

## 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, includes international in nature. Creating and operating systems for these kinds of investigations therefore involve international organizations. Also, it may be 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 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. 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 2021.

### 2 International conferences under the COVID-19 pandemic

Most international conferences are being held virtually (on the Web) as a result of the COVID-19 pandemic. Some of the international conferences that the JTSB was scheduled for participation in were canceled or postponed, but many were held virtually. Because they were held virtually, their agendas were altered and time allotments shortened but information was shared among the participating countries, regarding impact and restrictions on investigation activities and how they were handling under the COVID-19 pandemic. Web conferences were sometimes held during daytime in Europe, so other countries had to participate at night due to international time differences. Sometimes the participants

from the JTSA also attended at night from Japan.

### 3 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) is a United Nations specialized agency established in 1947. Japan acceded to it in 1953. ICAO comprises the Assembly, Council, Air Navigation Commission (a supporting body of the Council), the subordinate bodies of the Council (such as Legal Committee, Air Transport Committee, Committee on Joint Support of Air Navigation Services, and Finance Committee), 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 October 2021, 193 states are members of ICAO.

The objectives of ICAO are provided in Article 44 of the Chicago Convention 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 Chicago Convention for items that must be covered by globally unified rules. The Annexes determine 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).

The Accident Investigation Panel (AIGP), which is a subordinate organization of the Civil Aviation Committee, is mainly a forum for discussion on the revision of Annex 13 and the preparation of guidance materials. The JTSA has participated as a member since the fourth meeting held in May 2018. The 6th Accident Investigation Panel Meeting (AIGP/6) was held virtually in May 2021 and JTSA aircraft accident investigators participated in the meeting. Regarding the working groups (WG) established under the panel, JTSA is newly participating in the "UAS (Unmanned Aircraft System) investigation WG" in addition to the "Safety Recommendation of Global Concern WG."

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. The 9th Meeting of the Asia Pacific Accident Investigation Group (APAC-AIG/9) scheduled for October 2021 in Papua New Guinea was held on the Web. A JTSA aircraft accident investigator participated in the meeting, and discussed tasks in accident/incident investigations while taking into account the characteristics of the Asia-Pacific region. They also discussed measures for improving the investigative ability and promoting cooperation in the region.

**(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 2021, IMO has 175 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 7th session of the Sub-Committee on Implementation of IMO Instruments (III 7) was held virtually in July 2021. A JTSB marine accident investigator became the group member, and conducted analyses of accident and incident investigation reports submitted by each country. 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](https://www.mlit.go.jp/jtsb/casualty_analysis/casualty_analysis_top.html))

## **4 Cooperation and information exchange with foreign accident investigation authorities and investigators**

**(1) Participation in international meetings****① 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 October 2021, 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.

Due to the COVID-19 pandemic, a meeting scheduled for May 2021 in Sydney, Australia was canceled. However, meetings were held on the Web in February, May, and October to exchange information related to efforts towards accident investigations in this pandemic. JTSB's Chairperson Takeda and other board members participated in these meetings. At the meeting held in February, the Transportation Safety Board of Argentina (JST) was approved to join the ITSA. At the meeting held in May, JTSB's board member Tamura made a presentation regarding a collision accident investigation report involving three container ships to share information on our efforts to quantify the evaluation and analysis of marine collision risks. (See "Major activities in the past year" on page 7)

### ② 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.

The 2021 annual seminar was held virtually. This seminar provided five keynote speeches and 32 presentations. JTSB's aircraft accident investigator participated in the seminar and introduced details analyzed from the viewpoint of a human factor (maintenance) on a ground impact accident of a helicopter.

ISASI has 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) and Asia (AsiaSASI). Each of these associations also holds their own seminars.

In AsiaSASI, The National Transportation Safety Committee of Indonesia currently serves as Chairperson, with Hong Kong Civil Aviation Department as Vice Chairperson, and Transport Safety Investigation Bureau of Singapore as Secretariat, and the JTSB serves as an executive committee.

### ③ 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 authorities of each country hold a meeting every year. JTSB has participated in nearly all the conferences since 2006.

The AIR meeting scheduled for 2021 in Hampshire, UK was postponed due to the COVID-19 pandemic.

#### ④ 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. Japan has joined the forum every year since the third conference.

The 29th forum scheduled for November 2021 in Lima, Peru was postponed due to the COVID-19 pandemic. In May and November, a Web conference for reporting inter-forum progress was held and JTSB marine accident investigators and othermembers participated.

#### ⑤ 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.

The 23rd forum scheduled for 2021 in Shanghai, China was postponed due to the COVID-19 pandemic.

### (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.

In March 2021, the JTSB investigated the case of the privately-owned *Aerospatiale AS350B* (rotorcraft) damaged due to forced landing in the vicinity of the rice field in Aoki Village, Chiisagata District, Nagano Prefecture with cooperation of the French aircraft accident investigation authority, the BEA (France is the State of Design and Manufacture.)

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 that were targeted by the JTSB in 2021, JTSB notified the accident investigation agencies in the related flag states of occurrences of two marine serious accidents involving ships engaged in international voyages.

In May 2021, the JTSB investigated the case of the collision between cargo ship *BYAKKO* and chemical tanker *ULSAN PIONEER* in Kurushima Strait with cooperation of the accident investigation authority of Marshall Islands, which are the flag state of the tanker.

Among the marine accident and incident investigation reports that were published in 2021, JTSB sent eight draft reports to the flag states and other interested states upon request in order to invite their comments.

## 5 Technical cooperation

The JTSB supports human resources development such as providing training sessions for railway accident investigators upon request from countries and regions where a large-scale railway accident has occurred.

Until now, the JTSB has actively been participating in technical cooperation projects of the Japan International Cooperation Agency (JICA), e.g., "the Project for Capacity Development on Indian Railway Safety" launched in 2018, and also contributing to the improvement of railway safety by providing Japan's railway accident investigation methods to the other country.

In order to promote the international development of the infrastructure system, which is the government's important growth strategy, the "MLIT Action Plan 2021 for the Overseas Development of Infrastructure Systems," that compiles the main policy to be addressed and main projects to closely observe from now on in the fields of land, transportation, and tourism states that "supports efforts related to technology transfer and human resources development, etc. in order to enable the other country itself to maintain, manage, and operate its railways appropriately." These technical cooperation are efforts that also contribute to promoting the international development of Japan's railway system, which our government has devoted effort.

## 6 Participation in overseas training



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.

Every year, the JTSB dispatches aircraft and marine accident investigators to Cranfield University (UK) for accident/incident investigation training (see the Column on page 55). JTSB decided to cancel participation in the course in 2021 due to the difficulty of sending accident investigators under the COVID-19 pandemic.