible use in actual investigations. Accordingly, we systematically train our staff to operate such drones and carry out surveys on an ongoing basis, even after they obtain national qualification as small UA operators, so that we can investigate accidents via drone as rapidly and accurately as possible.

Utilization of 3D scanners and drones in accident investigations



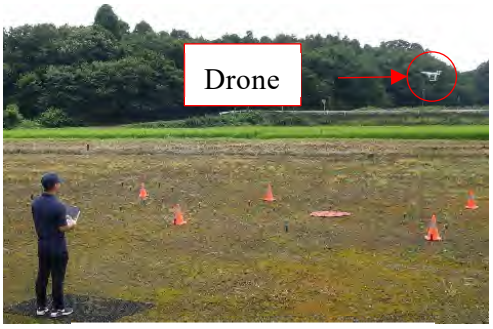

Example of utilization in aircraft accident investigations




Example of utilization in railway accident investigations

3D Scanners

Drone




Drone operator training

Moreover, this year, leveraging information obtained from overseas investigative organizations at international accident investigation conferences, we introduced the latest analytical software for ships, which is being used by many accident investigation organizations and becoming a global standard. This enables integrated analysis of multiple data such as Voyage Data Recorders (VDRs), Automatic Identification Systems (AIS), GPS and voice on the bridge of multiple ships and allows us to reproduce the circumstances of marine accidents in 3D simulations. We will work to improve our data analysis

Navigation data analysis device operation

capabilities in marine accidents, which will include sharing analytical techniques with overseas investigative organizations that have also introduced these.

Given the rapid evolution of digital technology and the development of next-generation transportation systems in recent years, it is even more important to improve and enhance our technological capabilities accordingly to respond reliably to accident investigations. The JTSB will systematically promote research and studies on information technology across aircraft, railway and marine fields, and strive to improve our accident investigation capabilities.

## Improving the Technical Skills of Marine Accident Investigators

**Marine Accident Investigator**

Marine accident investigators must respond to wide-ranging accidents and incidents (symptom of accident) (hereinafter referred to as "accidents and incidents") involving various types of vessels, from small vessels such as fishing vessels and pleasure boats to large vessels such as cargo ships and tankers, including collisions, grounding, foundering, fires and loss of control due to engine or steering malfunctions.

Therefore, marine accident investigators are appointed from individuals with specialized knowledge in the maritime accident. However, accident investigations are required knowledge of all aspects of ship operations, including navigation and engine operation, as well as a broad range of expertise utilizing in-depth investigations and various analytical techniques to determine the cause of the accident. As a result, marine accident investigators strive to acquire knowledge and improve their abilities through daily accident investigations and utilize practical training opportunities to enhance their expertise and technical skills in accident investigations.

Additionally, with the advancement of marine technology, new technologies and systems are being introduced and marine accident investigators strive to acquire new knowledge and skills by attending various training courses alongside accident investigations, with each investigator working daily to improve their knowledge and skills.

This time, we will introduce the "Operational Practice Training" among the trainings, conducted in September 2024.

This training was organized by the Japan agency of Maritime Education and Training for Seafarers (JMETS), which is an independent administrative institution and was attended by newly appointed marine accident investigators, as well as participants from the Japan Marine Accident Tribunal and the Maritime Bureau. The agency plays a central role in seafarer education in Japan, accepting students from seafarer education institutions such as mercantile marine universities and technical colleges and training new seafarers through navigation training on training ships in conjunction with classroom lectures.

This training was conducted using the JMETS's training ship, "Taisei maru," and was a practical training where participants received explanations from crew members about the equipment installed on the ship and its handling.

The content of this training aimed to increase knowledge related to ship operation, and participants learned the following:

◯ Handling navigational instruments (Radar/ARPA*[1]ECDIS*[2])

・Types and usage of navigational instruments such as radar and ECDIS installed on the bridge to assist with lookout, and information displayed, including how to confirm ships' location and the closest point of approach.

◯ On-duty experience through a ship simulator

・Experiences such as general ship-handling decisions and dangerous navigation situations:

various navigation conditions and sea area settings, settings for surrounding vessels such as head-on and crossing situations, etc. were available.

◯ Handling of emergency locator transmitters / Responding to distress communications

・Methods of sending and receiving distress signals via radio (satellite to land-based station to ship) such as EPIRB*3 etc., visual display on radar SART*4, two-way radiotelephone apparatus, and distress communications via medium- and short-wave radios, etc.

◯ VDR*5 Data Extraction Training (Classroom Only)

・VDR information (navigation information, radar images, audio, etc.), storage time, data storage location, etc.

Bridge of the training ship "Taisei Maru"
(Lower left: ECDIS, Upper right: Radar/ARPA)

Ship Simulator installed on the training ship bridge on the lower deck

The experience of performing watchkeeping duties using a ship simulator, extracting objective data, and handling navigational instruments and life-saving appliance were all crucial for future accident investigations and other purposes.

Additionally, speaking directly with crew members responsible for training the seafarers provided a valuable opportunity to learn about the practical aspects of ship operations, as well as the mindset and actions taken in those situations.

The on-board training is also intended to cultivate the qualities necessary for being a seafarer and impacts significantly on the safety awareness of the seafarers who graduate from the JMETS. We believe that it is important to understand the training and methods for acquiring such seafarer qualities and safety awareness when investigating accidents and incidents.

In addition to the training mentioned above, marine accident investigators undergo various training programs every year, ranging from basic training on all aspects of ships to specialized training on investigation and analysis, including classroom lectures on marine engineering and marine meteorology, training by equipment manufacturers on how to extract data from VDRs and GPS plotters, training by engine manufacturers on investigating the cause of fire accidents at the site and engine structure and

systems, as well as training to incorporate new knowledge and skills as marine technology advances.

*1: Automatic Radar Plotting Aids (ARPA) - A device that processes information received from a radar, captures and tracks objects such as other ships, predicts their movements, and alerts the crew of potential dangers.

*2: Electronic Chart Display and Information System (ECDIS) - A device that displays an Electronic Navigational Chart (ENC) on a monitor screen, can display information such as the ship's position and planned route overlaid, and has an alarm function to alert the crew of approaching shallow waters, etc.

*3: Emergency Position Indicating Radio Beacon (EPIRB) - A buoy-type device that transmits distress signals to satellites orbiting the Earth.

*4: Search And Rescue Radar Transponder (SART) - A device that automatically transmits response radio waves when it detects radar waves emitted by patrol vessels or aircraft while searching, and alerts the locations of the persons in distress.

*5: Voyage Data Recorder (VDR) - A device that can record data related to navigation, such as the ship's position, course, speed and radar information, as well as communications from international VHF radiotelephone equipment and voice in the bridge.

**- Bridge between You and Us -**

## JTSB is actively disseminating information through the official SNS

**Public Relations Office, General Affairs Division**

Eighteen months have elapsed since the JTSB launched its first official SNS account of X, on July 4, 2023.


In addition to timely information such as the dispatch of investigators in the event of an accident or incident and the publication of safety awareness materials, we regularly post information such as the publication of investigation reports and the outline of the chairperson's press conference.

In 2024, we began posting videos explaining the outline of the materials in conjunction with the publication of safety awareness materials such as the JTSB Digest and the Analysis Digest Regional Office Edition. We are trying new things, little by little, and working daily to disseminate information more effectively.

Although the JTSB's activities were sometimes covered by the media, opportunities to learn how does our general appearance look like have been scarce. Now, through posting to X, we can directly monitor the increase in followers, number of reposts per post and the comments received; accordingly, we are glad to see the numbers and comments every day as a person behind the account. (we will not reply to individual comments because it is an official account, but the person behind the account regularly checks them!)

We hope to improve how we communicate the JTSB 's activities in a clearer and friendlier way. Please follow the JTSB official account and if you have already done so, please spread our posts!

## We offer these types of outreach lectures!

**General Affairs Section, General Affairs Division**

The JTSB holds outreach lectures in which our staff visit you to give lectures as part of our safety awareness activities. We offer 12 types of lectures (see page 114, Chapter 6) and have conducted 55 lectures over the past three years (2022-2024).

Of the three modes, aircraft, railway and marine, the number of lectures conducted that relate to aircraft is the highest. Among these, the most frequently requested lecture is "No. 3 Aircraft Accident Investigations," in which aircraft accident investigators explain actual accident cases. This lecture has been attended by students aiming to become pilots, etc., staff from prefectural disaster prevention centers, aircraft transport operators and rotorcraft pilots.

We also offer a lecture on "No. 8 JTSB Digest (Digest of Aircraft Accident Analyses)" in the aircraft field. This lecture focuses on the "JTSB Digest," a document that analyzes the content of investigative reports previously published by the JTSB and summarizes the necessary precautions for accident prevention. In particular, due to a temporary increase in accidents involving ultralight planes and other aircraft, we compiled these accidents and incidents in the Digest and published it in March 2022. Therefore, this spawned numerous requests for lectures, attended by members from associations and federations related to ultralight planes and other aircraft from various regions.

In the marine accident, we offer "No. 12 Analysis Digest Local Office Edition (related to marine accidents)." This is a lecture based on the "Analysis Digest Local Office Edition," a document compiled by the regional offices of the JTSB's secretariat, which analyzes marine accidents and incidents having occurred in their respective jurisdictions (see page 83 of Chapter 5). Staff members from the regional offices will introduce the characteristics of accidents and incidents in each region, as well as caution areas. This lecture has been well-received by participants from local fisheries cooperatives, prefectural government offices and other organizations.

The content of each course is adjusted by the staff in charge of the course to meet the client's requests as much as possible, and courses are offered both online and in person.

If you are interested, please visit the JTSB's website for information on how to apply.

○ Introduction page for outreach lectures

https://jtsb.mlit.go.jp/demaekouza.html (Japanese)

## To prevent collision accidents involving small vessels

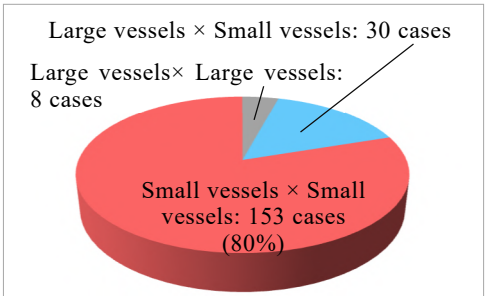
**Nagasaki Office**


What is seamanship?

When translated directly using an English-Japanese dictionary, it is often explained as “navigation skills,” but in Japanese, it is often used in a broader sense to include “knowledge,” “skills” and “manners” that are considered qualities crew members should have.

It is not easy to express in a few words, but we would like to discuss how this seamanship could have been applied in actual collisions based on specific statistics.

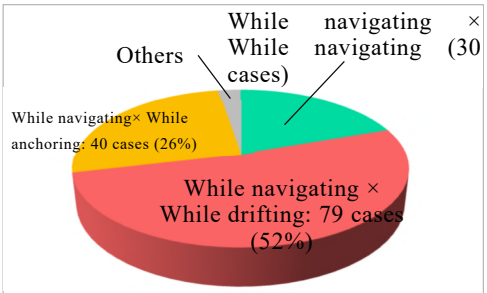
1. Number of collisions that occurred within the jurisdiction of the Nagasaki Office over the past decade (Graph 1)




Graph 1

The total number of collisions that occurred within the jurisdiction of the Nagasaki Office Secretariat over the past decade (2013–2022) was 191. A breakdown of these accidents reveals that most involved collisions between small vessels less than 20 gross tonnage.

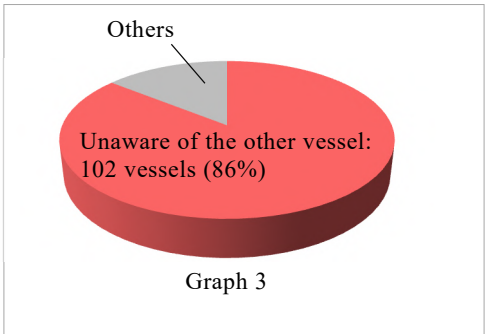
2. Number of collisions between small vessels by navigation status among 153 cases (Graph 2)




Graph 2

It is clear that collisions between vessels in navigation (30 cases) are fewer than collisions between vessels in navigation and vessels while drifting or anchoring (119 cases).

3. <While navigating × while drifting or anchoring (119 cases)> Visibility of other vessels while navigating (Graph 3)

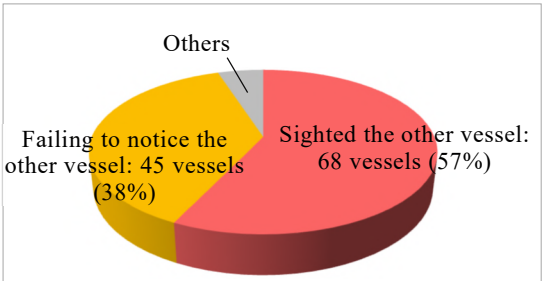



Graph 3

In collisions between vessels while navigating and vessels while drifting or anchoring, when examining the visibility of the other vessel by the vessel while navigating, the majority were unaware of the other vessel.

4. <While navigating × while drifting or anchoring (119 cases)> Status of vessels while drifting or anchoring

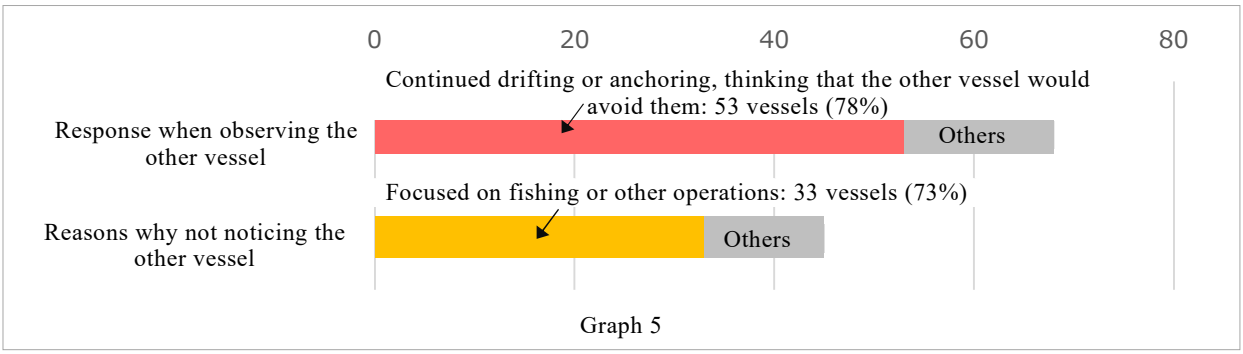
4-1. Visibility of other vessels while drifting or anchoring (Graph 4)




Graph 4

In collisions between vessels while navigating and vessels while drifting or anchoring, the visibility of the other vessel by vessel while drifting or anchoring can be divided into two cases: those in which the other vessel was observed in advance and those in which the approach of the other vessel was not noticed.

4-2. Response when observing the other vessel and reasons for not noticing the other vessel (Graph 5)




Graph 5

It can be seen that vessels that had observed the other vessels continued to drift or anchor without taking any action, assuming that the other vessels would avoid them, and that vessels that did not notice the other vessels were focused on fishing and operations, etc.

○Importance of watchkeeping

Statistics show that the majority of vessels in navigation are unaware of other vessels, and nearly half of vessels while drifting or anchoring are unaware of approaching other vessels.

**Act on Preventing Collisions at Sea, Article 5: Vessels must maintain a constant lookout by visual, hearing and all other means appropriate to the circumstances, so as to be able to fully determine the surrounding situation and the risk of collision with other vessels.**

This provision is an obligation imposed on all vessels, regardless of whether visibility is good or bad, while navigating, drifting or anchoring.

Actions to avoid collisions begin with this **watchkeeping**.

○Actions that must be performed even when a vessel is drifting or anchoring

In many cases, a vessel drifting or anchoring does nothing, despite having observed other vessels, thinking that the other vessel would avoid it, but the following obligations is actually applied:

**Act on Preventing Collisions at Sea, Article 34, Paragraph 5: When two vessels approach each other within sight, a vessel must immediately give a whistle signal by emitting five or more rapid blasts if it cannot understand the intentions or actions of the other vessel, or if it has reason to doubt that the other vessel is taking sufficient action to avoid a collision. (omit the rest)**

**Article 36, Paragraph 1 of the same Act: A vessel may, when it deems it necessary to alert other vessels, give a light signal or acoustic signal that cannot be mistaken for a signal specified in this Act, or shine a searchlight in the direction of the danger in a manner that does not dazzle other vessels.**

**Article 33, Paragraph 2 of the same Act: (first part omitted) If these [steam whistles and vessel's bells] are not installed, another means of giving effective acoustic signals must be provided.**

This provision is often overlooked, and it stipulates that even a vessel engaged in drifting or anchoring must give a warning signal by whistle if an approaching vessel does not take action to avoid a collision, and that a vessel without a whistle may give a delinquency signal via an effective acoustic device (such as a whistle or gas horn).

○Seamanship for preventing collisions involving small vessels

It is obviously wrong for a vessel in navigation to fail to keep a watchkeeping, but rather than simply accepting this as "the other vessel's fault," it is necessary to ensure that the other vessel notices and actively strives to avoid a collision. This is what we consider seamanship. Furthermore, what should you do if the other vessel continues to approach even after giving a warning or delinquency signal? This is slightly different for vessels while drifting or anchoring, but it is also not good to just leave things as-is because it is "the other vessel's fault."

Vessels while drifting are considered vessels while navigating and must take action to avoid collision by moving themselves. If they have log speed, navigation rules may apply depending on the situation.

Vessels while anchoring must take action to avoid collision by moving as far as possible. In this case, "as far as possible" means that there is sufficient time to hoist or cut the anchor rope and start the engine.

In other words, even while drifting or anchoring, if there is a risk of collision, it is necessary to take action to avoid collisions, which is also considered seamanship. There are various interpretations of seamanship, but in this column, seamanship refers to consideration and thoughtfulness, where rather than requiring one side to avoid a collision, both sides cooperate to avoid it.

As a seaman who loves the sea, we believe it is important to fulfill responsibilities while navigating, but if there is still a risk of collision, you should not assume that the other vessel will avoid your vessel; instead, take the initiative and take action to avoid it yourself.

Could we say that safety is the ultimate goal of good seamanship?

# Appendices

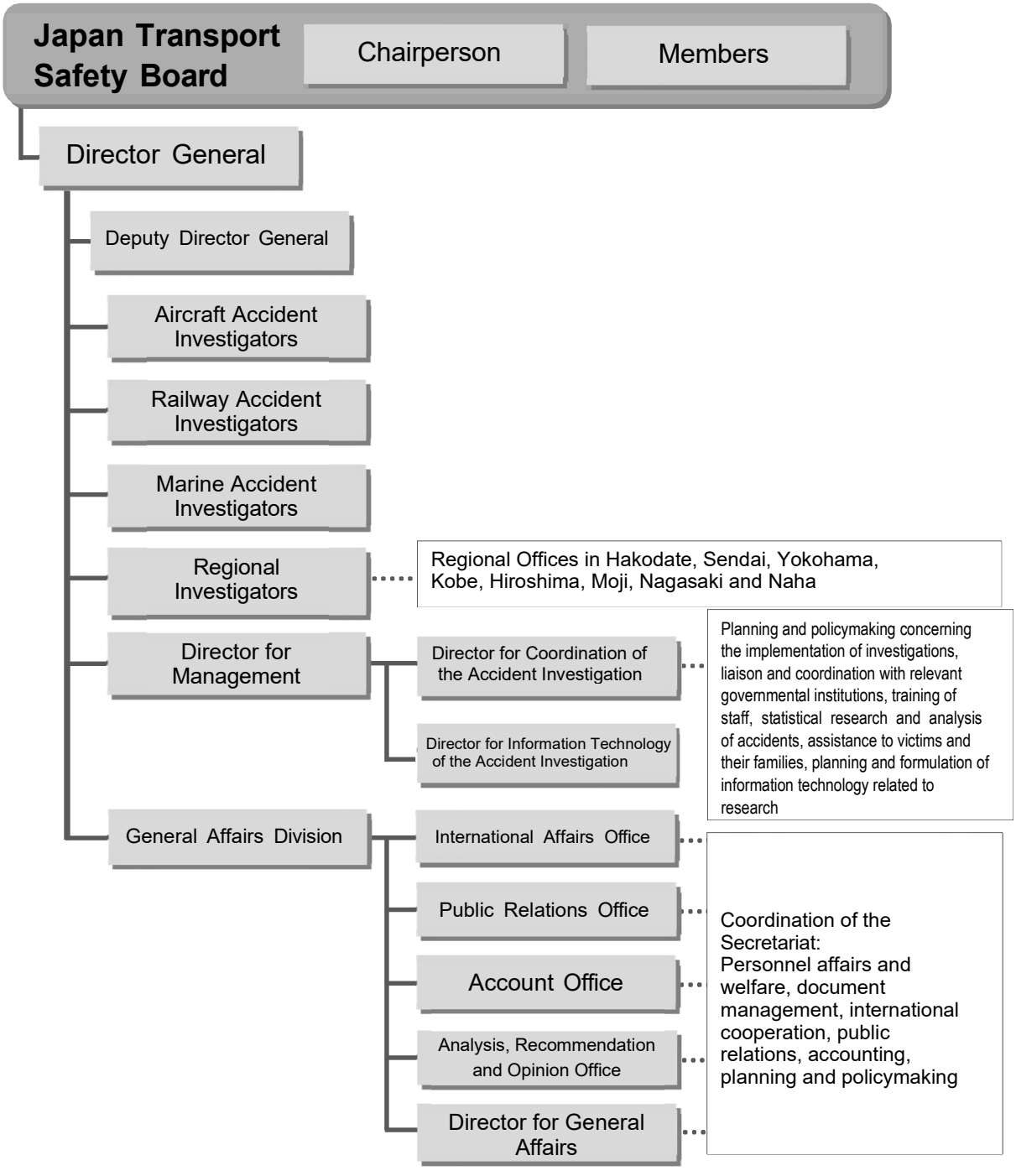
# Appendices Contents

## 1 Outline of the organization

The Japan Transport Safety Board consists of the Chairperson, 12 members, and 182 secretariat staff (quota, as of April 1, 2024). The staff in the secretariat consist of investigators who conduct investigations of aircraft, railway and marine accidents; the General Affairs Division that performs international cooperation, statistical analysis of accident investigations, etc. - related jobs for the secretariat; and the Director for Management who is dedicated to the support and statistical analysis of accident investigations. In addition, special support staff and regional investigators are stationed at eight regional offices around the country (Hakodate, Sendai, Yokohama, Kobe, Hiroshima, Moji, Nagasaki and Naha) to investigate marine accidents (excluding serious ones) and provide initial support for aircraft, railway and marine accidents investigation.

April 1, 2024

**Organization Chart**



## 2 Board Members

As of March 1, 2025

**TAKEDA Nobuo, Chairperson (Full-time), Director of Aircraft Committee**

TAKEDA Nobuo was appointed as Chairperson of the Japan Transport Safety Board on April 1, 2019; belongs to the Aircraft Committee, the Railway Committee and the Marine Committee with special expertise in aerospace engineering, strength of materials and composite materials engineering.
Career summary: PhD, University of Florida and Graduate School of Engineering, the University of Tokyo (doctor of engineering), Emeritus Professor, Former Vice President, the University of Tokyo, Former Technical Advisor in Structures and Advanced Composite Research Unit, Aeronautical Technology Directorate of the Japan Aerospace Exploration Agency (JAXA)

**SODA Hisako, Member (Full-time)**

SODA Hisako was appointed as a member on April 1, 2022; belongs to the Aircraft Committee, the Railway Committee and the Marine Committee with special expertise in legislation.
Career summary: Graduated from Faculty of Law, the University of Tokyo, Former Judge, Tokyo District Court

**TAKANO Shigeru, Member (Full-time) Vice-Chairperson, Deputy Director of Aircraft Committee**

TAKANO Shigeru was appointed as a member on February 27, 2025; belongs to the Aircraft Committee, with special expertise in operation and maintenance of aircraft.
Career summary: Graduated from Mechanical Engineering for Production, Faculty of Engineering, the University of Tokyo, Former Advisor, ANA Strategic Research Institute Co., Ltd.

**MARUI Yuichi, Member (Full-time)**

MARUI Yuichi was appointed as a member on December 6, 2016; belongs to the Aircraft Committee, with special expertise in maneuvering of aircraft.
Career summary: Graduated from Civil Aviation College, Former D. Senior Vice President, Corporate Safety and Security, All Nippon Airways Co., Ltd.

**OKUMURA Fuminao, Member (Full-time), Director of Railway Committee**

OKUMURA Fuminao was appointed as a member on December 6, 2016; belongs to the Railway Committee, with special expertise in railway engineering and geotechnical engineering.
Career summary: Doctor of Engineering, graduated from the Department of Civil Engineering, Faculty of Engineering, Tokyo Institute of Technology
Former Executive Director of the Railway Technical Research Institute

**ISHIDA Hiroaki, Member (Full-time), Deputy Director of Railway Committee**

ISHIDA Hiroaki was appointed as a member on December 26, 2016; belongs to the Railway Committee, with special expertise in dynamics of machinery, vehicle dynamics and railway vehicle engineering.
Career summary: Doctor of Engineering, graduated from the Department of Industrial Mechanical Engineering, Faculty of Engineering, the University of Tokyo
Former Professor in the Program in Mechanical Engineering, Department of Interdisciplinary Science and Engineering, School of Science and Engineering, Meisei University

**ITO Hiroyasu (Full-time), Director of Marine Committee**

ITO Hiroyasu was appointed as a member on October 1, 2023; belongs to the Marine Committee and the Marine Special Committee, with special expertise in ship operation and maritime traffic safety.
Career summary: Graduated from Japan Coast Guard Academy Former Coast Guard Superintendent, Japan Coast Guard Former President of Maritime Disaster Prevention Center

**UENO Michio, Member (Full-time), Deputy Director of Marine Committee**

UENO Michio was appointed as a member on October 1, 2023; belongs to the Marine Committee and the Marine Special Committee, with special expertise in naval architect. Career summary: Doctor of Engineering,

Graduate School of Engineering, Osaka University,
Former Special Research Leader of National Maritime Research Institute, National Institute of Maritime, Port and Aviation Technology

**TSUDA Hiroka, Member (Part-time)**

TSUDA Hiroka was appointed as a member on October 1, 2020; belongs to the Aircraft Committee, with special expertise in flight dynamics and control of aircraft, flight simulation and flight test.
Career summary: Completion of the doctoral first course for Department of Human Media Systems, Graduate School of Information Systems, The University of Electro-Communications Senior R&D Fellow, Fundamental Aeronautics Research Unit, Senior Chief Officer of Fundamental Aeronautics Research, Japan Aerospace Exploration Agency (current post)

**MATSUI Yuko, Member (Part-time)**

MATSUI Yuko was appointed as a member on February 27, 2025; belongs to the Aircraft Committee, with special expertise in Ergonomics (human factors), Industrial Psychology.
Career summary: Doctor of Graduate School of Human, Sciences, The University of Osaka, Research Center for Human Factors, Institute of Social Research, Institute of Nuclear Safety System, Inc. Institute of Nuclear Safety System, Inc. (current post)

**SUZUKI Mio, Member (Part-time)**

SUZUKI Mio was appointed as a member on December 6, 2019; belongs to the Railway Committee, with special expertise in traffic engineering and ergonomics.
Career summary: Doctor of Engineering, Department of Built Environment, Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology
Associate Professor in the Department of Civil Engineering, Tokai University (current post)

**NIITSUMA Mihoko, Member (Part-time)**

NIITSUMA Miho was appointed as a member on December 6, 2019; belongs to the Railway Committee, with special expertise in electrical engineering.
Career summary: Doctor of Engineering, Department of Electrical Engineering and Information Systems, Graduate School of Engineering, The University of Tokyo
Professor in the Department of Precision Mechanics, Faculty of Science and Engineering, Chuo University (current post)

**OKAMOTO Makiko, Member (Part-time)**

OKAMOTO Makiko was appointed as a member on October 1, 2017; belongs to the Marine Committee and the Marine Special Committee, with special expertise in ergonomics. Career Summary: Doctor of Human Sciences, Graduate School of Human Sciences, Waseda University, Lawyer, Associate Professor in Faculty of Social Security Science, Kansai University (current post)

**The chairperson and members of the Board shall be appointed by the Minister of Land, Infrastructure, Transport and Tourism with the consent of both houses of Representatives and Councilors.**

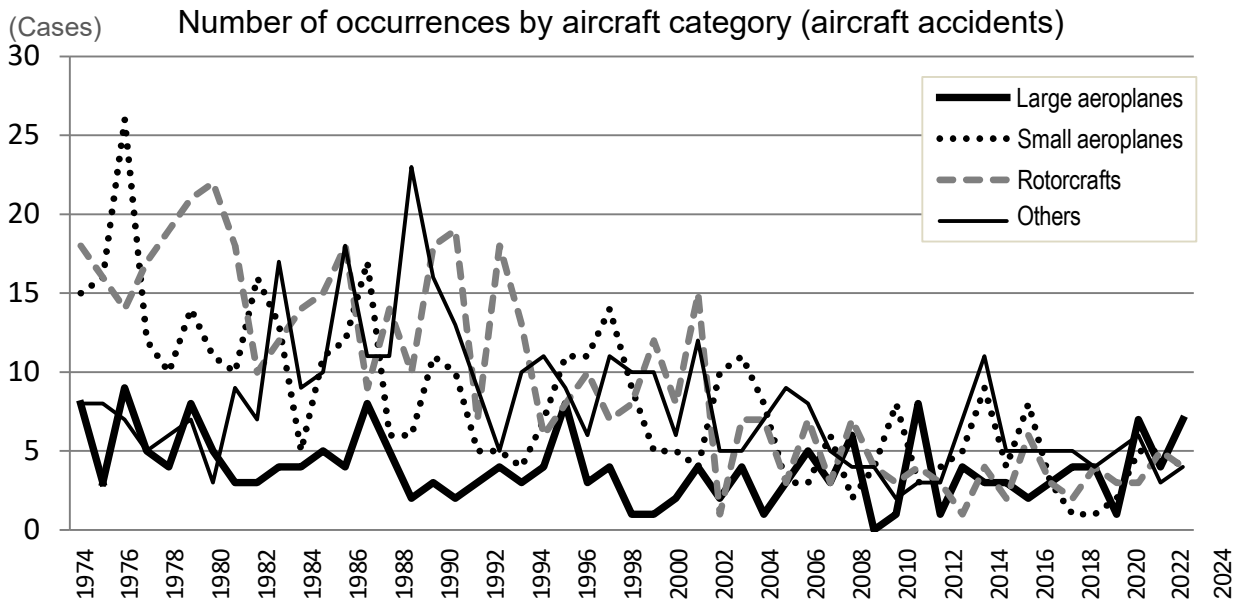
## 3 Number of occurrences by aircraft category (aircraft accidents)

(Cases)

| Category / Year of occurrence | Aircraft | | | Rotorcraft | | Glider | Airship | Small UA | Total |
|---|---|---|---|---|---|---|---|---|---|
| | Large aeroplane | Small aeroplane | Ultralight plane | Helicopter | Gyroplane | | | | |
| 1974 | 8 | 15 | 0 | 17 | 1 | 8 | 0 | - | 49 |
| 1975 | 3 | 16 | 0 | 16 | 0 | 8 | 0 | - | 43 |
| 1976 | 9 | 26 | 0 | 14 | 0 | 7 | 0 | - | 56 |
| 1977 | 5 | 12 | 0 | 16 | 1 | 5 | 0 | - | 39 |
| 1978 | 4 | 10 | 0 | 18 | 1 | 6 | 0 | - | 39 |
| 1979 | 8 | 14 | 0 | 20 | 1 | 6 | 1 | - | 50 |
| 1980 | 5 | 11 | 0 | 22 | 0 | 3 | 0 | - | 41 |
| 1981 | 3 | 10 | 1 | 18 | 0 | 8 | 0 | - | 40 |
| 1982 | 3 | 16 | 0 | 9 | 1 | 7 | 0 | - | 36 |
| 1983 | 4 | 13 | 10 | 12 | 0 | 7 | 0 | - | 46 |
| 1984 | 4 | 5 | 6 | 13 | 1 | 3 | 0 | - | 32 |
| 1985 | 5 | 11 | 6 | 15 | 0 | 4 | 0 | - | 41 |
| 1986 | 4 | 12 | 14 | 15 | 3 | 4 | 0 | - | 52 |
| 1987 | 8 | 17 | 8 | 8 | 1 | 3 | 0 | - | 45 |
| 1988 | 5 | 6 | 7 | 12 | 2 | 3 | 1 | - | 36 |
| 1989 | 2 | 6 | 11 | 9 | 1 | 12 | 0 | - | 41 |
| 1990 | 3 | 11 | 9 | 16 | 2 | 7 | 0 | - | 48 |
| 1991 | 2 | 10 | 6 | 19 | 0 | 7 | 0 | - | 44 |
| 1992 | 3 | 5 | 5 | 7 | 0 | 4 | 0 | - | 24 |
| 1993 | 4 | 5 | 3 | 17 | 1 | 2 | 0 | - | 32 |
| 1994 | 3 | 4 | 8 | 13 | 0 | 2 | 0 | - | 30 |
| 1995 | 4 | 7 | 10 | 6 | 0 | 1 | 0 | - | 28 |
| 1996 | 8 | 11 | 5 | 8 | 0 | 4 | 0 | - | 36 |
| 1997 | 3 | 11 | 3 | 8 | 2 | 3 | 0 | - | 30 |
| 1998 | 4 | 14 | 5 | 6 | 1 | 6 | 0 | - | 36 |
| 1999 | 1 | 9 | 5 | 7 | 1 | 5 | 0 | - | 28 |
| 2000 | 1 | 5 | 5 | 11 | 1 | 5 | 0 | - | 28 |
| 2001 | 2 | 5 | 2 | 8 | 0 | 4 | 0 | - | 21 |
| 2002 | 4 | 4 | 5 | 15 | 0 | 7 | 0 | - | 35 |
| 2003 | 2 | 10 | 3 | 1 | 0 | 2 | 0 | - | 18 |
| 2004 | 4 | 11 | 2 | 6 | 1 | 3 | 0 | - | 27 |
| 2005 | 1 | 8 | 0 | 7 | 0 | 7 | 0 | - | 23 |
| 2006 | 3 | 3 | 4 | 2 | 1 | 5 | 0 | - | 18 |
| 2007 | 5 | 3 | 4 | 7 | 0 | 4 | 0 | - | 23 |

| Category / Year of occurrence | Aircraft | | | Rotorcraft | | Glider | Airship | Small UA | Total |
|---|---|---|---|---|---|---|---|---|---|
| | Large aeroplane | Small aeroplane | Ultralight plane | Helicopter | Gyroplane | | | | |
| 2008 | 3 | 6 | 2 | 3 | 0 | 3 | 0 | - | 17 |
| 2009 | 6 | 2 | 1 | 7 | 0 | 3 | 0 | - | 19 |
| 2010 | 0 | 4 | 2 | 4 | 0 | 2 | 0 | - | 12 |
| 2011 | 1 | 8 | 1 | 3 | 0 | 1 | 0 | - | 14 |
| 2012 | 8 | 3 | 2 | 4 | 0 | 1 | 0 | - | 18 |
| 2013 | 1 | 4 | 1 | 3 | 0 | 2 | 0 | - | 11 |
| 2014 | 4 | 5 | 2 | 1 | 0 | 5 | 0 | - | 17 |
| 2015 | 3 | 9 | 3 | 3 | 1 | 8 | 0 | - | 27 |
| 2016 | 3 | 4 | 1 | 2 | 0 | 4 | 0 | - | 14 |
| 2017 | 2 | 8 | 3 | 5 | 1 | 2 | 0 | - | 21 |
| 2018 | 3 | 3 | 4 | 3 | 0 | 1 | 0 | - | 14 |
| 2019 | 4 | 1 | 2 | 2 | 0 | 3 | 0 | - | 12 |
| 2020 | 4 | 1 | 4 | 3 | 1 | 0 | 0 | - | 13 |
| 2021 | 1 | 2 | 2 | 3 | 0 | 3 | 0 | - | 11 |
| 2022 | 7 | 5 | 4 | 3 | 0 | 2 | 0 | 0 | 21 |
| 2023 | 4 | 5 | 0 | 5 | 0 | 2 | 0 | 1 | 17 |
| 2024 | 7 | 4 | 0 | 4 | 0 | 3 | 0 | 1 | 19 |
| Total | 198 | 410 | 181 | 456 | 26 | 217 | 2 | 2 | 1492 |

(Note) 1. The figures include the cases handled by the Aircraft Accident Investigation Committee and the Aircraft and Railway Accidents Investigation Commission.
2. Large aeroplanes are aircraft with a maximum take-off weight of more than 5,700 kg.
3. Small aeroplanes are aircrafts with a maximum take-off weight of 5,700kg or less, excluding Ultralight planes.
4. Ultralight planes include self-made, ultralight plane-shaped aircrafts.
5. Gyroplanes include self-made, gyroplane-shaped aircrafts.
6. The number of small UA in 2022 is from December onward.




## 4 Number of fatalities in accidents (aircraft accidents)

(Persons)

| Year of occurrence \ Category | | Aircraft | | | Rotorcraft | | Glider | Total | |
|---|---|---|---|---|---|---|---|---|---|
| | | Large aeroplane | Small aeroplane | Ultralight plane | Helicopter | Gyroplane | | | |
| 2008 | Crew | 0 | 1 | 1 | 2 | 0 | 1 | 5 | 5 |
| | Passengers and others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 2009 | Crew | 2 | 0 | 2 | 5 | 0 | 0 | 9 | 9 |
| | Passengers and others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 2010 | Crew | 0 | 2 | 1 | 14 | 0 | 0 | 17 | 17 |
| | Passengers and others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 2011 | Crew | 0 | 5 | 0 | 1 | 0 | 0 | 6 | 6 |
| | Passengers and others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 2012 | Crew | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Passengers and others | 0 | 1 | 0 | 0 | 0 | 0 | 1 | |
| 2013 | Crew | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| | Passengers and others | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |
| 2014 | Crew | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 |
| | Passengers and others | 0 | 1 | 0 | 0 | 0 | 0 | 1 | |
| 2015 | Crew | 0 | 1 | 1 | 2 | 0 | 1 | 5 | 10 |
| | Passengers and others | 0 | 2 | 1 | 2 | 0 | 0 | 5 | |
| 2016 | Crew | 0 | 1 | 0 | 0 | 0 | 3 | 4 | 8 |
| | Passengers and others | 0 | 3 | 0 | 0 | 0 | 1 | 4 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2017 | Crew | 0 | 2 | 0 | 2 | 1 | 1 | 6 | 22 |
| | Passengers and others | 0 | 4 | 0 | 12 | 0 | 0 | 16 | |
| 2018 | Crew | 0 | 0 | 2 | 1 | 0 | 0 | 3 | 11 |
| | Passengers and others | 0 | 0 | 0 | 8 | 0 | 0 | 8 | |
| 2019 | Crew | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| | Passengers and others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 2020 | Crew | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| | Passengers and others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 2021 | Crew | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 3 |
| | Passengers and others | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |
| 2022 | Crew | 0 | 2 | 1 | 1 | 0 | 1 | 5 | 9 |
| | Passengers and others | 0 | 2 | 1 | 0 | 0 | 1 | 4 | |
| 2023 | Crew | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| | Passengers and others | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 2024 | Crew | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 7 |
| | Passengers and others | 5 | 0 | 0 | 0 | 0 | 0 | 5 | |
| Total | Crew | 2 | 15 | 10 | 32 | 1 | 10 | 70 | 116 |
| | Passengers and others | 5 | 13 | 2 | 22 | 0 | 4 | 46 | |
| | Total | 7 | 28 | 12 | 54 | 1 | 14 | | |

(Note) 1. The figures include the cases handled by the Aircraft and Railway Accidents Investigation Commission in 2008
2. Death tolls represent data for the respective years of occurrence relisted from the annual reports published for those years.
3. Large aeroplanes are aircrafts with a maximum take-off weight of more than 5,700 kg.
4. Small aeroplanes are aircrafts with a maximum take-off weight of 5,700kg or less, excluding Ultralight planes.
5. Ultralight planes include self-made, ultralight plane-shaped aircrafts.
6. Gyroplanes include self-made, gyroplane-shaped aircrafts.

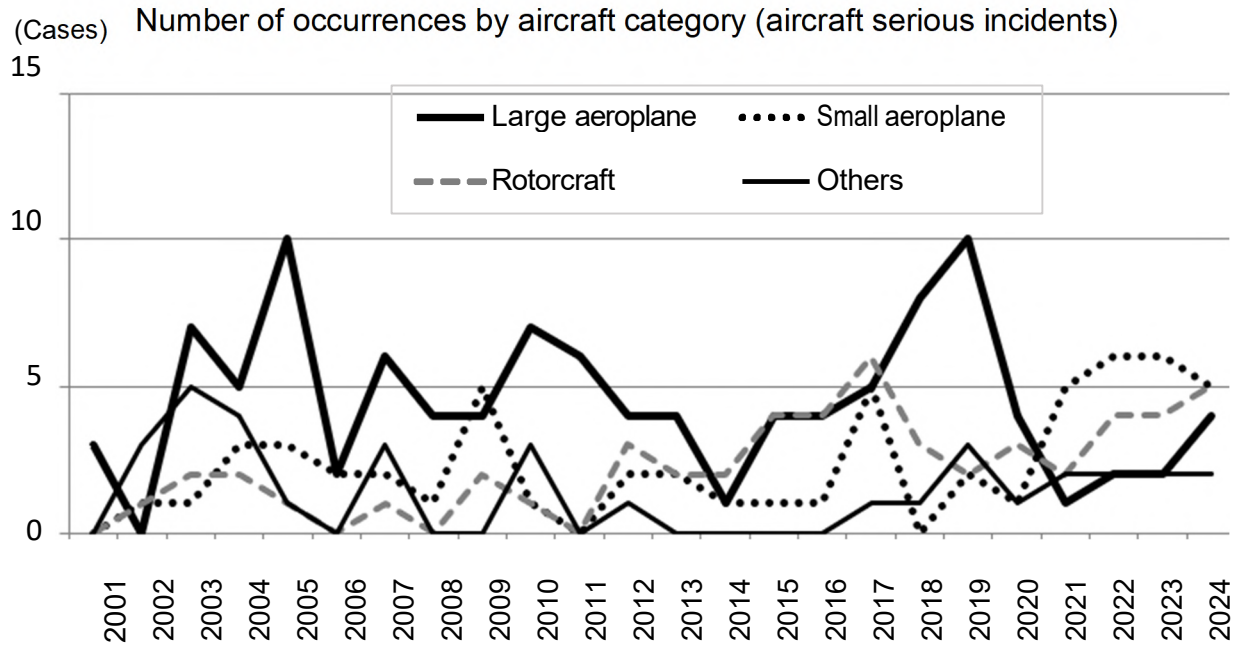
## 5 Number of occurrences by aircraft category (aircraft serious incidents)

(Cases)

| Category / Year of occurrence | Aircraft | | | Rotorcraft | | Glider | Airship | Small UA | Total |
|---|---|---|---|---|---|---|---|---|---|
| | Large aeroplane | Small aeroplane | Ultralight plane | Helicopter | Gyroplane | | | | |
| 2001 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | - | 3 |
| 2002 | 0 | 1 | 2 | 1 | 0 | 1 | 0 | - | 5 |
| 2003 | 7 | 1 | 4 | 2 | 0 | 1 | 0 | - | 15 |
| 2004 | 5 | 3 | 4 | 2 | 0 | 0 | 0 | - | 14 |
| 2005 | 10 | 3 | 1 | 1 | 0 | 0 | 0 | - | 15 |
| 2006 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | - | 4 |
| 2007 | 6 | 2 | 2 | 1 | 0 | 1 | 0 | - | 12 |
| 2008 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | - | 5 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | 4 | 5 | 0 | 2 | 0 | 0 | 0 | - | 11 |
| 2010 | 7 | 1 | 3 | 1 | 0 | 0 | 0 | - | 12 |
| 2011 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | - | 6 |
| 2012 | 4 | 2 | 0 | 3 | 0 | 1 | 0 | - | 10 |
| 2013 | 4 | 2 | 0 | 2 | 0 | 0 | 0 | - | 8 |
| 2014 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | - | 4 |
| 2015 | 4 | 1 | 0 | 4 | 0 | 0 | 0 | - | 9 |
| 2016 | 4 | 1 | 0 | 4 | 0 | 0 | 0 | - | 9 |
| 2017 | 5 | 5 | 0 | 6 | 0 | 1 | 0 | - | 17 |
| 2018 | 8 | 0 | 0 | 3 | 0 | 1 | 0 | - | 12 |
| 2019 | 10 | 2 | 0 | 2 | 0 | 3 | 0 | - | 17 |
| 2020 | 4 | 1 | 1 | 3 | 0 | 0 | 0 | - | 9 |
| 2021 | 1 | 5 | 1 | 4 | 0 | 1 | 0 | - | 10 |
| 2022 | 2 | 6 | 1 | 4 | 0 | 1 | 0 | 0 | 14 |
| 2023 | 2 | 6 | 1 | 4 | 0 | 1 | 0 | 0 | 14 |
| 2024 | 4 | 5 | 1 | 5 | 0 | 1 | 0 | 0 | 16 |
| Total | 107 | 56 | 21 | 54 | 0 | 13 | 0 | 0 | 251 |

(Note) 1. The figures include the cases handled by the Aircraft and Railway Accidents Investigation Commission. The number of cases for 2001 represents those that occurred from October onward.
2. Large aeroplanes are aircrafts with a maximum take-off weight of more than 5,700 kg.
3. Small aeroplanes are aircrafts with a maximum take-off weight of 5,700kg or less, excluding Ultralight planes.
4. Ultralight planes include self-made, ultralight plane-shaped aircrafts.
5. The number of small UA in 2022 is from December onward.



## 6 Number of occurrences by type (railway accidents)

(Cases)

| Type / Year of occurrence | Railway | | | | | | | Tramway | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Train collision | Train derailment | Train fire | Level crossing accident | Accident against road traffic | Other accidents with casualties | Heavy property loss without casualties | Vehicle collision | Vehicle derailment | Vehicle fire | Level crossing accident | Accident against road traffic | Other accidents with casualties | Heavy property loss without casualties | |
| 2001 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 2002 | 1 | 14 | 1 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 2003 | 1 | 20 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 2004 | 0 | 18 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 20 |
| 2005 | 2 | 20 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 24 |
| 2006 | 1 | 13 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 2007 | 0 | 12 | 2 | 3 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 19 |
| 2008 | 0 | 7 | 2 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 2009 | 0 | 5 | 1 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 2010 | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 9 |
| 2011 | 0 | 12 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 2012 | 0 | 13 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 20 |
| 2013 | 0 | 11 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 15 |
| 2014 | 1 | 9 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 2015 | 1 | 5 | 1 | 4 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 13 |
| 2016 | 0 | 7 | 0 | 15 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 23 |
| 2017 | 0 | 9 | 0 | 7 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 2018 | 0 | 2 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 2019 | 0 | 9 | 0 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 2020 | 0 | 7 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 2021 | 0 | 6 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 2022 | 0 | 5 | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 2023 | 0 | 3 | 0 | 5 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 2024 | 0 | 6 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| Total | 7 | 223 | 13 | 86 | 0 | 20 | 3 | 1 | 9 | 0 | 0 | 3 | 0 | 0 | 365 |

(Note) 1. The figures include the cases handled by the Aircraft and Railway Accidents Investigation Commission.
2. The number of cases for 2001 represents those that occurred from October onward.

## 7 Number of fatalities in accidents (railway accidents)

(Persons)

| Death Classification / Year of occurrence | Crew members | Passengers | Others | Total |
|---|---|---|---|---|
| 2008 | 0 | 0 | 2 | 2 |
| 2009 | 0 | 0 | 3 | 3 |
| 2010 | 0 | 0 | 2 | 2 |
| 2011 | 0 | 0 | 1 | 1 |
| 2012 | 0 | 0 | 1 | 1 |
| 2013 | 0 | 0 | 1 | 1 |
| 2014 | 0 | 0 | 6 | 6 |
| 2015 | 0 | 2 | 4 | 6 |
| 2016 | 0 | 0 | 15 | 15 |
| 2017 | 0 | 0 | 10 | 10 |
| 2018 | 0 | 0 | 9 | 9 |
| 2019 | 0 | 0 | 8 | 8 |
| 2020 | 0 | 0 | 8 | 8 |
| 2021 | 0 | 0 | 5 | 5 |
| 2022 | 0 | 0 | 9 | 9 |
| 2023 | 0 | 0 | 7 | 7 |
| 2024 | 0 | 0 | 5 | 5 |
| Total | 0 | 2 | 96 | 98 |

(Note) 1. The figures include the cases handled by the Aircraft and Railway Accidents Investigation Commission in 2008
2. Fatality tolls represent data for the respective years of occurrence relisted from the annual reports published for those years.
3. As investigations began to cover fatal accidents at third- and fourth-class crossings without crossing gates in April 2014, the number of fatalities occurring in those locations were added.

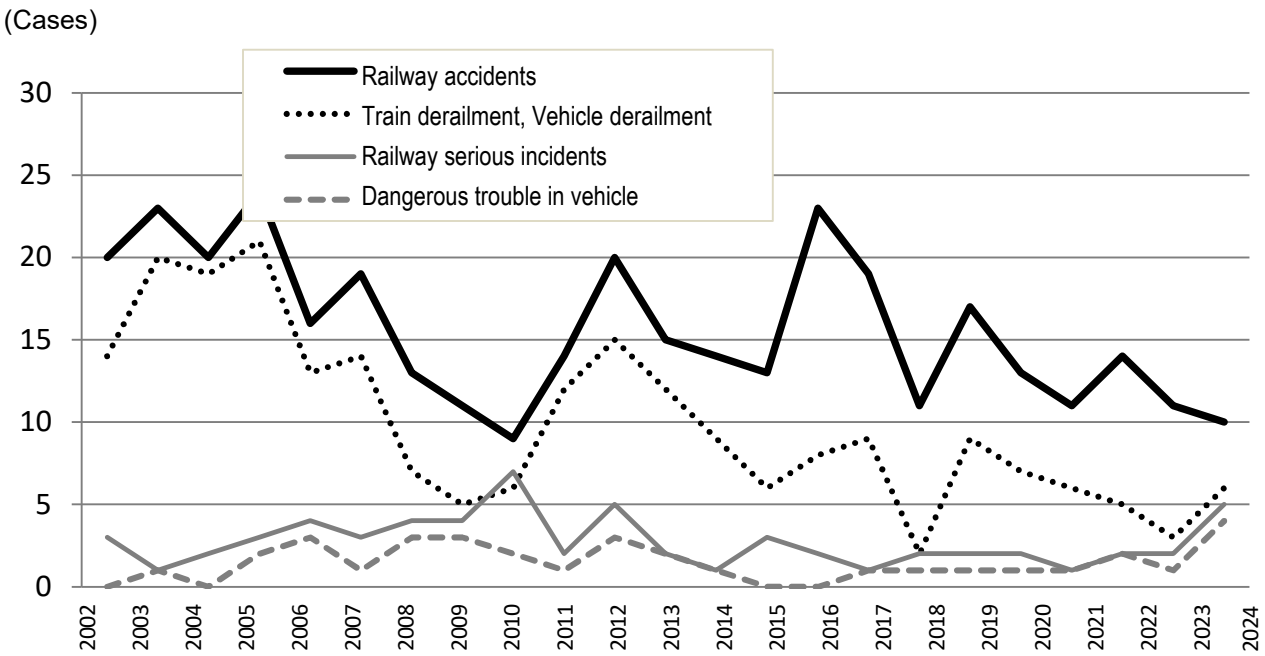
## 8 Number of occurrences by type (railway serious incidents)

(Cases)

| Type / Year of occurrence | Railway | | | | | | | | | | Tramway | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Incorrect management | Incorrect indication of signal | Violating red signal | Main track overrun | Violating closure section | Vehicle derailment | Dangerous damage | Dangerous trouble in vehicle | Heavy leakage of dangerous object | Others | Incorrect management | Violating red signal | Main track overrun | Dangerous damage | Dangerous trouble in vehicle | Heavy leakage of dangerous object | Others | |
| 2001 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2002 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2004 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 2005 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 2006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 2007 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 2008 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 2009 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 2010 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 7 |
| 2011 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 2012 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 2013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 2014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 2016 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 2017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 2020 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 2023 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| 2024 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 5 |
| Total | 1 | 7 | 0 | 2 | 7 | 2 | 3 | 30 | 0 | 3 | 3 | 1 | 1 | 0 | 4 | 0 | 0 | 64 |

(Note) 1. The figures include the cases handled by the Aircraft and Railway Accidents Investigation Commission.
2. The number of cases for 2001 represents those that occurred from October onward.

**Number of occurrence by type (railway accidents and incidents)**



## 9 Number of occurrences by area (marine accidents and incidents)

(Cases)

| Area / Year of occurrence | In Japanese territorial waters | | | Outside Japanese territorial waters | Total |
|---|---|---|---|---|---|
| | In ports specified by the Cabinet Order | Within 12 nautical miles | Internal waters | | |
| 2007 | 0 | 3 | 0 | 0 | 3 |
| 2008 | 227 | 576 | 15 | 55 | 873 |
| 2009 | 341 | 1,065 | 34 | 82 | 1,522 |
| 2010 | 305 | 909 | 38 | 82 | 1,334 |
| 2011 | 238 | 781 | 28 | 79 | 1,126 |
| 2012 | 224 | 807 | 31 | 53 | 1,115 |
| 2013 | 214 | 764 | 35 | 69 | 1,082 |
| 2014 | 193 | 762 | 31 | 44 | 1,030 |
| 2015 | 153 | 674 | 44 | 39 | 910 |
| 2016 | 147 | 638 | 43 | 21 | 849 |
| 2017 | 154 | 670 | 35 | 47 | 906 |
| 2018 | 186 | 689 | 38 | 44 | 957 |
| 2019 | 218 | 761 | 53 | 35 | 1,067 |
| 2020 | 177 | 640 | 37 | 17 | 871 |
| 2021 | 156 | 686 | 26 | 18 | 886 |
| 2022 | 178 | 652 | 41 | 21 | 892 |
| 2023 | 135 | 634 | 35 | 15 | 819 |
| 2024 | 103 | 475 | 33 | 17 | 628 |
| Total | 3,349 | 12,186 | 597 | 738 | 16,870 |

(Note) The above table shows the number of accidents and incidents into which the JTSB launched an investigation as of the end of December 2023 (including those carried over from the former Marine Accident Inquiry Agency).

## 10 Number of occurrences by type (marine accidents and incidents)

(Cases)

| Type / Year of occurrence | Marine accidents | | | | | | | | | | | | Marine incidents | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Collision | Contact | Grounding | Foundering | Flooding | Capsizing | Fire | Explosion | Missing | Facility damage | Fatality/Injury | Others | Loss of control | Stranded | Safety obstruction | Navigation obstruction | |
| 2007 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 2008 | 181 | 101 | 255 | 12 | 4 | 28 | 15 | 3 | 0 | 30 | 61 | 0 | 54 | 34 | 8 | 87 | 873 |
| 2009 | 325 | 174 | 431 | 16 | 19 | 58 | 42 | 3 | 0 | 38 | 217 | 2 | 105 | 33 | 0 | 59 | 1,522 |
| 2010 | 356 | 180 | 369 | 15 | 18 | 50 | 35 | 2 | 0 | 26 | 146 | 0 | 83 | 16 | 0 | 38 | 1,334 |
| 2011 | 282 | 145 | 265 | 12 | 18 | 56 | 32 | 1 | 0 | 23 | 142 | 1 | 103 | 10 | 1 | 35 | 1,126 |
| 2012 | 246 | 133 | 264 | 5 | 21 | 55 | 44 | 2 | 0 | 33 | 155 | 0 | 113 | 5 | 4 | 35 | 1,115 |
| 2013 | 264 | 145 | 210 | 10 | 25 | 49 | 33 | 2 | 0 | 38 | 163 | 2 | 106 | 7 | 3 | 25 | 1,082 |
| 2014 | 265 | 116 | 213 | 7 | 11 | 61 | 35 | 1 | 0 | 37 | 150 | 3 | 92 | 15 | 0 | 24 | 1,030 |
| 2015 | 244 | 102 | 202 | 5 | 12 | 56 | 38 | 3 | 0 | 20 | 122 | 1 | 85 | 4 | 4 | 12 | 910 |
| 2016 | 217 | 94 | 163 | 5 | 19 | 46 | 26 | 3 | 0 | 21 | 144 | 0 | 85 | 6 | 6 | 14 | 849 |
| 2017 | 200 | 96 | 181 | 14 | 22 | 55 | 27 | 3 | 0 | 23 | 143 | 0 | 115 | 4 | 3 | 20 | 906 |
| 2018 | 243 | 86 | 172 | 21 | 26 | 52 | 24 | 2 | 0 | 24 | 180 | 0 | 107 | 10 | 0 | 10 | 957 |
| 2019 | 219 | 98 | 201 | 11 | 26 | 67 | 31 | 1 | 0 | 40 | 145 | 2 | 181 | 24 | 0 | 21 | 1,067 |
| 2020 | 188 | 94 | 156 | 13 | 14 | 52 | 29 | 2 | 0 | 21 | 134 | 1 | 141 | 14 | 2 | 10 | 871 |
| 2021 | 199 | 81 | 173 | 3 | 36 | 66 | 26 | 3 | 0 | 33 | 125 | 2 | 122 | 12 | 1 | 4 | 886 |
| 2022 | 193 | 99 | 146 | 9 | 18 | 54 | 30 | 2 | 0 | 12 | 139 | 3 | 167 | 17 | 0 | 3 | 892 |
| 2023 | 170 | 102 | 150 | 8 | 22 | 45 | 28 | 2 | 0 | 9 | 122 | 1 | 141 | 12 | 0 | 7 | 819 |
| 2024 | 117 | 73 | 158 | 7 | 16 | 46 | 26 | 1 | 0 | 7 | 98 | 0 | 71 | 3 | 0 | 5 | 628 |
| Total | 3,909 | 1,920 | 3,711 | 173 | 327 | 896 | 521 | 36 | 0 | 435 | 2,386 | 18 | 1,871 | 226 | 32 | 409 | 16,870 |

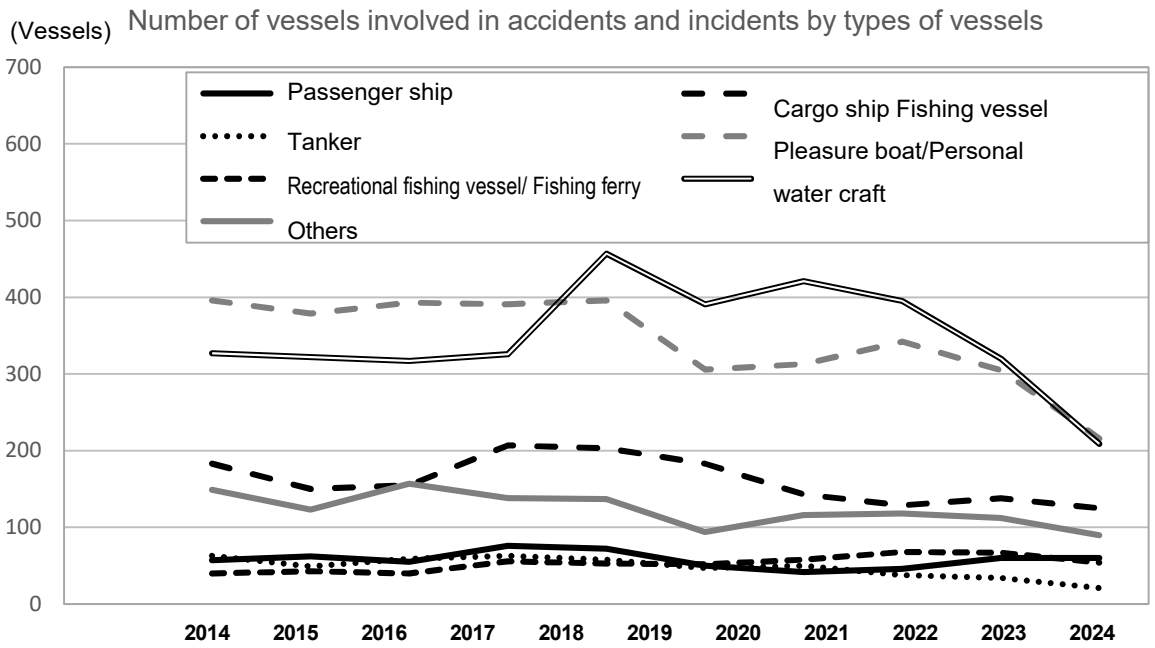
(Note) 1. The above table shows the number of accidents and incidents into which the JTSB launched an investigation as of the end of December 2023 (including those carried over from the former Marine Accident Inquiry Agency).
2. The figures in the column “Fatality/Injury” (which is not a result from other types of accident) are the number of cases involving fatality, injury, or missing persons.

## 11 Number of vessels involved in accidents and incidents by type of vessel (marine accidents and incidents)

(Vessels)

| Type of Vessel / Year of occurrence | Passenger ship | Cargo ship | Tanker | Fishing vessel | Tug boat, push boat | Recreational fishing vessel | Fishing ferry | Work vessel | Barge, lighter | Public-service ship | Pleasure boat | Personal water craft | Others | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 2008 | 55 | 318 | 55 | 307 | 98 | 28 | 6 | 27 | 59 | 11 | 126 | 31 | 7 | 1,128 |
| 2009 | 103 | 480 | 83 | 605 | 163 | 39 | 5 | 35 | 104 | 40 | 249 | 65 | 23 | 1,994 |
| 2010 | 99 | 398 | 105 | 555 | 123 | 53 | 6 | 48 | 82 | 24 | 251 | 66 | 18 | 1,828 |
| 2011 | 68 | 285 | 105 | 504 | 89 | 38 | 6 | 29 | 50 | 16 | 250 | 46 | 21 | 1,507 |
| 2012 | 79 | 296 | 75 | 467 | 91 | 33 | 8 | 36 | 59 | 14 | 247 | 55 | 8 | 1,468 |
| 2013 | 62 | 231 | 70 | 485 | 101 | 41 | 4 | 37 | 72 | 24 | 264 | 64 | 18 | 1,473 |
| 2014 | 63 | 235 | 71 | 436 | 91 | 39 | 5 | 36 | 58 | 17 | 253 | 69 | 13 | 1,386 |
| 2015 | 57 | 183 | 63 | 396 | 53 | 33 | 7 | 28 | 45 | 14 | 279 | 48 | 9 | 1,215 |
| 2016 | 62 | 150 | 49 | 379 | 47 | 36 | 7 | 27 | 33 | 11 | 254 | 68 | 5 | 1,128 |
| 2017 | 55 | 155 | 59 | 393 | 63 | 37 | 3 | 29 | 45 | 13 | 275 | 42 | 7 | 1,176 |
| 2018 | 76 | 207 | 63 | 391 | 52 | 48 | 8 | 20 | 36 | 14 | 269 | 57 | 16 | 1,257 |
| 2019 | 72 | 203 | 58 | 396 | 50 | 47 | 6 | 30 | 32 | 10 | 411 | 46 | 15 | 1,376 |
| 2020 | 50 | 183 | 47 | 305 | 35 | 50 | 2 | 14 | 22 | 9 | 335 | 56 | 13 | 1,121 |
| 2021 | 42 | 144 | 50 | 313 | 37 | 53 | 5 | 31 | 23 | 12 | 364 | 57 | 14 | 1,145 |
| 2022 | 46 | 129 | 38 | 341 | 38 | 64 | 5 | 27 | 22 | 17 | 341 | 55 | 14 | 1,137 |
| 2023 | 59 | 138 | 34 | 305 | 41 | 65 | 2 | 25 | 19 | 11 | 286 | 34 | 16 | 1,035 |
| 2024 | 60 | 125 | 21 | 216 | 32 | 50 | 4 | 15 | 21 | 15 | 164 | 45 | 7 | 775 |
| Total | 1,110 | 3,861 | 1,046 | 6,794 | 1,204 | 754 | 89 | 494 | 782 | 272 | 4,618 | 904 | 224 | 22,152 |

(Note) The above table shows the number of vessels involved in accidents and incidents into which the JTSB launched an investigation as of the end of December 2024 (including those carried over from the former Marine Accident Inquiry Agency).




## 12 Number of vessels involved in accidents and incidents by gross tonnage (marine accidents and incidents)

(Vessels)

| Gross Tonnage / Year of occurrence | Less than 20 tons | 20 to less than 100 tons | 100 to less than 200 tons | 200 to less than 500 tons | 500 to less than 1,600 tons | 1,600 to less than 3,000 tons | 3,000 to less than 5,000 tons | 5,000 to less than 10,000 tons | 10,000 to less than 30,000 tons | More than 30,000 tons | Unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| 2008 | 485 | 52 | 138 | 216 | 77 | 24 | 16 | 17 | 10 | 15 | 78 | 1,128 |
| 2009 | 903 | 89 | 230 | 288 | 116 | 42 | 34 | 49 | 30 | 14 | 199 | 1,994 |
| 2010 | 900 | 86 | 175 | 260 | 128 | 36 | 37 | 39 | 25 | 24 | 118 | 1,828 |
| 2011 | 823 | 59 | 142 | 194 | 101 | 39 | 18 | 32 | 21 | 17 | 61 | 1,507 |
| 2012 | 790 | 53 | 133 | 199 | 78 | 33 | 25 | 38 | 25 | 20 | 74 | 1,468 |
| 2013 | 881 | 44 | 113 | 142 | 93 | 47 | 27 | 36 | 19 | 17 | 54 | 1,473 |
| 2014 | 839 | 46 | 86 | 145 | 87 | 38 | 26 | 29 | 17 | 17 | 56 | 1,386 |
| 2015 | 762 | 43 | 66 | 111 | 64 | 32 | 18 | 28 | 22 | 19 | 50 | 1,215 |
| 2016 | 745 | 31 | 64 | 104 | 61 | 23 | 17 | 21 | 18 | 10 | 34 | 1,128 |
| 2017 | 756 | 39 | 80 | 116 | 69 | 24 | 14 | 22 | 17 | 6 | 33 | 1,176 |
| 2018 | 798 | 32 | 79 | 118 | 75 | 46 | 31 | 19 | 15 | 12 | 32 | 1,257 |
| 2019 | 929 | 32 | 47 | 130 | 68 | 29 | 20 | 34 | 11 | 14 | 62 | 1,376 |
| 2020 | 767 | 19 | 47 | 124 | 54 | 21 | 6 | 27 | 13 | 15 | 28 | 1,121 |
| 2021 | 810 | 27 | 40 | 99 | 51 | 18 | 18 | 14 | 14 | 16 | 38 | 1,145 |
| 2022 | 787 | 30 | 42 | 118 | 37 | 19 | 10 | 21 | 9 | 4 | 60 | 1,137 |
| 2023 | 701 | 23 | 41 | 106 | 42 | 14 | 8 | 18 | 14 | 9 | 59 | 1,035 |
| 2024 | 456 | 20 | 40 | 77 | 32 | 12 | 9 | 17 | 9 | 14 | 89 | 775 |
| Total | 13,133 | 725 | 1,563 | 2,548 | 1,233 | 497 | 334 | 461 | 289 | 243 | 1,126 | 22,152 |

(Vessels)

(Note) The above table shows the number of accidents and incidents into which the JTSB launched an investigation as of the end of December 2024 (including those carried over from the former Marine Accident Inquiry Agency).

## 13 Number of vessels involved in accidents and incidents in 2024 by type of accident/incident and type of vessel (marine accidents and incidents)

(Vessels)

| Type of accident /incident / Type of Vessel | Marine accidents | | | | | | | | | | | | Marine incidents | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Collision | Contact | Grounding | Foundering | Flooding | Capsizing | Fire | Explosion | Missing | Facility damage | Fatality/Injury | Others | Loss of control | Stranded | Safety obstruction | Navigation obstruction | |
| Passenger ship | 11 | 22 | 7 | 0 | 3 | 1 | 1 | 0 | 0 | 1 | 4 | 0 | 5 | 1 | 0 | 4 | 60 |
| Cargo ship | 42 | 27 | 31 | 0 | 2 | 1 | 4 | 1 | 0 | 2 | 8 | 0 | 7 | 0 | 0 | 0 | 125 |
| Tanker | 7 | 2 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 0 | 1 | 21 |
| Fishing vessel | 76 | 5 | 40 | 1 | 1 | 20 | 9 | 0 | 0 | 2 | 47 | 0 | 13 | 1 | 0 | 0 | 216 |
| Tug boat, push boat | 12 | 2 | 10 | 2 | 1 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 32 |
| Recreational fishing vessel | 19 | 4 | 11 | 2 | 0 | 1 | 5 | 0 | 0 | 1 | 4 | 0 | 3 | 0 | 0 | 0 | 50 |
| Fishing ferry | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Work vessel | 3 | 1 | 4 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 15 |
| Barge, lighter | 8 | 2 | 6 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 21 |
| Public-service ship | 2 | 2 | 4 | 1 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 15 |
| Pleasure boat | 36 | 9 | 42 | 2 | 8 | 15 | 2 | 0 | 0 | 1 | 16 | 0 | 33 | 0 | 0 | 0 | 164 |
| Personal water craft | 21 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 4 | 1 | 0 | 0 | 45 |
| Others | 3 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 7 |
| Total | 241 | 78 | 166 | 9 | 16 | 52 | 25 | 1 | 0 | 8 | 100 | 0 | 71 | 3 | 0 | 5 | 775 |

(Note) 1. The above table shows the number of vessels involved in accidents and incidents into which the JTSB launched an investigation as of the end of December 2024.
2. The figures in the column “Fatality/Injury” (which is not a result from other types of accident) are the number of cases involving fatality, injury or missing persons.

## 14 Number of fatalities in accidents (marine accidents)

(Persons)

| Year of occurrence \ Type of Vessel | | Passenger ship | Cargo ship | Tanker | Fishing vessel | Recreational fishing vessel/ Fishing ferry | Pleasure boat/Personal water craft | Others | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2008 | Crew | 0 | 2 | 1 | 51 | 1 | 5 | 1 | 61 | 71 |
| | Passengers | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | |
| | Others | 0 | 0 | 0 | 0 | 1 | 6 | 1 | 8 | |
| 2009 | Crew | 3 | 1 | 2 | 109 | 0 | 26 | 4 | 145 | 191 |
| | Passengers | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | |
| | Others | 1 | 5 | 0 | 6 | 0 | 27 | 4 | 43 | |
| 2010 | Crew | 1 | 10 | 1 | 74 | 0 | 11 | 2 | 99 | 129 |
| | Passengers | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | |
| | Others | 0 | 3 | 0 | 1 | 1 | 22 | 2 | 29 | |
| 2011 | Crew | 3 | 4 | 8 | 83 | 3 | 18 | 7 | 126 | 146 |
| | Passengers | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | |
| | Others | 0 | 2 | 0 | 0 | 0 | 12 | 0 | 14 | |
| 2012 | Crew | 2 | 6 | 4 | 79 | 1 | 22 | 3 | 117 | 133 |
| | Passengers | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | |
| | Others | 1 | 1 | 0 | 1 | 0 | 8 | 2 | 13 | |
| 2013 | Crew | 0 | 17 | 2 | 69 | 0 | 19 | 7 | 114 | 134 |
| | Passengers | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | |
| | Others | 0 | 2 | 0 | 0 | 0 | 16 | 1 | 19 | |
| 2014 | Crew | 0 | 11 | 3 | 89 | 0 | 17 | 3 | 123 | 138 |
| | Passengers | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | |
| | Others | 0 | 1 | 1 | 1 | 0 | 10 | 0 | 13 | |

(Persons)

| Year of occurrence \ Type of Vessel | | Passenger ship | Cargo ship | Tanker | Fishing vessel | Recreational fishing vessel/ Fishing ferry | Pleasure boat/Personal water craft | Others | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | Crew | 3 | 5 | 0 | 44 | 0 | 12 | 5 | 69 | 87 |
| | Passengers | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 4 | |
| | Others | 0 | 0 | 0 | 0 | 0 | 13 | 1 | 14 | |
| 2016 | Crew | 1 | 4 | 5 | 45 | 1 | 10 | 4 | 70 | 93 |
| | Passengers | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | |
| | Others | 0 | 2 | 0 | 2 | 0 | 15 | 2 | 21 | |
| 2017 | Crew | 2 | 4 | 0 | 46 | 0 | 7 | 20 | 79 | 93 |
| | Passengers | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Others | 0 | 0 | 0 | 0 | 0 | 12 | 2 | 14 | |
| 2018 | Crew | 0 | 2 | 1 | 48 | 0 | 10 | 2 | 63 | 87 |
| | Passengers | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | |
| | Others | 1 | 0 | 0 | 1 | 0 | 17 | 4 | 23 | |
| 2019 | Crew | 0 | 17 | 0 | 57 | 1 | 11 | 1 | 87 | 103 |
| | Passengers | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | |
| | Others | 0 | 3 | 0 | 1 | 0 | 10 | 1 | 15 | |
| 2020 | Crew | 1 | 3 | 1 | 47 | 1 | 12 | 2 | 67 | 87 |
| | Passengers | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | |
| | Others | 0 | 2 | 0 | 0 | 0 | 11 | 4 | 17 | |
| 2021 | Crew | 0 | 4 | 1 | 51 | 0 | 15 | 3 | 74 | 90 |
| | Passengers | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | |
| | Others | 0 | 1 | 0 | 0 | 0 | 14 | 0 | 15 | |
| 2022 | Crew | 2 | 1 | 1 | 44 | 0 | 10 | 5 | 63 | 91 |
| | Passengers | 18 | 0 | 0 | 0 | 1 | 0 | 0 | 19 | |
| | Others | 0 | 0 | 0 | 3 | 0 | 4 | 2 | 9 | |
| 2023 | Crew | 2 | 3 | 0 | 34 | 1 | 9 | 4 | 53 | 63 |
| | Passengers | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 5 | |
| | Others | 0 | 1 | 0 | 0 | 0 | 3 | 1 | 5 | |
| 2024 | Crew | 0 | 4 | 8 | 38 | 1 | 15 | 3 | 69 | 83 |
| | Passengers | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | |
| | Others | 0 | 0 | 0 | 2 | 0 | 7 | 3 | 12 | |
| Total | Crew | 20 | 98 | 38 | 1,008 | 10 | 229 | 76 | 1,479 | 1,819 |
| | Passengers | 26 | 0 | 0 | 0 | 28 | 0 | 2 | 56 | |
| | Others | 3 | 23 | 1 | 18 | 2 | 207 | 30 | 284 | |
| | Total | 49 | 121 | 39 | 1,026 | 40 | 436 | 108 | | |

(Note) The above table shows the number of fatalities in accidents into which the JTSB launched an investigation as of the end of December 2024 (including those carried over from the former Marine Accident Inquiry Agency).

## 15 Numbers of issued recommendations, opinions and safety recommendations

| Type and mode / Year | Recommendation | | | Opinion | | | Safety recommendation | |
|---|---|---|---|---|---|---|---|---|
| | Aviation | Railway | Marine | Aviation | Railway | Marine | Aviation | Marine |
| 2008 | — | — | — | 2 | — | — | — | — |
| 2009 | — | — | — | 1 | 1 | 1 | 3 | — |
| 2010 | — | — | — | — | — | 1 | 1 | — |
| 2011 | — | 1 | 2 | 1 | — | 5 | — | 9 |
| 2012 | 1 | 1 | 6 | 1 | — | 4 | 1 | 2 |
| 2013 | 4 | 3 | 4 | — | — | 2 | 3 | — |
| 2014 | 4 | — | — | — | — | 1 | 2 | 6 |
| 2015 | 2 | — | — | — | 1 | — | — | — |
| 2016 | 1 | — | — | — | — | — | 1 | 3 |
| 2017 | 1 | — | 1 | — | — | — | — | 2 |
| 2018 | 1 | — | 1 | 1 | 2 | 2 | — | 1 |
| 2019 | 1 | — | 1 | — | 1 | 1 | — | 5 |
| 2020 | 3 | — | 2 | — | — | — | — | 1 |
| 2021 | — | 1 | 3 | — | 1 | — | — | 4 |
| 2022 | — | — | 1 | — | — | 3 | — | — |
| 2023 | — | 1 | — | — | — | 1 | — | — |
| 2024 | — | 1 | — | — | — | 1 | — | 2 |
| Total | 18 | 8 | 21 | 6 | 6 | 22 | 11 | 35 |

(Note) These were issued after the establishment of the JTSB in October 2008.

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運輸安全委員会年報2025