

Proceedings of the International Ocean Discovery Program

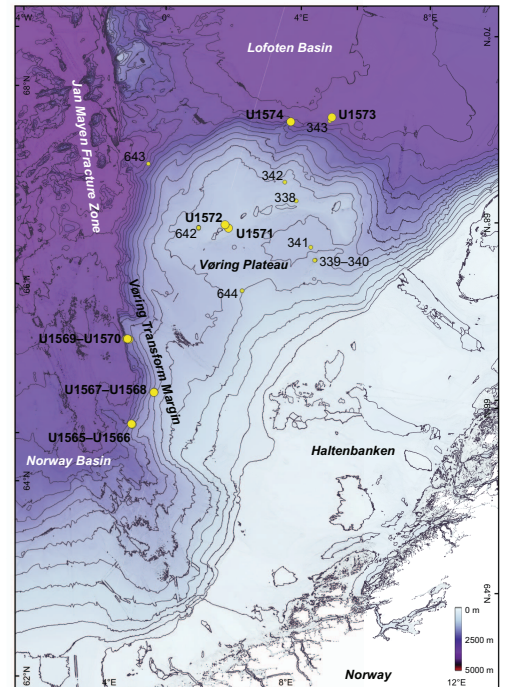
Volume 396

Mid-Norwegian Margin Magmatism and Paleoclimate Implications

Expedition 396 of the R/V *JOIDES Resolution*
from and to Reykjavík, Iceland
Sites U1565–U1574
6 August–5 October 2021

Volume authorship

Planke, S., Berndt, C., Alvarez Zarikian, C.A., and the Expedition 396 Scientists



Publisher's notes

This publication was prepared by the *JOIDES Resolution* Science Operator (JRSO) at Texas A&M University (TAMU) as an account of work performed under the International Ocean Discovery Program (IODP). This material is based upon work supported by the JRSO, which is a major facility funded by the National Science Foundation Cooperative Agreement Number OCE1326927. Funding for IODP is provided by the following international partners:

National Science Foundation (NSF), United States
Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan
European Consortium for Ocean Research Drilling (ECORD)
Ministry of Science and Technology (MOST), People's Republic of China
Australia-New Zealand IODP Consortium (ANZIC)
Ministry of Earth Sciences (MoES), India

The JRSO is supported by the NSF. Any opinions, findings, and conclusions or recommendations expressed in this material do not necessarily reflect the views of the NSF, the participating agencies, TAMU, or Texas A&M Research Foundation.

The bulk of the shipboard-collected core data from this expedition is accessible at <https://zenodo.org/communities/iodp> (see list of [available data sets](#)). If you cannot access this site or need additional data, please contact Data Librarian, International Ocean Discovery Program *JOIDES Resolution* Science Operator, Texas A&M University (database@iodp.tamu.edu).

A complete set of the logging data collected during the expedition is available at http://mlp.ldeo.columbia.edu/logdb/scientific_ocean_drilling. If you have problems downloading the data, wish to receive additional logging data, or have questions regarding the data, please contact Database Administrator, Borehole Research Group, Lamont-Doherty Earth Observatory of Columbia University (logdb@ldeo.columbia.edu).

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

JRSO 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 northern lights or aurora borealis over Site U1574 on 28 September 2022. Photo credit: Reed Scherer and IODP JRSO.

Copyright

Except where otherwise noted, this work is licensed under the Creative Commons Attribution 4.0 International (CC BY 4.0) license (<https://creativecommons.org/licenses/by/4.0/>). Unrestricted use, distribution, and reproduction are permitted, provided the original author and source are credited.



Examples of how to cite this volume or part of this volume are available at <http://publications.iodp.org/proceedings/396/396title.html#bib>.

ISSN

World Wide Web: 2377-3189

ISBN

978-1-954252-89-9

Volume DOI

<https://doi.org/10.14379/iodp.proc.396.2023>

Publication date

6 April 2023

Contents

Expedition reports

Chapters

[Expedition 396 summary](#)

S. Planke et al.

[Expedition 396 methods](#)

S. Planke et al.

[Site U1565](#)

S. Planke et al.

[Site U1566](#)

S. Planke et al.

[Sites U1567 and U1568](#)

S. Planke et al.

[Sites U1569 and U1570](#)

S. Planke et al.

[Sites U1571 and U1572](#)

S. Planke et al.

[Site U1573](#)

S. Planke et al.

[Site U1574](#)

S. Planke et al.

Core descriptions

Visual core descriptions (VCDs) are presented in PDF files for each site.

[Site U1565](#) · [Site U1566](#) · [Site U1567](#) · [Site U1568](#) · [Site U1569](#) ·

[Site U1570](#) · [Site U1571](#) · [Site U1572](#) · [Site U1573](#) · [Site U1574](#)

Thin sections and/or smear slides for each site or hole are presented in CSV or PDF format in the CORES directory and in Excel format in DESC_WKB in Supplementary material. The entire set of core images in PDF is available in the IMAGES directory.

Supplementary material

Supplementary material for the Volume 396 expedition reports includes DESClogik workbooks, in Microsoft Excel format. A full list of directories can be found in SUPP_MAT in the volume zip folder or on the [Supplementary material for Volume 396 expedition reports](#) web page.

Expedition research results

Data reports

Titles are available in [HTML](#).

Syntheses

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 396 site map](#)

[IODP map](#)

[Integrated Ocean Drilling Program map](#) (Expeditions 301–348)

[ODP map](#) (Legs 100–210)

[DSDP map](#) (Legs 1–96)

Dedication

Professor Olav Eldholm

This IODP Expedition 396 volume is dedicated to the memory of Professor Olav Eldholm, who died in March 2022.

Professor Eldholm served as a Co-Chief Scientist aboard the R/V *JOIDES Resolution* during Ocean Drilling Program Leg 104, drilling the Vøring Marginal High. The results of Leg 104 laid very important foundations for the understanding of volcanic rifted margins and subsequently the development of the concept of large igneous provinces. His advice was instrumental for the development of the Expedition 396 drilling proposal. The Outer High structure drilled at the last site of Expedition 396, Site U1574, was named Eldhø in honor of his pioneering work in the Norwegian Sea.

Olav was heavily involved in international scientific ocean drilling during his entire career. He participated in the establishment of the 12-member European Science Foundation Consortium for Ocean Drilling (ECOD), the predecessor of today's European Consortium for Ocean Research Drilling (ECORD). He also acted as chair of the ECOD Scientific Committee and as head of the ECOD Science Office. Other involvements included membership on the JOIDES Planning Committee, the JOIDES Executive Committee, the IODP Management International (IODP-MI) Board of Governors, and the first IODP-MI Review Committee commissioned by the U.S. National Science Foundation (NSF) and Japan's Ministry of Education, Culture, Sports, Science, and Technology (MEXT).

An AGU *In Memoriam* is found at <https://www.agu.org/stay-informed/in-memoriam>.

Acknowledgments

Expedition 396 would not have been possible without the great effort from many of our coworkers developing the proposal over the past two decades, not the least of whom are the expedition's first proponent Ritske Huisman and the participants in the Magellan Workshop in Kiel, Germany, in May 2019. Site selection was based on access to proprietary seismic data kindly made available by the Norwegian Petroleum Directorate, TGS, and the University of Tromsø. Expedition 396 is the latest in a long tradition of deep-sea drilling campaigns to the Norwegian Sea during the 1970s and 1980s that were pioneered by Professors Manik Talwani, Karl Hinz, Jörn Thiede, and Olav Eldholm.

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
Chair, IODP Forum

International Ocean Discovery Program

JOIDES Resolution Science Operator

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

IODP JRSO

International Ocean Discovery Program
Texas A&M University
1000 Discovery Drive
College Station TX 77845-9547
USA
Tel: (979) 845-2673; Fax: (979) 845-4857
Email: information@iodp.tamu.edu

IODP JRSO Curation and Laboratories

IODP Gulf Coast Repository (GCR)
Texas A&M University
1000 Discovery Drive
College Station TX 77845-9547
USA
Tel: (979) 845-8490; Fax: (979) 845-1303
Email: curator@iodp.tamu.edu

European Consortium for Ocean Research Drilling, Science Operator (ESO)

Website: <http://www.ecord.org>

IODP ESO Coordinator: Science, Logistics, and Operations

British Geological Survey
The Lyell Centre
Research Avenue South
Edinburgh EH14 4AP
United Kingdom
Tel: (44) 131-667-1000; Fax: (44) 131-668-4140
Email: eso@bgs.ac.uk

IODP ESO Curation and Laboratories

IODP Bremen Core Repository (BCR)
Center for Marine Environmental Sciences (MARUM)
University of Bremen
Leobener Strasse
28359 Bremen
Germany
Tel: (49) 421-218-65560; Fax: (49) 421-218-98-65560
Email: bcr@marum.de

IODP ESO Petrophysics

European Petrophysics Consortium
Department of Geology
University of Leicester
Leicester LE1 7RH
United Kingdom
Tel: (44) 116-252-3611; Fax: (44) 116-252-3918
Email: sjd27@leicester.ac.uk

Japan Agency for Marine-Earth Science and Technology (JAMSTEC)

Website: <http://www.jamstec.go.jp/chikyu/e>

IODP Japan Science Operator

Institute for Marine-Earth Exploration and Engineering (MarE3)
Japan Agency for Marine-Earth Science and Technology
Yokohama Institute for Earth Sciences
3175-25 Showa-machi
Kanazawa-ku, Yokohama
Kanagawa 236-0001
Japan
Tel: (81) 45-778-5643; Fax: (81) 45-778-5704
Email: mare3-exp@jamstec.go.jp

IODP Japan Curation and Laboratories

IODP Kochi Institute for Core Sample Research (KCC)
Japan Agency for Marine-Earth Science and Technology
200 Monobe Otsu
3175-25 Showa-machi
Nankoku City, Kochi 783-8502
Japan
Tel: (81) 88-864-6705; Fax: (81) 88-878-2192
Email: kcc.contact@jamstec.go.jp

Expedition 396 participants*

Expedition 396 scientists

Sverre Planke

Co-Chief Scientist

Centre for Earth Evolution and Dynamics
University of Oslo
Norway
planke@vbpr.no

Christian Berndt

Co-Chief Scientist

GEOMAR Helmholtz Centre for Ocean Research Kiel
Germany
cberndt@geomar.de

Carlos A. Alvarez Zarikian

Expedition Project Manager/Staff Scientist

International Ocean Discovery Program
Texas A&M University
USA
zarikian@iodp.tamu.edu

Amar Agarwal[†]

Paleomagnetist

Department of Earth Sciences
Indian Institute of Technology Kanpur
India
amarag@iitk.ac.in

Graham D.M. Andrews[†]

Structural Geologist

Geology and Geography
West Virginia University
USA
graham.andrews@mail.wvu.edu

Peter Betlem

Physical Properties Specialist/Downhole Measurements

Department of Arctic Geology
The University Centre in Svalbard
Norway
Peter.Betlem@unis.no

Joyeeta Bhattacharya[†]

Postdoctoral Research Associate

Mewbourne School of Geosciences
University of Oklahoma
USA
Joyeeta.Bhattacharya@ou.edu

Henk Brinkhuis

Micropaleontologist (palynology)

NIOZ Royal Netherlands Institute of Sea Research
Netherlands
henk.brinkhuis@nioz.nl

Sayantani Chatterjee

Inorganic Geochemist

Department of Geology
Niigata University
Japan
sayantani.chatterjee89@gmail.com

Marialena Christopoulou

Sedimentologist

Department of Earth Atmosphere and Environment
Northern Illinois University
USA
mchristopoulou@niu.edu

Vincent J. Clementi[†]

Inorganic Geochemist

Department of Marine and Coastal Sciences
Rutgers, The State University of New Jersey
USA
clementi@marine.rutgers.edu

Eric C. Ferré[†]

Paleomagnetist

School of Geosciences
University of Louisiana at Lafayette
USA
eric.ferre@louisiana.edu

Irina Y. Filina

Physical Properties Specialist

Earth and Atmospheric Sciences
University of Nebraska, Lincoln
USA
ifilina2@unl.edu

Joost Frieling

Micropaleontologist (palynology)

Department of Earth Sciences
Oxford University
United Kingdom
joost.frieling@earth.ox.ac.uk

Pengyuan Guo[†]

Petrologist

Institute of Oceanology
Chinese Academy of Sciences
China
guopy@qdio.ac.cn

Dustin T. Harper

Sedimentologist

Department of Geology
University of Kansas
USA

Present affiliation (2 February 2022):
Department of Geology and Geophysics
University of Utah
USA
dustin.t.harper@utah.edu

Morgan T. Jones

Organic Geochemist

Centre for Earth Evolution and Dynamics
University of Oslo
Norway
m.t.jones@geo.uio.no

*Affiliations at time of expedition, except where updated by participants.

†Shore-based participant.

Sarah Lambart

Petrologist

Department of Geology and Geophysics
University of Utah
USA
sarah.lambart@utah.edu

Jack Longman

Inorganic Geochemist

Institute for Chemistry and Biology of the Marine Environment
(ICBM)
Carl von Ossietzky University Oldenburg
Germany
jack.longman@uni-oldenburg.de

John M. Millett

Physical Properties Specialist/Volcanic Core-Log Integrator

Volcanic Basin Petroleum Research AS
United Kingdom
john.millett@vbpr.no

Geoffroy Mohn

Petrologist

Cergy Geoscience and Environment Department (GEC)
CY Cergy Paris University
France
Geoffroy.Mohn@u-cergy.fr

Reina Nakaoka[†]

Physical Properties Specialist

Ocean-Bottom Exploration Center (KOBEC)
Kobe University
Japan
renakaoka@emerald.kobe-u.ac.jp

Observer

Andreas A. Bjørnstad

Physical Properties Specialist/Downhole Measurements/Observer

Norway
andreas.bjornstad@npd.no

Outreach

Mara Johnson-Groh[†]

Outreach Officer

Science Communicator/Writer
Freelance writer/photographer
marakjg@gmail.com

Reed P. Scherer

Micropaleontologist (diatoms)

Department of Earth Atmosphere and Environment
Northern Illinois University
USA
reed@niu.edu

Christian Tegner[†]

Petrologist

Aarhus University
Denmark
christian.tegner@geo.au.dk

Natalia Varela

Paleomagnetist

Department of Geosciences
Virginia Tech
USA
nvarelav@vt.edu

Mengyuan Wang[†]

Organic Geochemist

School of Marine Sciences
Sun Yat-Sen University
China
wangmy36@mail.sysu.edu.cn

Weimu Xu

Sedimentologist

School of Earth Sciences
University College Dublin
Ireland
weimu.xu1@ucd.ie

Stacy L. Yager

Micropaleontologist (planktonic foraminifers)

Department of Environment, Geology, and Natural Resources
Ball State University
USA
slyager@bsu.edu

Operational and technical staff

Siem Offshore AS officials

Jake Robinson
Master of the Drilling Vessel

Mark Robinson
Drilling Supervisor

JRSO shipboard personnel and technical representatives

Timothy Blaisdell
Applications Developer

Susan Boehm
Marine Laboratory Specialist

Clayton Furman
Logging Engineer

Randy Gjesvold
Marine Instrumentation Specialist

Sandra Herrmann
Imaging Specialist

Mark Higley
Marine Laboratory Specialist

Michael Hodge
Marine Computer Specialist

Rose Jones
Marine Laboratory Specialist

Nick Logan
Marine Computer Specialist

Daniel Marone
Marine Laboratory Specialist

Brittany Martinez
Curatorial Specialist

Aaron Mechler
Marine Laboratory Specialist

Stephen Midgley
Operations Superintendent

Beth Novak
Assistant Laboratory Officer

Chieh Peng
Laboratory Officer

Holly Pettus
Marine Laboratory Specialist

Jessica Riekenberg
Marine Laboratory Specialist

Alyssa Stephens
Publications Specialist

Kara Vadman
Marine Laboratory Specialist

IODP Publication Services staff*

Molly Blaisdell
Production Editor II

Emily Britt
Editor II

Douglas Cummings
Graphics Specialist III

Raleigh Darnell
Production Editor II

Patrick H. Edwards
Supervisor of Production

Willow S. Grosz
Editor II

Jennifer Hertzberg
DAM Administrator

Jenni Hesse
Editor IV

Rhonda Kappler
Graphics Specialist IV

Ginny Lowe
Reports Coordinator

Amy McWilliams
Supervisor of Editing

Julie Myers
Production Editor IV

Lorri Peters
Manager of Publication Services

Kenneth Sherar
Production Editor IV

Alyssa Stephens
Graphics Specialist IV

Jean Wulfson
Supervisor of Graphics

*At time of publication.

Expedition-related bibliography*

Citation data for IODP publications and journal articles in RIS format

IODP publications

Scientific Prospectus

Planke, S., Berndt, C., and Alvarez Zarikian, C.A., 2021. Expedition 396 Scientific Prospectus: Mid-Norwegian Continental Margin Magmatism. International Ocean Discovery Program. <https://doi.org/10.14379/iodp.sp.396.2021>

Preliminary Report

Planke, S., Berndt, C., Alvarez Zarikian, C.A., and the Expedition 396 Scientists, 2022. Expedition 396 Preliminary Report: Mid-Norwegian Margin Magmatism and Paleoclimate Implications. International Ocean Discovery Program. <https://doi.org/10.14379/iodp.pr.396.2022>

Proceedings volume

Planke, S., Berndt, C., Alvarez Zarikian, C.A., and the Expedition 396 Scientists, 2023. Mid-Norwegian Margin Magmatism and Paleoclimate Implications. Proceedings of the International Ocean Discovery Program, 396: College Station, TX (International Ocean Discovery Program). <https://doi.org/10.14379/iodp.proc.396.2023>

Expedition reports

Planke, S., Berndt, C., Alvarez Zarikian, C.A., Agarwal, A., Andrews, G.D.M., Betlem, P., Bhattacharya, J., Brinkhuis, H., Chatterjee, S., Christopoulou, M., Clementi, V.J., Ferré, E.C., Filina, I.Y., Frieling, J., Guo, P., Harper, D.T., Jones, M.T., Lambart, S., Longman, J., Millett, J.M., Mohn, G., Nakaoka, R., Scherer, R.P., Tegner, C., Varela, N., Wang, M., Xu, W., and Yager, S.L., 2023. Expedition 396 summary. In Planke, S., Berndt, C., Alvarez Zarikian, C.A., and the Expedition 396 Scientists, Mid-Norwegian Margin Magmatism and Paleoclimate Implications. Proceedings of the International Ocean Discovery Program, 396: College Station, TX (International Ocean Discovery Program). <https://doi.org/10.14379/iodp.proc.396.101.2023>

Planke, S., Berndt, C., Alvarez Zarikian, C.A., Agarwal, A., Andrews, G.D.M., Betlem, P., Bhattacharya, J., Brinkhuis, H., Chatterjee, S., Christopoulou, M., Clementi, V.J., Ferré, E.C., Filina, I.Y., Frieling, J., Guo, P., Harper, D.T., Jones, M.T., Lambart, S., Longman, J., Millett, J.M., Mohn, G., Nakaoka, R., Scherer, R.P., Tegner, C., Varela, N., Wang, M., Xu, W., and Yager, S.L., 2023. Expedition 396 methods. In Planke, S., Berndt, C., Alvarez Zarikian, C.A., and the Expedition 396 Scientists, Mid-Norwegian Margin Magmatism and Paleoclimate Implications. Proceedings of the International Ocean Discovery Program, 396: College Station, TX (International Ocean Discovery Program). <https://doi.org/10.14379/iodp.proc.396.102.2023>

Planke, S., Berndt, C., Alvarez Zarikian, C.A., Agarwal, A., Andrews, G.D.M., Betlem, P., Bhattacharya, J., Brinkhuis, H., Chatterjee, S., Christopoulou, M., Clementi, V.J., Ferré, E.C., Filina, I.Y., Frieling, J., Guo, P., Harper, D.T., Jones, M.T., Lambart, S., Longman, J., Millett, J.M., Mohn, G., Nakaoka, R., Scherer, R.P., Tegner, C., Varela, N., Wang, M., Xu, W., and Yager, S.L., 2023. Site U1565. In Planke, S., Berndt, C., Alvarez Zarikian, C.A., and the Expedition 396 Scientists, Mid-Norwegian Margin Magmatism and Paleoclimate Implications. Proceedings of the International Ocean Discovery Program, 396: College Station, TX (International Ocean Discovery Program). <https://doi.org/10.14379/iodp.proc.396.103.2023>

Planke, S., Berndt, C., Alvarez Zarikian, C.A., Agarwal, A., Andrews, G.D.M., Betlem, P., Bhattacharya, J., Brinkhuis, H., Chatterjee, S., Christopoulou, M., Clementi, V.J., Ferré, E.C., Filina, I.Y., Frieling, J., Guo, P., Harper, D.T., Jones, M.T., Lambart, S., Longman, J., Millett, J.M., Mohn, G., Nakaoka, R., Scherer, R.P., Tegner, C., Varela, N., Wang, M., Xu, W., and Yager, S.L., 2023. Site U1566. In Planke, S., Berndt, C., Alvarez Zarikian, C.A., and the Expedition 396 Scientists, Mid-Norwegian Margin Magmatism and Paleoclimate Implications. Proceedings of the International Ocean Discovery Program, 396: College Station, TX (International Ocean Discovery Program). <https://doi.org/10.14379/iodp.proc.396.104.2023>

Planke, S., Berndt, C., Alvarez Zarikian, C.A., Agarwal, A., Andrews, G.D.M., Betlem, P., Bhattacharya, J., Brinkhuis, H., Chatterjee, S., Christopoulou, M., Clementi, V.J., Ferré, E.C., Filina, I.Y., Frieling, J., Guo, P., Harper, D.T., Jones, M.T., Lambart, S., Longman, J., Millett, J.M., Mohn, G., Nakaoka, R., Scherer, R.P., Tegner, C., Varela, N., Wang, M., Xu, W., and Yager, S.L., 2023. Sites U1567 and U1568. In Planke, S., Berndt, C., Alvarez Zarikian, C.A., and the Expedition 396 Scientists, Mid-Norwegian Margin Magmatism and Paleoclimate Implications. Proceedings of the International Ocean Discovery Program, 396: College Station, TX (International Ocean Discovery Program). <https://doi.org/10.14379/iodp.proc.396.105.2023>

Planke, S., Berndt, C., Alvarez Zarikian, C.A., Agarwal, A., Andrews, G.D.M., Betlem, P., Bhattacharya, J., Brinkhuis, H., Chatterjee, S., Christopoulou, M., Clementi, V.J., Ferré, E.C., Filina, I.Y., Frieling, J., Guo, P., Harper, D.T., Jones, M.T., Lambart, S., Longman, J., Millett, J.M., Mohn, G., Nakaoka, R., Scherer, R.P., Tegner, C., Varela, N., Wang, M., Xu, W., and Yager, S.L., 2023. Sites U1569 and U1570. In Planke, S., Berndt, C., Alvarez Zarikian, C.A., and the Expedition 396 Scientists, Mid-Norwegian Margin Magmatism and Paleoclimate Implications. Proceedings of the International Ocean Discovery Program, 396: College Station, TX (International Ocean Discovery Program). <https://doi.org/10.14379/iodp.proc.396.106.2023>

*The Expedition-related bibliography is continually updated online (<http://publications.iodp.org/proceedings/396/396title.html#bib>). Please send updates to PubCrd@iodp.tamu.edu.

- Planke, S., Berndt, C., Alvarez Zarikian, C.A., Agarwal, A., Andrews, G.D.M., Betlem, P., Bhattacharya, J., Brinkhuis, H., Chatterjee, S., Christopoulou, M., Clementi, V.J., Ferré, E.C., Filina, I.Y., Frieling, J., Guo, P., Harper, D.T., Jones, M.T., Lambart, S., Longman, J., Millett, J.M., Mohn, G., Nakaoka, R., Scherer, R.P., Tegner, C., Varela, N., Wang, M., Xu, W., and Yager, S.L., 2023. Sites U1571 and U1572. In Planke, S., Berndt, C., Alvarez Zarikian, C.A., and the Expedition 396 Scientists, Mid-Norwegian Margin Magmatism and Paleoclimate Implications. Proceedings of the International Ocean Discovery Program, 396: College Station, TX (International Ocean Discovery Program). <https://doi.org/10.14379/iodp.proc.396.107.2023>
- Planke, S., Berndt, C., Alvarez Zarikian, C.A., Agarwal, A., Andrews, G.D.M., Betlem, P., Bhattacharya, J., Brinkhuis, H., Chatterjee, S., Christopoulou, M., Clementi, V.J., Ferré, E.C., Filina, I.Y., Frieling, J., Guo, P., Harper, D.T., Jones, M.T., Lambart, S., Longman, J., Millett, J.M., Mohn, G., Nakaoka, R., Scherer, R.P., Tegner, C., Varela, N., Wang, M., Xu, W., and Yager, S.L., 2023. Site U1573. In Planke, S., Berndt, C., Alvarez Zarikian, C.A., and the Expedition 396 Scientists, Mid-Norwegian Margin Magmatism and Paleoclimate Implications. Proceedings of the International Ocean Discovery Program, 396: College Station, TX (International Ocean Discovery Program). <https://doi.org/10.14379/iodp.proc.396.108.2023>
- Planke, S., Berndt, C., Alvarez Zarikian, C.A., Agarwal, A., Andrews, G.D.M., Betlem, P., Bhattacharya, J., Brinkhuis, H., Chatterjee, S., Christopoulou, M., Clementi, V.J., Ferré, E.C., Filina, I.Y., Frieling, J., Guo, P., Harper, D.T., Jones, M.T., Lambart, S., Longman, J., Millett, J.M., Mohn, G., Nakaoka, R., Scherer, R.P., Tegner, C., Varela, N., Wang, M., Xu, W., and Yager, S.L., 2023. Site U1574. In Planke, S., Berndt, C., Alvarez Zarikian, C.A., and the Expedition 396 Scientists, Mid-Norwegian Margin Magmatism and Paleoclimate Implications. Proceedings of the International Ocean Discovery Program, 396: College Station, TX (International Ocean Discovery Program). <https://doi.org/10.14379/iodp.proc.396.109.2023>

Supplementary material

- Planke, S., Berndt, C., Alvarez Zarikian, C.A., and the Expedition 396 Scientists, 2023. Supplementary material, <https://doi.org/10.14379/iodp.proc.396supp.2023>. In Planke, S., Berndt, C., Alvarez Zarikian, C.A., and the Expedition 396 Scientists, Mid-Norwegian Margin Magmatism and Paleoclimate Implications. Proceedings of the International Ocean Discovery Program, 396: College Station, TX (International Ocean Discovery Program).