

Preface

The Geological Survey of Japan (GSJ), AIST has been conducting earthquake related geological and geophysical surveys and researches mainly in line with the comprehensive and basic policies of the Headquarters for Earthquake Research Promotion of the Japanese government (HERP). In the new 10-year policy established at May 2019, the government emphasizes the promotion of social use of research results, which is consistent with the AIST's charter "Full Research in Society, for Society". We will continue to enhance the content of this report as part of our mission.

A magnitude 7.3 earthquake, which is considered to be an aftershock of the 2011 Tohoku earthquake (Mw 9.0), struck off the Pacific Coast of Fukushima Prefecture, at midnight on February 13, 2021, with a maximum intensity of upper 6 on the Japanese scale of 7. In addition to damage to houses and human casualties, the Joban Expressway was closed due to the slope disaster, and the Tohoku Shinkansen bullet train traffic was disrupted when the pillars supporting the power lines tilted. The earthquake also caused a widespread power outage.

The Earthquake Research Committee of the HERP pointed out the possibility of more major earthquakes in the area and warned people to be on the lookout for earthquakes. In this way, we can feel once again that great earthquakes and related natural processes are much longer than our human sense of time. The importance of geological research on earthquakes and tsunamis can be seen here as well.

This volume contains following two reports based mainly on the activities of GSJ in 2019: 1) analyses on the relationship between the orientations of permeable fractures in the AIST observation boreholes along the Nankai Trough and the stress field and geological structure, and 2) results of an airborne LiDAR/Laser Bathymetry survey around the Kikugawa Fault Zone in Yamaguchi Prefecture and the Nishiyama Fault Zone in Fukuoka Prefecture, which was supported by external funds contracted by the Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT). To maintain the paper quality, all the reports are peer-reviewed by the editorial board consisting of the group leaders of the Research Institute of Earthquake and Volcano Geology (IEVG).

We welcome frank comments and opinions from readers on the contents of this report and the ways to release the research results related to active faults and earthquakes. Last but certainly not least, we would like to express our deep appreciation to all the organizations and individuals for their understanding and cooperation for our research activities.

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