

Proceedings of the International Ocean Discovery Program

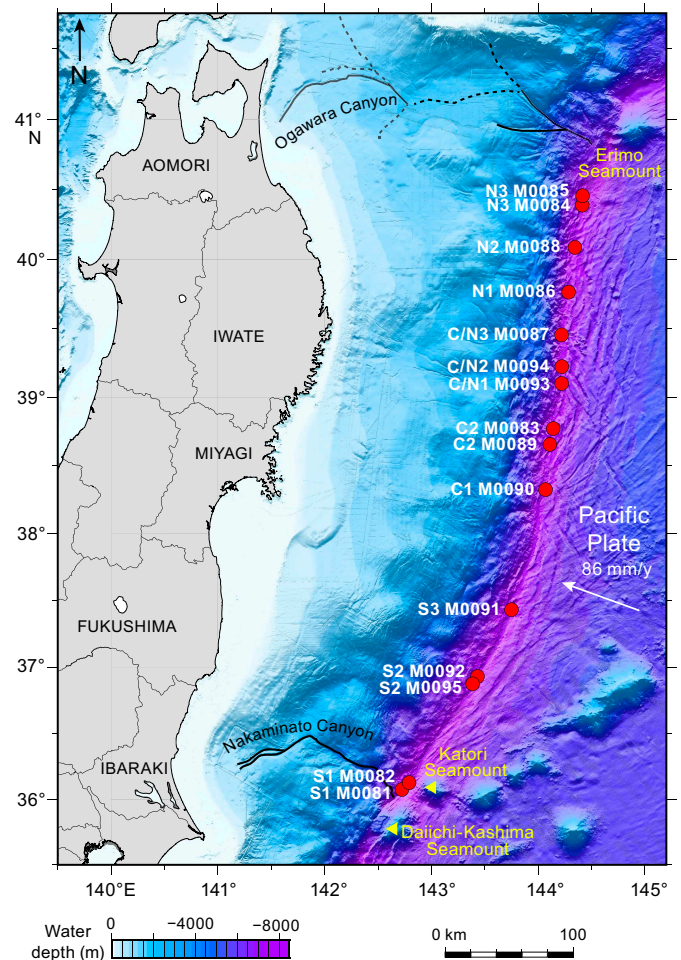
Volume 386

Japan Trench Paleoseismology

Expedition 386 of the R/V *Kaimei*
from and to Yokosuka, Japan
Sites M0081–M0095
13 April–1 June 2021

Volume authorship

Strasser, M., Ikehara, K., Everest, J., and the Expedition 386 Scientists



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Supplemental data were provided by the authors and may not conform to IODP publication formats.

ESO expedition photos are the property of IODP and are public access.

Some core photographs have been tonally enhanced to better illustrate particular features of interest. High-resolution images are available upon request.

Cover photograph shows recovery of the Giant Piston Corer to the deck of the R/V *Kaimei*. Photo credit: Natsumi Okotsu and IODP ESO.

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Core descriptions

Visual core descriptions (VCDs) are presented in PDF files for each site. Thin sections and/or smear slides for each site or hole are presented in CSV or PDF format in the CORES directory. The entire set of core images in PDF is available in the IMAGES directory.

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Supplementary material

Supplementary material for the Volume 386 expedition reports includes core closeup photos and linescan, smear slide, and X-ray CT images in JPG format; smear slide photos in TIFF; micropaleontology and operations data in Microsoft Word format; geochemistry, paleomagnetism, smear slide, transponder, and XRD data as well as winch logs in Microsoft Excel format; hand drawn VCDs, hydroacoustic data, and X-ray CT summary plots in PDF; micropaleontology data in Adobe Illustrator and PDF; hydroacoustic data in XML, GRD, XYZ, and XPT formats; and XRD SigmaPlot data in JNB format. A full list of directories can be found in SUPP_MAT in the volume zip folder or on the [Supplementary material for Volume 386 expedition reports](#) web page.

Expedition research results

Data reports

Titles are available in [HTML](#).

Drilling location maps

A site map showing the drilling locations for this expedition and maps showing the drilling locations of all International Ocean Discovery Program (IODP) expeditions, produced using QGIS (<http://www.qgis.org>), and all Integrated Ocean Drilling Program, Ocean Drilling Program (ODP), and Deep Sea Drilling Project (DSDP) expeditions, produced using Generic Mapping Tools (GMT) of Paul Wessel and Walter H.F. Smith (<https://www.generic-mapping-tools.org>), are available in PDF.

[IODP Expedition 386 site map](#)

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Acknowledgments

The members of the Expedition 386 Science Party would like to extend their sincere thanks to a huge number of people and organizations who made this expedition possible during one of the most challenging periods facing the planet in recent decades. The COVID-19 pandemic impacted so many aspects of normal life and lives around the globe, and it is a testament to the hard work, dedication, and belief held by all those involved in this expedition that it has been such a success. In particular, we would like to thank the staff at JAMSTEC and MarE3 and the crews and technical staff of the R/V *Kaimei* and D/V *Chikyu* for continuing the offshore and onshore phases of the expedition in isolation with such professionalism. We would like to acknowledge the support of ECORD for continuing to believe the expedition was possible and enabling its delivery through such close collaboration with MarE3 and JAMSTEC. The coordination of the expedition by ESO was critical, forming a close, effective, and lasting relationship with their Japanese colleagues to create entirely novel workflows, allowing the science of the expedition to continue almost as normal. The processing of data and shipping of samples to the laboratories at the European Petrophysics Consortium (UK) and Bremen Core Repository (Germany) to be completed alongside work ongoing in Japan, while keeping the Science Party involved throughout, allowed the expedition to function as it should, demonstrating how flexibility and innovation can produce the best science even under the most challenging conditions. Constant support from publications staff at the *JOIDES Resolution* Science Operator at Texas A&M University (USA) both during and after the operational phases of the expedition is gratefully acknowledged. We would like to thank J-DESC for their support and for the invaluable help provided by the student technical assistants, working with the Science Party and operator staff aboard *Chikyu* during the OSP.

The Co-Chief Scientists and EPMs would also like to thank all members of the Science Party for their dedication to the expedition over the last three years, despite multiple delays, setbacks, changes in timetabling, and sample planning, as well as all the normal challenges experienced in any normal IODP expedition. Their patience and cooperative attitude throughout has forged a team that will no doubt produce excellent and world-leading research for many years to come and has helped create a scientific legacy that does IODP proud.

The expedition was made possible by financial and logistical support from IODP program members and IODP committees. Finally, we would like to acknowledge the very large numbers of scientists working in the fields of submarine paleoseismology, deep-sea geology, and geochemistry without whose long-term dedication, intellectual input, and support over many years this project would have never come to fruition.

Foreword

The International Ocean Discovery Program (IODP) represents the latest incarnation of almost five decades of scientific ocean drilling excellence and is generally accepted as the most successful international collaboration in the history of the Earth sciences. IODP builds seamlessly on the accomplishments of previous phases: the Deep Sea Drilling Project, Ocean Drilling Program, and Integrated Ocean Drilling Program. The 2013–2023 IODP Science Plan (*Illuminating Earth's Past, Present, and Future*) defines four themes and thirteen challenges for this decade of scientific ocean drilling that are both of fundamental importance in understanding how the Earth works and of significant relevance to society as the Earth changes, at least in part in response to anthropogenic forcing. This phase of IODP represents an intense level of international collaboration in bringing diverse drilling platforms and strategies to increasing our understanding of climate and ocean change, the deep biosphere and evolution of ecosystems, connections between Earth's deep processes and surface manifestations, and geologically induced hazards on human timeframes.

The *Proceedings of the International Ocean Discovery Program* presents the scientific and engineering results of IODP drilling projects, expedition by expedition. As in the preceding Integrated Ocean Drilling Program, expeditions in the current IODP phase are conducted by three implementing organizations, each providing a different drilling capability. These are the US Implementing Organization (USIO; through September 2014) and the *JOIDES Resolution* Science Operator (JRSO; as of October 2014), providing the leased commercial vessel *JOIDES Resolution* for riserless drilling operations; JAMSTEC's Institute for Marine-Earth Exploration and Engineering (MarE3), providing the drillship *Chikyu* for riser and occasional riserless operations; and the European Consortium for Ocean Research Drilling (ECORD) Science Operator (ESO), providing "mission-specific" platforms (MSPs) for expeditions that extend the IODP operational range where neither drillship is suitable, for example, in polar environments and in shallow waters. Scheduling decisions for each capability are made by three independent Facility Boards, each of which includes scientists, operators, and platform funding partners: the *JOIDES Resolution* Facility Board (JRFB), *Chikyu* IODP Board (CIB), and ECORD Facility Board (EFB). At the beginning of the current IODP, the three Facility Boards agreed to utilize Publication Services at the USIO and now the JRSO for production of all expedition *Proceedings* volumes and reports.

The current IODP differs from prior scientific ocean drilling programs in that it has neither a central management organization nor commingled funding for program-wide activities. Yet this phase of IODP retains a fundamental integrative structural element: a "bottom-up" evaluation of all proposals for drilling expeditions by a single advisory structure composed of scientists representing all international program partners. International scientists may submit drilling proposals to the Science Support Office; all submitted proposals are then evaluated by a Science Evaluation Panel in the context of the Science Plan.

The current IODP also has an international integrative level for high-level discussion and global consensus-building: the IODP Forum. The Forum is not only charged with assessing program-wide progress toward achieving the current Science Plan, but also with overseeing approaches toward a new bright future of scientific ocean drilling post 2023. At present, IODP involves 22 international funding agencies, including those from the United States, Japan, an Australia/New Zealand consortium (ANZIC), China, India, South Korea, and the 15 members of ECORD (Austria, Canada, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom). The IODP membership represents an unparalleled level of international scientific collaboration; one of the greatest and ongoing strengths of scientific ocean drilling.

Henk Brinkhuis
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JOIDES Resolution Science Operator

Website: <http://iodp.tamu.edu>

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IODP publications

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Preliminary Report

Ikehara, K., Strasser, M., Everest, J., Maeda, L., Hochmuth, K., and the Expedition 386 Scientists, 2023. Expedition 386 Preliminary Report: Japan Trench Paleoseismology. International Ocean Discovery Program. <https://doi.org/10.14379/iodp.pr.386.2023>

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Expedition reports

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Supplementary material

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