2. Usefulness of FDM in accident investigations, etc.

In some cases, sufficient objective flight data may not be available in accident investigations even now. If those cases are eliminated as much as possible and the probable causes can be investigated more accurately based on scientific analysis, operational safety will improve. Since FDM is a very useful device in this sense, we expect FDM to be adopted more broadly.

7. Trends of overseas investigation authorities

Overseas accident investigation authorities are also interested in equipment such as FDM. In this Chapter, the trends of the National Transportation Safety Board (NTSB) and the Australian Transport Safety Bureau (ATSB) will be presented. Both accident investigation authorities state that equipping aircraft not mandated to be equipped with flight recorders with devices capable of recording flight data and image will help the prevention of future accidents. This point of view matches the purport of the Digests.

Websites of investigation authorities

NTSB https://www.ntsb.gov/advocacy/mwl/Pages/default.aspx

ATSB https://www.atsb.gov.au/safety-issues/AO-2017-118-SI-03

NTSB (United States) 2021-2022 MOST WANTED LIST

In the MOST WANTED LIST, NTSB publishes that it is requesting to the Federal Aviation Administration (FAA) that small aircraft used to transport passengers should be equipped with devices capable of recording flight statuses. Moreover, the effectiveness of FDM is mentioned in an individual investigation report cited as an example.(the partial excerpt is as follows)

Request of NTSB	The NTSB believes other types of passenger-carrying commercial aircraft such as charter planes and air tours, should be equipped with data, audio, and video recording devices. These operators should also have programs in place that analyze the data derived from these devices. Recorders and flight data management programs would not only help investigators solve accidents, but they would also help aircraft operators prevent crashes in the first place by allowing crew actions to be evaluated regularly.
Example of description in relevant report (AAR-21-01)	The value of crash-resistant flight recorder systems in preventing future accidents
	Certain circumstances of this accident could not be conclusively determined, including the visual cues associated with the adverse weather and the pilot's focus of attention in the cockpit following the flight's penetration of clouds and entry into IMC. A crash-resistant flight recorder system capable of capturing audio and

	images could have provided this valuable information, possibly enabling the identification of additional safety issues and the development of safety recommendations to prevent similar accidents.

ATSB (Australia) Aviation Safety Issues and Actions

ATSB issues recommendations to aviation authorities about the installation of recording devices on small aircraft (the provisional translation of the partial excerpt is as follows).

Recommendation of ATSB	Australian civil aviation regulations did not mandate the fitment of flight recorders for passenger-carrying aircraft under 5,700 kg. Consequently, the determination of factors that influenced this accident, and other accidents, have been hampered by a lack of recorded data pertaining to the flight. This has likely resulted in the non-identification of safety issues, which continue to present a hazard to current and future passenger-carrying operations. The following recommendation was issued, since aviation authorities did not take safety actions.
	Civil Aviation Safety Authority consider mandating the fitment of onboard recording devices for passenger-carrying aircraft with a maximum take-off weight less than 5,700 kg.

8. Summary

The JTSB (Japan Transport Safety Board) Digests covers “flight data monitoring devices (FDM)” this time. We should understand that FDM does not directly prevent accidents of small aircraft from occurring. However, aviation safety is expected to improve from the following perspectives, once FDM is widely adopted and data obtained therefrom can easily be utilized.

Utilization to preserve and improve the skills of pilots

Pilots can review their own flight by making use of visualization tools, etc. based on data obtained after the flight. This will result in the prevention of accidents by helping the pilot to effectively maintain and improve skills.

Utilization of flight monitoring

An operator can prevent accidents by utilizing data for training and examinations through an advanced analytical technique and by extracting operational risks such as the deviation from standards, etc.