

Chapter 6 Efforts toward accident prevention

1 Information dissemination for accident prevention

The Japan Transport Safety Board prepares and issues various publications as well as individual reports, regarding specific cases so that it can better understand the efforts being made to prevent recurrence and contribute to accident prevention.

We place these publications on our website and, in order to make them more accessible to the public, we also introduce them through our JTSB E-Mail Magazine service (only available in Japanese).

The e-mail magazine distribution service is being used by people, including aviation, railway, and ship-related businesses, government agencies, and educational and research institutions.

In September and October 2019, the JTSB held accident investigation meetings respectively with business operators in each field of aviation, railways, and ships.

At the meeting, the JTSB first introduced the case of the accidents relevant to recent increase in the severity of natural disasters, such as an accident caused by anchor dragging during a very strong typhoon and a derailment accident caused by bridge pier sinking. It also introduced the recent trend of small aircraft accidents, and the operators introduced examples of efforts to ensure safety.

At the exchange of opinions, the participants expressed their desire to develop useful reports regardless of mode, “I would like to know how other modes overcame this issue,” and “I feel a little closer to the JTSB.”

In the future, we also exchange opinions with business operators and other parties on effective information dissemination from the JTSB, and we will continue to make improvements based on the opinions that we receive.

JTSB Website

The screenshot shows the JTSB website interface. At the top, there are logos for JTSB (運輸安全委員会) and the Ministry of Land, Infrastructure, Transport and Tourism (国土交通省). Navigation icons for Aviation (航空), Railway (鉄道), and Ship (船舶) are visible. A search bar and links for '船舶事故ハザードマップ' (Ship Accident Hazard Map) are present. The main navigation bar includes '運輸安全委員会について', '業務改善の取り組み', 'ダイジェスト・その他刊行物' (circled in red), '安全情報', '報道・会見', and '申請・お知らせ'. Below the navigation bar, a list of publications is shown, including '運輸安全委員会ダイジェスト', '運輸安全委員会年報', '過去の刊行物', '地方事務所における分析', '安全啓発リーフレット', and 'IMO (国際海事機関) における海上事故分析'. A green callout box with an orange arrow points to the '申請・お知らせ' menu item, containing the text: 'Subscribe to the JTSB E-Mail Magazine here. (in Japanese)'.

2 Issuance of the JTSD Digest

With the aim of fostering awareness of safety, and preventing similar accidents from occurring, we issue “JTSD Digests.” This publication introduces you to statistics-based analyses and must-know cases of accidents.

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

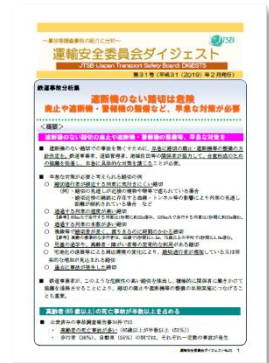
In 2019, we released three issues of “JTSD Digests” (February, March, August: Issues No. 31-33).

The contents of each issue are as follows.

- (1) JTSD Digest No. 31 [Railway accident analysis digest] “Level crossings without automatic barrier machine are dangerous. Urgent measures are needed, such as the abolition of the system and the installation of automatic barrier machine and road warning device.” (Published February 26, 2019)

This report summarizes the situations in which accidents occurred at level crossings without automatic barrier machine (Class 3 and Class 4), possible measures to prevent accidents, and the points of cases in which level crossings without automatic barrier machine were abolished.

- Occurrence of fatal accidents at level crossings without automatic barrier machine.
- Accident investigation case “An accident at a level crossing where the visibility to a train is limited from the level crossing and the speed of the passing train is high”
- Accident investigation case “An accident at a level crossing where it is difficult to see an approaching train when a driver is in a car”
- Accident investigation case “An accident in which a person (bicycle) passing a level crossing did not stop once before the crossing”
- Accident investigation cases “Accidents considered to be affected by the physical condition of level crossing passer by (Class 3 level crossing)” etc.



- (2) JTSD Digest No. 32 [Marine accident analysis digest] “Accidents Lurking in Fun Leisure! ~ Accidents while towing floating bodies such as banana boats are increasing rapidly, and Casualties due to jets of water are also increasing ~” (Issued March 28, 2019)

This report introduces accidents caused by personal water craft towing a floating body and fatal and injury accidents caused by jets of water, and summarizes measures to alert and prevent dangerous acts that could lead to accidents.

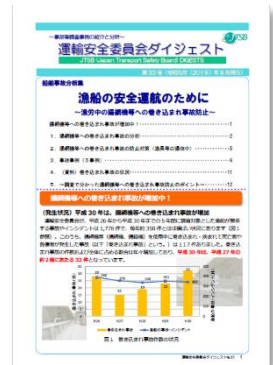
- Analysis of accidents related to floating body
- Analysis of jets of water accident
- Accident investigation case “The ship collided with an oyster raft and injured the passenger because the ship approached at a shorter distance than the towing rope and turned.”
- Accident investigation case “A floating body towed at a high speed was shaken by centrifugal force and overturned, and a passenger was injured.”

- Accident investigation case “The personal water craft approached the floating body having intention to splash water and collided it resulted multiple persons on board including children were died or injured.”
- Accident investigation cases “A passenger fell from the rear end of the boat when the boat accelerated, damaging the body cavity by jets of water and leading to death by blood loss”, etc.

(3) JTSB Digest No. 33 [Marine accident analysis digest] “For safe operation of fishing boats - Prevention of accidents involving net hauler and others during fishing” (issued on August 29, 2019)

We introduces some of the most frequent cases of accidents involving net hauler, which have been increasing in the rate of occurrence in fishery-related accidents or incidents. We also summarized the points for preventing accidents involving net hauler.

- Analysis of accidents involving net hauler and others
- Measures to prevent accidents involving net hauler and others
- Accident investigation case “A net was fixing to a roller that was rotating independently, and a glove was caught in the roller and left arm was injured”
- Accident investigation case “A rope was pushed from the front of a rotating roller, and the rope was caught and injured”
- Accident investigation case “An accident in which a worker took his eyes off from his hands to see a box net and was injured by his hand caught between a capstan roller and a rope.”
- Accident investigation case “An injury caused by a leg being caught between a rope and a side edge due to an unintentional crossing of a rope" and others.”




3 Issuance of the Analysis Digest Local Office Edition

The JTSB has issued the analysis digest local office edition (only available in Japanese). It has issued this publication in order 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 with characteristic features such as the sea area, the type of vessel, and the type of accident.

(Analysis Digest Local Office Edition in 2019)

Yokohama	<p>Be careful of light pollution caused by urban lighting during nighttime navigation! ~ Introduction to Keihin Port Tokyo Area ~</p> <p>(Main contents)</p> <ul style="list-style-type: none"> • Example of lighting of a light buoy being mixed in lighting on land • An example of a vessel's lighting being mixed in lighting on land • Examples of a vessel's lighting being mixed in lighting on land and a large number of small vessel's lighting • An example of a dolphin sign light being mixed in other lighting in a port • Example of difficulty in seeing lights due to glare 	
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<p>Kobe</p>	<p>Lake Biwa Marine Accident Prevention Handbook</p> <p>(Main contents)</p> <ul style="list-style-type: none"> Statistics and analysis of marine accidents for 10 years Lake Biwa Marine Accident Hazard Map Introduction of accident cases (4 cases) Points for accident prevention 	
<p>Hiroshima</p>	<p>Sink in a short time! A series of accidents involving boat with a sterndrive</p> <p>(Main Contents)</p> <ul style="list-style-type: none"> The shaft seal was damaged by the broken universal joint, and seawater entered the engine room through the shaft hole of the stern shell plate. Case introduction "Engine room is flooded! The boat sank in 4 minutes after the abnormality occurred." Summary 	
<p>Moji</p>	<p>Look, you're going to capsizel Why did the capsizing accident happen?</p> <p>(Main contents)</p> <ul style="list-style-type: none"> Statistics : <ul style="list-style-type: none"> Proportion of fatalities and missing persons Collisions or Grounding < Capsizing Case 1 : Seaworthiness and weather ~ Can your ship withstand weather changes? ~ Case 2 : Caution in the Estuary ~ Surfs become high on the Coast ~ Case 3 : Inspection of the Hull - Make sure the maintenance of the engine Points (Prevention of capsizing and preparation for unexpected events) 	
<p>Nagasaki</p>	<p>Fishermen engaged in Purse Seine Fishing and Stick-held Dip Net Fishing in the West Coast of Kyushu.</p> <p>There have been many accidents in which the arm is caught in the side roller during the lifting of the net, resulting in serious injury.</p> <p>(Main contents)</p> <ul style="list-style-type: none"> Status of occurrence of similar accidents Equipment to prevent similar accidents Summary (to prevent the recurrence of similar accidents) Accident prevention check sheet 	

<p>Naha</p>	<p>Se - ika (or Sode - ika) Voices of the Fishermen -- Linking the Voices of the Seaman and the Lessons Learned from the Research Report to Tomorrow's Safety –</p> <p>(Main contents)</p> <ul style="list-style-type: none"> ▪ Questionnaire on squid fishing ▪ Case 1 : Falling asleep while returning to the port, passing the planned site of change of course, resulted grounding. ▪ Case 2 : The main engine became unable to operate, and the main engine impeded and the boat drifted. ▪ Pay attention, especially when returning to port after fishing. 	
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As you read these local office digests, you can not only find out the circumstances of local accidents, but can also gain some tips for accident prevention. The local offices will make further efforts to regularly issue the analysis digest local office editions. By doing so, they will ensure that you will be provided with more satisfactory content.

Column

Efforts to Prevent Marine Accidents in Lake Biwa

Kobe Office

The Kobe Office has jurisdiction over Lake Biwa and has conducted 143 accident investigations (191 vessels) over the past 10 years.

Although Lake Biwa is the largest lake in Japan, it has the largest number of marine accidents (accidents involving lakes and rivers), with more than 100 people died or injured in the past 10 years. Besides, we received a request



Marine accident hazard map of Lake Biwa

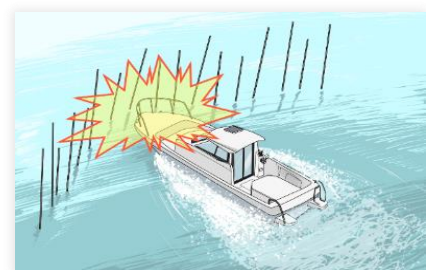
to make statistical material because there is few statistical data on marine accidents that are specific to Lake Biwa, so we decided to make Lake Biwa Marine Accident Prevention Handbook be prepared for the purpose of preventing marine accidents in Lake Biwa.

The contents of the “Lake Biwa Marine Accident Prevention Handbook” are composed of statistical analysis of marine accidents that have occurred in Lake Biwa from various angles, specific examples of accidents, a marine accident hazard map of Lake Biwa, and five points of accident prevention. Statistical analysis showed that leisure related vessels (pleasure boats and personal watercraft) accounted for the majority (93%) for the total number of accidents in Lake Biwa.

Hazard map revealed the characteristics of the accident by region of Lake Biwa as follows; there were many fatal and injury accidents caused by falling into water from personal watercraft and wakeboarding in the Kosei area, and there were many collision

accidents caused by pleasure boats for the purpose of bus fishing and capsizing accidents caused by misreading weather information in the Konan area.

Besides, the Lake Biwa Marine Accident Prevention Handbook contains not only the contents of the investigation by the Board, but also information useful for accident prevention with the cooperation of local organizations such as the Shiga Prefectural Police. For example, it contains information such as a gust of wind “Hira - oroshi” that occurs in the Kosei region, a warning for collision accidents to the “Eri”, which is a fishing method unique to Lake Biwa, and traffic rules unique to Lake Biwa. The Lake Biwa Marine Accident Prevention Handbook has been distributed to facilities in Shiga Prefecture and marinas around Lake Biwa and is widely used. We will continue to make efforts to spread safety measures that focus on local areas.



Impact on the “Eri”

Column

Convey!! Voices of Umincyu(Fishery Workers) from Churaumi (Beautiful-sea)

Naha Office

At the Naha Office, the first collection of analyses in the Reiwa period was compiled with a focus on the actual condition of squid fishing, in which Okinawa has the largest catch volume in Japan and many Umincyu (fishery workers) are engaged.

Although the themes were decided, there were many issues, such as what kind of analysis should be done on marine accidents related to squid fishing, what is an accident analysis book that is really useful for seamen and people in Okinawa Prefecture, how to make the analysis book widely known, and when is the timely time to publish.

In order to solve these problems, we thought that it would be necessary to conduct an analysis based on the voices of the fishermen living in a harsh environment where they repeatedly slept, ate and operated on a ship far off the coast, with a new idea regardless of the past efforts. We actually went to 32 fishery cooperatives in Okinawa Prefecture to ask for their cooperation, and conducted a questionnaire to the fishermen.

Although this was the first time for us to conduct a survey, we received many comments from seamen, and it took longer than expected to complete the survey. However, we also received comments that were useful for actual survey work and were helpful for reference. Based on the comments we received from the seamen, we were able to introduce easy to understand safety measures. The survey results were published on a timely schedule, with the lifting of the ban on fishing in November.

After the release of the analysis report, we actively carried out public relations activities. In order to contribute to the prevention of accidents and the reduction of damage, we will continue to disseminate information in a timely and appropriate manner and utilize it in accident investigations.



4 Issuance of the JTSB Annual Report

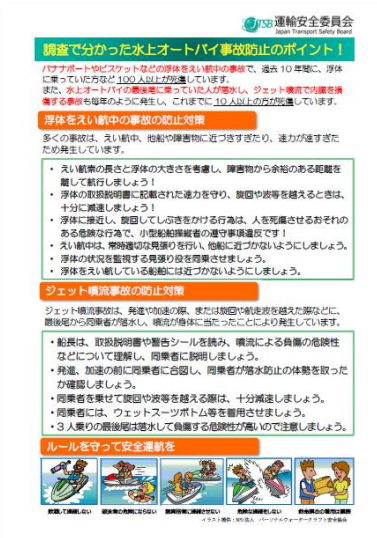
JTSB issued “the JTSB Annual Report 2019” in July 2019 to widely prevent accidents based on the lessons learned from accidents and so on by introducing the overall activities of the JTSB in 2018. It also looks back on the 10th anniversary of the JTSB establishment and looks ahead to the next 10 years.

As part of our efforts to provide information overseas, we issued the English version of the report “Japan Transport Safety Board Annual Report 2019” on December 2019. We did so to let people overseas know about the topics in this Annual Report.



5 Preparation of safety leaflet

When the Japan Transport Safety Board published the JTSB Digest or releases investigation reports on accidents and incidents for which measures to prevent the recurrence thereof need to be urgently implemented, it prepared single-page, A4-sized leaflets to let as many people as possible see various safety information mentioned in them. To raise attention to the prevention of accidents, the board distributed the leaflets at event venues and asked organs concerned for cooperation in distributing them.



Personal watercraft accident prevention points discovered in investigation!



For the safe operation of fishing boats
–Prevention of accidents caused by being caught in fishing net hauler–



Illuminating the laser pointer is dangerous to other ships!

6 J-MARISIS – Now even easier to use

So that more effective use can be made of published marine accident investigation reports, the Japan Transport Safety Board began providing the Japan-Marine Accident Risk and Safety Information System (J-MARISIS) as an Internet service from the end of May 2013, allowing users to search reports from maps. In April 2014, we also released the global version of J-MARISIS, further allowing users to search investigation reports published by overseas marine accident investigation organizations from world maps.

Given the increase in the number of people using the Internet on mobile terminals, as well as requests to make this system easier to use on smartphones and tablets, we released the mobile version of J-MARISIS at the end of June 2015.

With touch panel support as well as revised display buttons and layouts, its ease of use has been increased, and the GPS functions of mobile terminals can be used to display information on areas near the user’s current location. As a result, users on pleasure boats, recreational fishing boats or other small vessels can easily check information on accidents and other relevant information on navigation in sea areas they are planning to visit.



J-MARISIS <https://jtsb.mlit.go.jp/hazardmap/mobile/index.html>



Top page



Screen showing the information of current location using GPS function



Screen showing accident information

- ← Menu button
- ← Mark indicating the location of an accident, etc.
- ← Accident information
- ← Zoom in / zoom out
- ← Current location display

○ The service can be used free of charge, excluding the connection fee. The traffic volume of ships and fishing points will also be indicated.

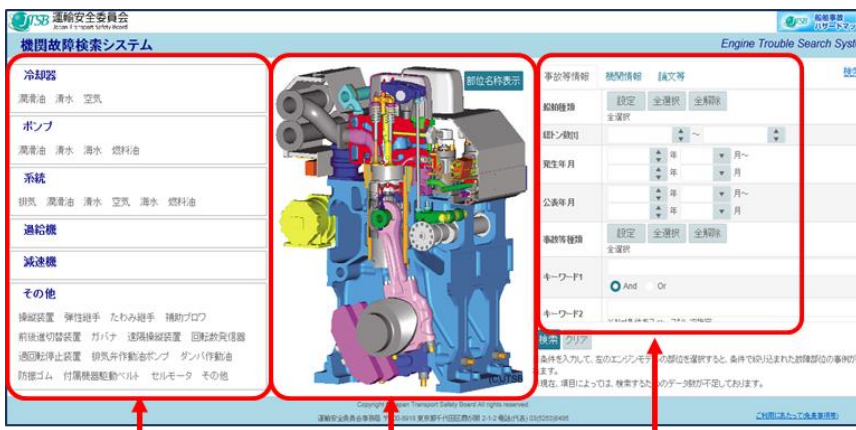
The Japan Transport Safety Board welcomes your views, requests and other comments/communication from users of J-MARISIS. Please use the “Contact us” section of our website.

Contact us <http://www.mlit.go.jp/jtsb/toi.html>

7 Engine Trouble Search System ~ Easy Search with Click ~

The Japan Transport Safety Board (JTSB) established the Engine Trouble Search System (ETSS) in response to requests from people involved in maritime affairs for tools that can easily search and utilize accident investigation reports from engine trouble parts. This system has been available since April 2019. ETSS is designed to search for marine accidents and incidents from engine failure parts and parts, and to use reports that are appropriate for the purpose of use. You can use ETSS free of charge other than internet communication fees.

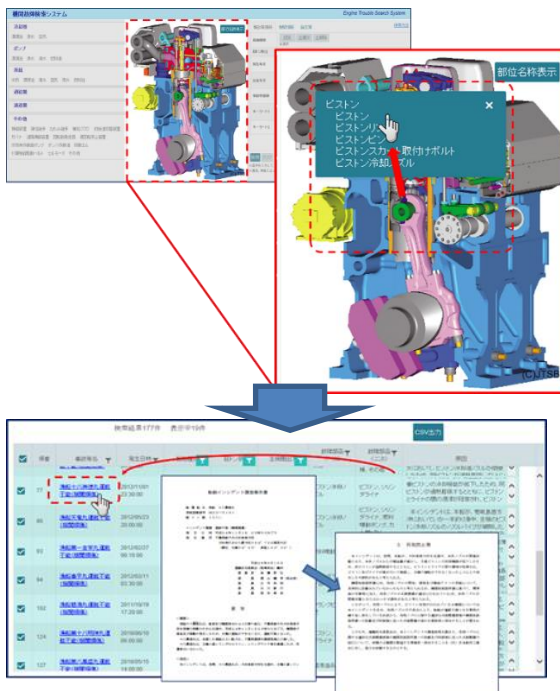
Engine Trouble Search System <https://jtsb.mlit.go.jp/hazardmap/ets/>



You can look at it from the place, the appearance, or the condition.

<Usage Example>

As part of the engine was overheated, select the place (piston part) and investigate the case of trouble.



- (1) When you select the piston part in the appearance view, the part related to the piston part is displayed in more detail. Select to display a list of related reports.
- (2) If the number of cases is large, it can be narrowed down by ship type, gross tonnage, output, damaged parts, cause, etc. By selecting “fishing boat”, a gross tonnage of "1 - 20 tons", and an output of “400 - 500”, and refine your research, the phrase “The cooling function was deteriorated, and the piston of the equipment expanded due to overheating.” was discovered.
- (3) You can find and use reports that may be relevant.

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

The Japan Transport Safety Board 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 of the general public.

Seminars that lecturers can be dispatched to cover topics that are useful in preventing or mitigating damage from aircraft, railway, and marine accidents. Members of the staff are dispatched as lecturers to various seminars and schools.

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.

<http://www.mlit.go.jp/jtsb/demaekouza.html> (in Japanese)



Scene of an outreach lecture

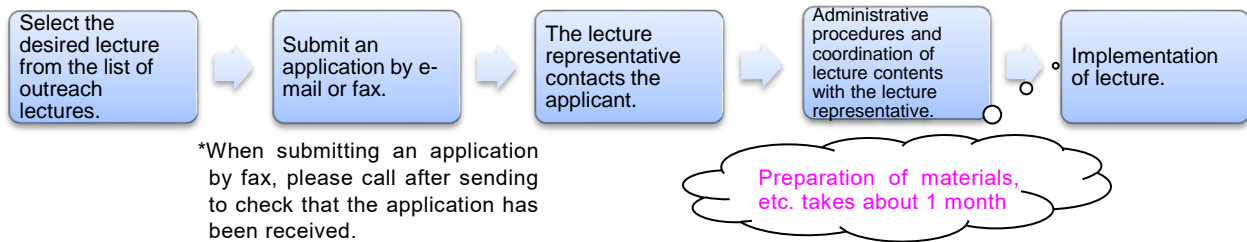
List of outreach lectures

No.	Course	Main audience	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 Japan Transport Safety Board
2	What is accident investigation?	Elementary school students	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 JTSD 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 JTSD Digests.
10	About the JTSD 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 JTSD 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 of regional offices (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. *Lists can be found by clicking the link below. http://www.mlit.go.jp/itsb/bunseki-kankoubutu/localanalysis/localanalysis_new.html

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

Flow chart from application to implementation of lecture



9 Activities of the Accident Victim Information Liaison Office

The Japan Transport Safety Board 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 local offices to provide integral support alongside with Tokyo.



In 2019, information on accident investigation and other matters was provided to 127 persons, including the victims, of 40 cases of aircraft/railway/marine accidents.

The status for other activities is as follows.

○Memorials for accident victims

The JTSB made memorial visits to accident sites including Mount Osutaka in Ueno Village, Tano District, Gunma Prefecture, the site of the JAL Flight 123 crash, and presented offerings of flowers from the Board members and the Director-General at each accident site including the “Inori no Mori (Memorial Grove), the site of the Fukuchiyama Line Accident in Amagasaki City, Hyogo Prefecture, to express our deepest sympathy for those lost in these accidents.

By presenting these memorial offerings first-hand, we deeply felt the emotions of those who still have painful memories of these events, and renewed our awareness of the importance of closely sharing the feelings of bereaved families and victims.



Prayer at the altar for flowers at the Mount Osutaka crash site

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 Cards

**Information for Victims
and their Families**

Japan Transport Safety Board

Victims and their Families
Liaison Office

Japan Transport Safety Board

(Front)

Japan Transport Safety Board
Victims and their Families
Liaison Office

15th Floor YOTSUYA TOWER
1-6-1 Yotsuya, Shinjuku-ku,
Tokyo, 161-0004

Tel: +81-3-5367-5030

Fax: +81-3-3354-5215

e-mail: hqt-jtsb-faminfo@gxb.mlit.go.jp

Japan Transport Safety Board

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