

## Chapter 7 International efforts for accident prevention

### 1 Objectives and significance of international cooperation

Aircraft and marine accidents, which are part of Japan Transport Safety Board's investigation scope, are international in nature. Creating and operating systems for these kinds of investigations therefore involve international organizations. Also, it is necessary to cooperate and coordinate with the accident investigation authorities of the states concerned 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 JTSA 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. In regards to this, 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 JTSA is also actively dispatching investigators.

As shown above, JTSA aims to improve transport safety in Japan and all over the world. It hopes to do so 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 2016.

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

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

The International Civil Aviation Organization (ICAO, Headquarters: Montreal, Canada) was established as a specialized agency of the United Nations in 1947. Japan acceded to it in 1953. ICAO

comprises the Assembly, Council, Air Navigation Commission (a supporting body of the Council), Legal Committee, Air Transport Committee, Committee on Joint Support of Air Navigation Services, all of which are the subordinate bodies of the Council, secretariat and regional offices. In addition, Air Navigation Conferences, Regional Air Navigation meetings, a variety of working groups and panel meetings, which are called in for certain projects. As of March 2016, 191 states are members of ICAO.

The objectives of ICAO is 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.

ICAO establishes the Annexes of the Convention on International Civil Aviation 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 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 prescribed in items (i) to (ii) of Article 5 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).

In addition, the Asia Pacific Accident Investigation Group (APAC-AIG) operates as a framework for safety in Asia and Pacific Regions, and considers the building of a cooperative system for accident investigation in these regions.

In September 2016, the 4th Meeting (APAC-AIG/4) was held in Japan. It was attended by a total of 50 delegates representing 21 countries and regions, two organizations and aircraft manufacturers. At the Meeting, the participants reaffirmed the need to promote the independence of air accident investigation bodies in Asian countries, and to achieve intra-regional cooperation in the education and training of aircraft accident investigators, among other issues.



APAC-AIG/4  
(Japan)

(2) Efforts of the International Maritime Organization and JTSCB’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



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Maritime Safety Committee (MSC), Legal Committee (LEG), Marine Environmental Protection Committee (MEPC), Technical Co-operation Committee (TC) and Facilitation Committee (FAL). In addition, there is a Secretariat, and the MSC (and MEPC) has seven subcommittees. As of March 2017, IMO has 172 member states/territories 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 maritime life safety and safe marine 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 III2 was held in July 2015. In this event, JTSB's marine accident investigators took part as group members and analyzed accident investigation reports from various states. Tentative translations of these analysis results are published on JTSB website.

(URL: [http://www.mlit.go.jp/jtsb/casualty\\_analysis/casualty\\_analysis\\_top.html](http://www.mlit.go.jp/jtsb/casualty_analysis/casualty_analysis_top.html))

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

#### (1) Participation in international meetings

##### ① Chairman 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 March 2016, the international organization has members from the transport accident investigation authorities of 16 countries and territories. Organizations that are permitted to join must be permanent accident investigation bodies that are independent from any regulatory body.

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 chairman 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



Participants in the ITSA chairman meeting (France)

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.

Chairman Nakahashi and others from the JTSB attended the conference held in Paris, France in May 2016, and gave explanations about progress in bringing the MRJ into service and the accompanying intensification of the JTSB investigation system, as well as freight train derailment accidents at steep curves.

## ② Board meetings of the International Society of Air Safety Investigators and the 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 aims is to be achieved by improving further a cooperative system of investigation bodies, 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 the Japan Aircraft Accident Investigation Commission has participated in each one of them since its establishment in 1974. In this seminar, a flight recorder workshop, an accident investigation training workshop, a cabin safety workshop and a government investigators meeting are held in parallel with the general meeting. Japan also participates in these workshops to contribute to technical improvements in these areas.



ISASI (Iceland)

The annual seminar in 2016 was held in Reykjavik, Iceland, with the theme “Every link is important”. This was attended by aircraft accident investigators from the JTSB, who participated in active exchange of opinions with accident investigation personnel from various countries.

ISASI has regional associations in Australia (ASASI), Canada (CSASI), Europe (ESASI), France (ESASI French), Latin America (LARSASI), New Zealand (NZSASI), Russia (RSASI), the United States (USSASI) and Asia (AsiaSASI). Each of these associations also holds their own seminars.

In AsiaSASI, the Hong Kong Civil Aviation Department currently serves as the Chairman, with JTSB as the Vice Chairman, and the Air Accident Investigation Bureau of Singapore as the Secretariat. In August 2016, the 4th AsiaSASI Workshop was held in Japan. It was attended by a total of 73 delegates from 21 countries and regions, as well as four aviation-related organizations and companies, among others. At the Workshop, participants exchanged information on the situation of air accident investigation in Asian countries, and questions about new investigation techniques were exchanged. From the



The 4th AsiaSASI Workshop (Japan)



JTSB, a Senior Aircraft Accident Investigator gave a presentation about rotorcraft accidents.

### ③ The Accident Investigator Recorder (AIR) 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 around the world and to further improvement the cooperative system amongst the authorities.

This meeting was established in 2004, and the accident investigation bodies of each country hold a meeting every year. JTSB has participated in nearly all the conferences since 2006.

The 2016 conference was held in September in Paris, France. JTSB dispatched aircraft accident investigators to acquire the latest information and know-how for the analysis of flight recorders. This was achieved through the exchange of information and ideas with foreign accident investigation analysts.

### ④ The 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. Its aim is to advance 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. Japan has joined and actively contributed to the forum every year since the third conference and hosted the eighth conference in Tokyo in 1999.



MAIIF25 (Germany)

The 25th conference, held in Hamburg, Germany in August 2016, was attended by a Deputy Investigator-General for Marine Accident and others from the JTSB, who gave presentations on topics including passenger ferry grounding accidents and accident case studies concerning very large container ships.

## ⑤ The 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. Nonetheless, some countries have insufficient capacities or systems for accident investigations. This situation makes these regional fora very important.



MAIFA19 (Australia)

The 19th meeting, held in Canberra, Australia, in October 2016, was attended by a Deputy Investigator-General for Marine Accident and others from the JTSB, who gave presentations on topics including a collision accident between a container ship and a cargo ship involving VHF communication and J-MARISIS.

## (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.

On the accident in July 2015 in which a small aeroplane, after taking off from Chofu Airfield, crashed in Fujimi Town, Chofu and was destroyed, an investigation is being conducted jointly with the accident investigation authority in the USA, the state of design/manufacturing of the aircraft, which has appointed its own AR. Meanwhile, on the serious incident in which an engine malfunction occurred to a Korean Air Lines Boeing 777-300 while rolling for takeoff at Tokyo International Airport (Haneda Airport) in May 2016, followed by emergency evacuation, the USA, as the state of design/manufacturing of the aircraft and South Korea, as the state of registry and the state of operator, have appointed their own ARs and are taking part in the investigation. In this case, the JTSB is conducting the investigation in cooperation with both the accident investigation authorities.

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 in order to obtain information about the accident.

Among the marine accidents and incidents that the JTSC launched investigations in 2016, with regard to the 10 serious accidents involving ships engaged on international voyages, the accident investigation authorities of the countries to which the ships were registered were notified of the accidents.

On the accident in which the passenger ship BEETLE collided with what appeared to be a marine creature off to the northwest of Tsushima, Tsushima City, Nagasaki Prefecture, and passengers and crew members were injured in January 2016, investigation is in progress with the cooperation of the accident investigation authority of South Korea as the interested state. Again, on the accident in which a crew member fell from the chemical tanker BUCCOO REEF and died while it was engaged in mooring operation near the berth in the Port of Bassens, France in April 2016, investigation is in progress with the cooperation of the accident investigation authority of France as the coastal state pertaining to the accident.

Among the marine accident and incident investigation reports that were published in 2016, JTSC sent eight draft reports to the flag states upon request, in order to invite their comments.

#### **4 Participation in overseas training**

JTSC 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.

In 2016, JTSC made efforts to improve our accident investigation capabilities, continuing from the previous year to dispatch an aircraft accident investigator and a marine accident investigator to Cranfield University in the UK, which has a good track record in accident and incident investigation training. The content of this training session lets the participants learn about a variety of topics, from the basics to expert knowledge about accident investigations. After the training, the participating investigators made the other investigators of each mode of transport aware of what was learned in the training, thereby helping to improve the capabilities of all of our investigators.

JTSC also dispatches aircraft accident investigators to training held by US manufacturers to familiarize themselves with methods for using tools to retrieve and analyze data from damaged DFDRs and CVRs, in preparation for future investigations.

## Column

## Thoughts on International Conferences

## Director for International Affairs

As mentioned in Chapter 7, we hosted a conference and workshop attended by air accident investigation personnel from the Asia-Pacific region in Tokyo between August 30 and September 2, 2016. Thanks to a high level of interest in the agenda this time, the event attracted participants from more than 20 countries and regions, an increase compared to previous years.

Some of the participants were from countries requiring a letter of guarantee from Japan before they could be issued with tourist visas. In one case, we issued the letter of guarantee based on the personal history and other details provided by the applicant, but when we sent the letter stamped with the official seal of the JTSB, the meaning of the seal was not understood and we were asked to provide the signature of the responsible person.

Again, we rarely bother ourselves over differences of religion in Japan, but since some of the participants were Muslims, we made various preparations such as researching meals not based on pork, providing a separate room for prayers besides the conference room, and so on. However, perhaps because the Muslim participants already had plenty of experience of overseas trips, all of these preparations proved unnecessary. On the other hand, because everything is so expensive in Tokyo, I could hardly resist a wry smile when approached with unexpected questions like “Where can I get cheap subway tickets?” or “Where can I find a cheap cosmetics store?”

One country even left it to the day before the conference to confirm participation. Just as we were wondering whether the delegates would really make it in time, around lunchtime on the first day they appeared at reception dragging huge traveling bags behind them. On chatting to them during the break, they said their boss had forgotten to approve the trip. “In our country, it’s considered unthinkable to remind your boss about something, even in work-related matters,” they said. Their grumbling appearance left a lasting impression.

At the conference venue, we made a presentation of “Japanese hospitality” by placing colorful origami cranes on every desk. When the conference was over, some participants took home cranes from other desks as well as their own, and I felt as if we had done our bit to spread the word about Japanese culture.

When preparing for an international conference, it is of course important that the top priority should be on the outcome of the conference; but it’s also important to create in environment in which everyone can feel glad to have attended a conference in Japan. In future, I would like to advertise the quality of transport safety in Japan with an added touch of “hospitality”, and to broaden the circle and harmony of international cooperation on accident investigation.



In the ANA Safety Education Center, the participants had first-hand experience of safety education in Japan