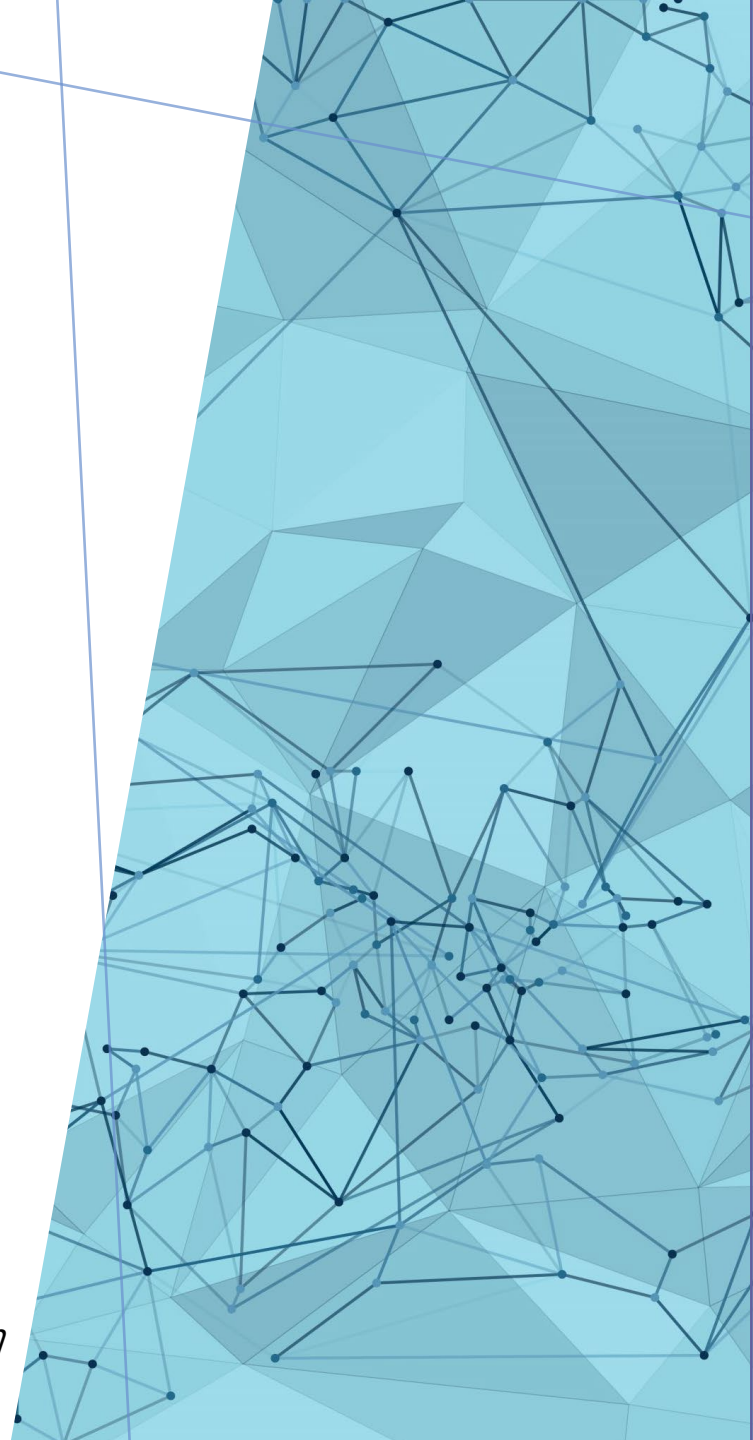
SCIENTIFIC OCEAN DRILLING

DATA AND CORE ACCESS



This is an interactive PDF. Click on items and action buttons on each slide to navigate the document.

BACKGROUND & INTRODUCTION TO SCIENTIFIC OCEAN DRILLING

CORES

Requesting Samples

Repository Facilities

DATA

Site Survey

DSDP Shipboard

DSDP Postcruise & Publications

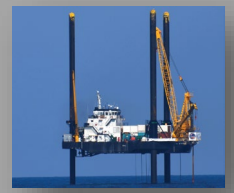
ODP Shipboard

ODP Postcruise & Publications

IODP Shipboard
(JOIDES Resolution)

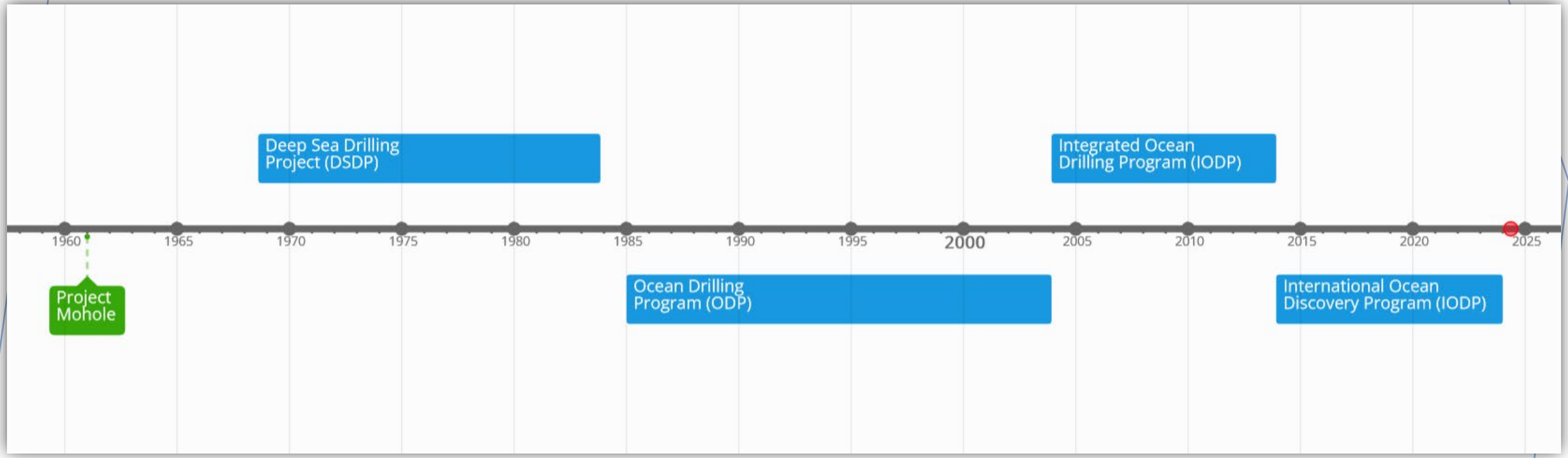
IODP Postcruise & Publications

MSP Data



Chikyu Data

INTRODUCTION TO SCIENTIFIC OCEAN DRILLING



Ocean Drilling Timeline

Scientific Ocean Drilling Dictionary

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GENERAL INFORMATION - EXPEDITIONS

- The term 'Leg' (used during DSDP and ODP) and 'Expedition' (used during IODP) are equivalent.
- A shipboard expedition is an ~2 month timeframe (sometimes shorter) during which drilling, coring, logging, and/or borehole installations are completed.
- Expeditions are numbered by program and through time, although not always sequentially in the IODP phase.
  - DSDP: Legs 1 – 96 [1968-1984]
    - Vessel: Glomar Challenger
  - ODP: Legs 101 – 210 [1985-2002]
    - Vessel: JOIDES Resolution
  - IODP: Expeditions 301 – 405 [2003-2024]
    - Vessel: JOIDES Resolution, Chikyu, MSP (Mission Specific Platform)

JR Quick Guide

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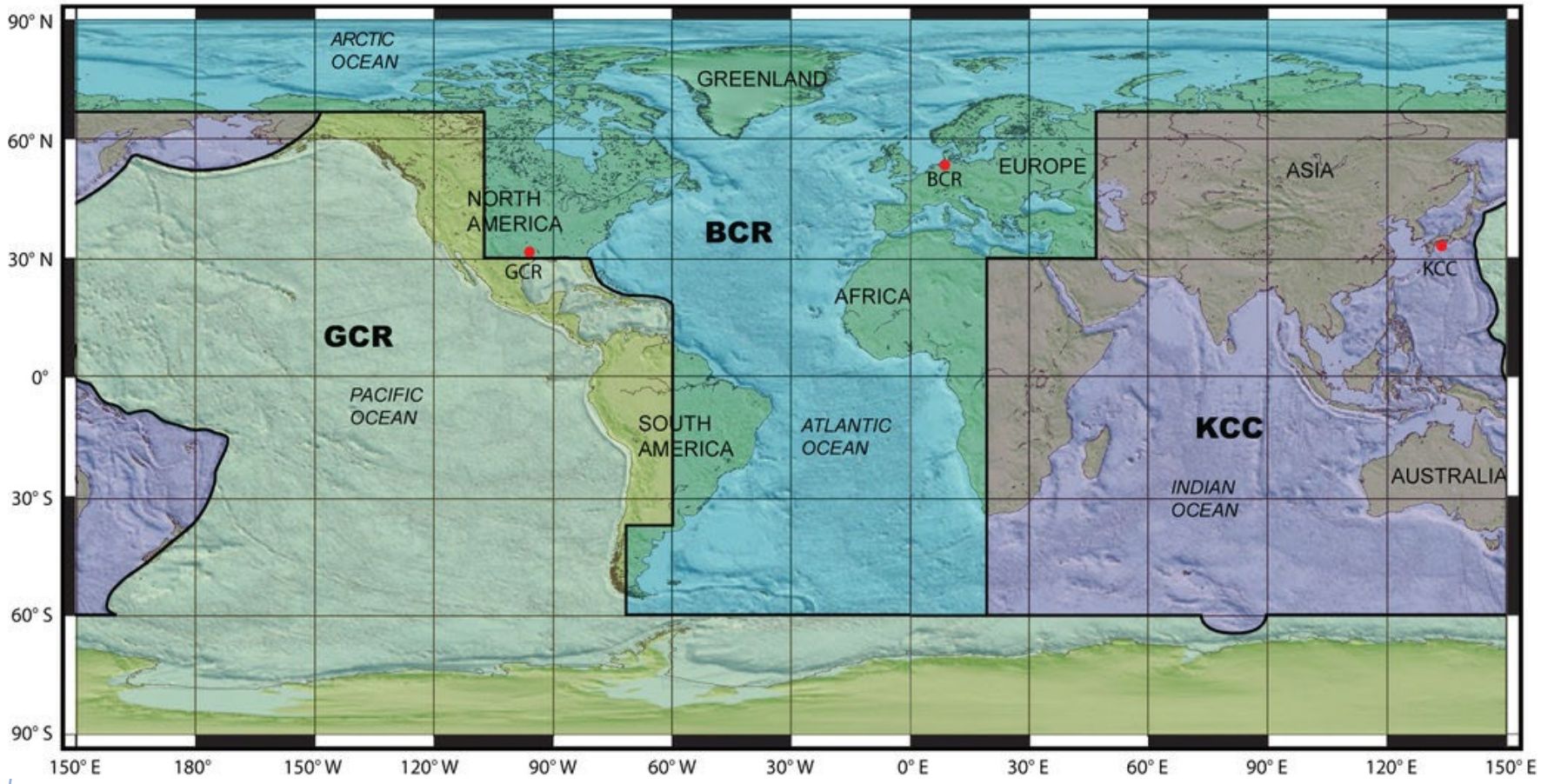
REPOSITORIES FOR CORES



Cores are housed in one of three repositories:

- Bremen Core Repository
- Gulf Coast Repository
- Kochi Core Center

Repositories house cores from all DSDP/ODP/IODP expeditions.

Cores are stored reefers (refrigerated storage areas), maintained at ~ 40°F (4.4°C). Microbiology archive samples are maintained frozen at -86°C.

Sample residues, returned samples, and thin sections are also stored at the repositories.

Samples from Project Mohole are stored in the Geological Collections at the Scripps Institution of Oceanography at the University of California, San Diego. The collections include about 40 meters of core, as well as ship logs. The Smithsonian's National Museum of Natural History has some basaltic samples from Project Mohole.

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GENERAL INFORMATION - SAMPLES

- Samples are generally requested/collected from the 'working' half (W)
  - See next diagram for an explanation of the parts of a core and Sample ID
- Sample size and type varies by the analysis planned
  - see the section on Requesting Samples for further information.
- Volume is more important than sample shape, except for some oriented samples such as paleomagnetic cubes or micro-CT samples.

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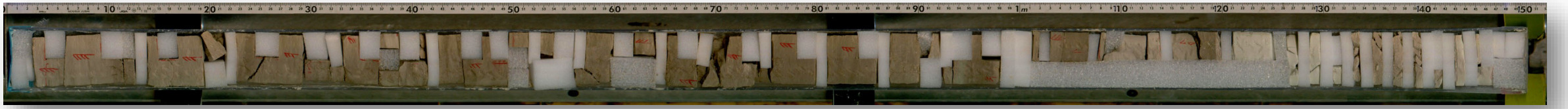
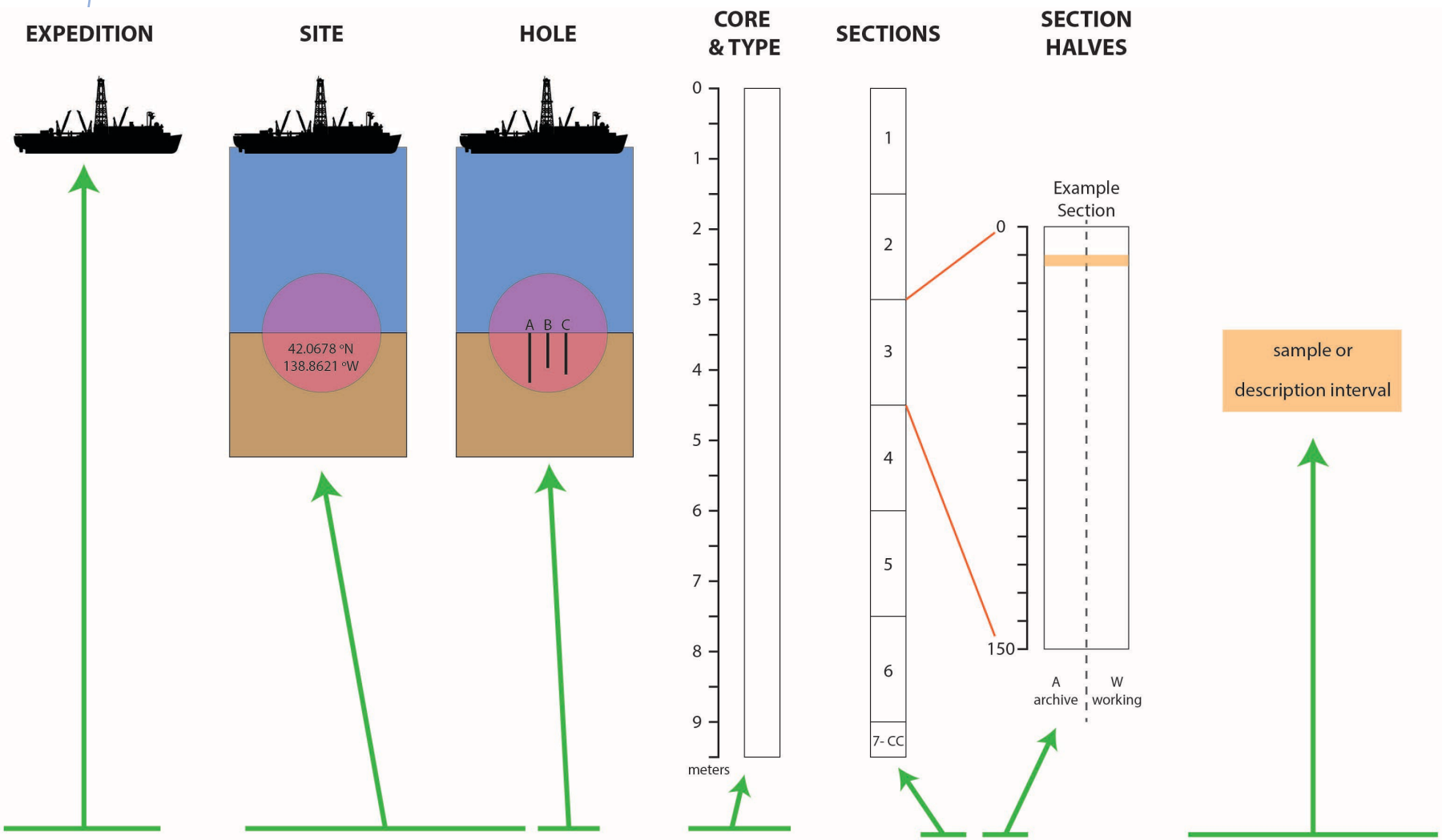
LEGACY CORE QUALITY

- As time passes from the date of collection, the core may become dried-out or otherwise damaged.
- Many older cores are also heavily sampled, and this is particularly true for "intervals of interest" (e.x. – K/Pg Boundary, Paleocene-Eocene Thermal Maximum).



- The Kochi Core Center is currently developing a database of current core images. The other two repositories may also soon develop similar databases. These images are helpful in determining sample availability.

PARTS OF A SAMPLE ID



All material recovered during scientific ocean drilling needs to be identifiable.

A standardized system is used to ensure accurate and efficient identification at all scales.

Sample ID Tutorial

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REQUESTING SAMPLES

Open and transparent access to samples and data is essential for research progress in scientific ocean drilling.

In return, recipients of samples and data incur obligations on their use and on the reporting of derived science outcomes in the peer-reviewed scientific literature.

Please review IODP Sample, Data, and Obligations Policy and Implementation

(also available through: https://iodp.org/policies-and-guidelines)

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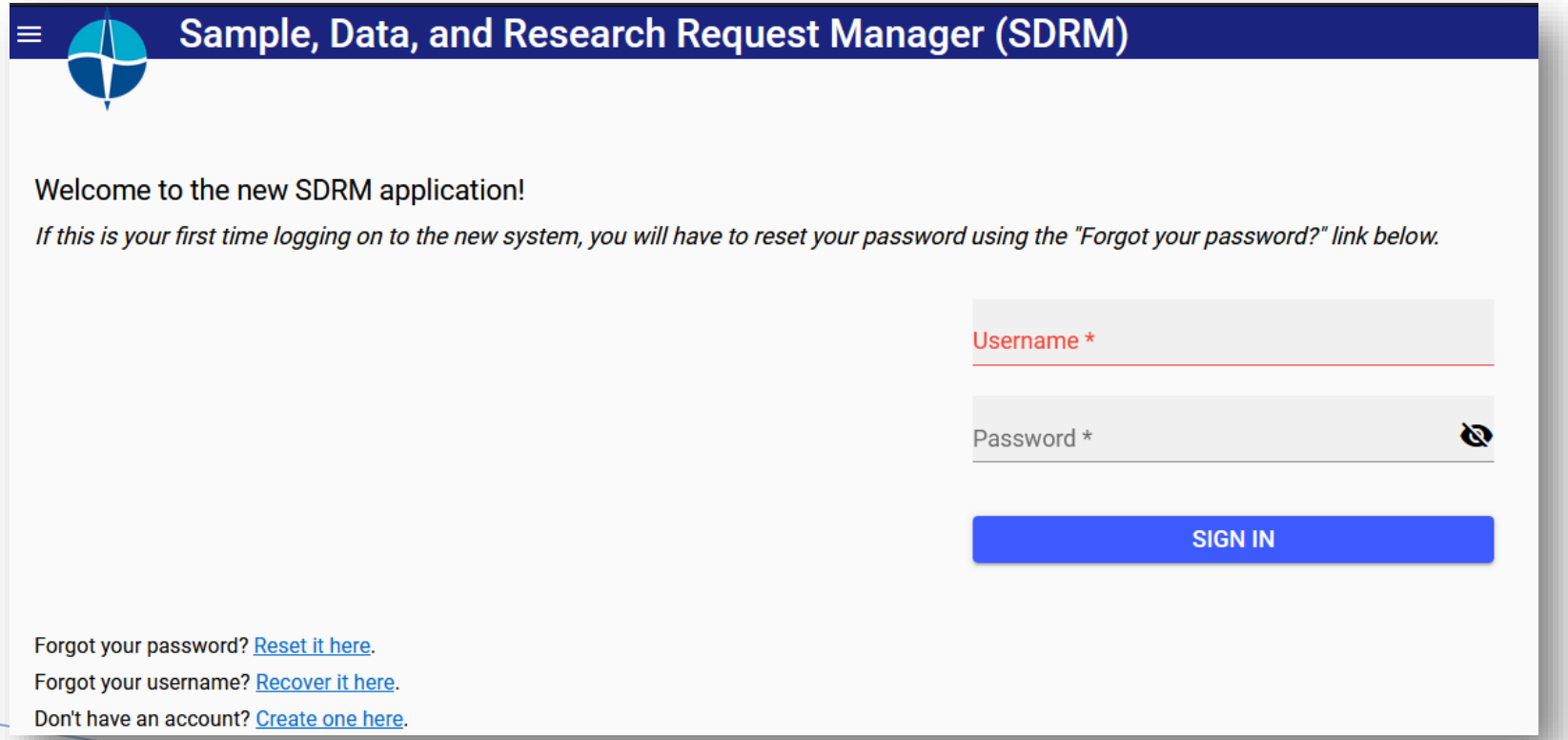
REQUESTING SAMPLES - SDRM

Sample requests are submitted through: https://web.iodp.tamu.edu/SDRM/#/



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GENERATING A REQUEST

Within SDRM (Sample, Data, and Research Request Manager) you will need to provide the following:

- Request type (research or education) and relevant Legs/Expeditions
- Research title and <2000 word summary of goals/methods
- Sample list
- Contact and shipping information
- Other miscellaneous information and files can also be added/uploaded

Link: SDRM User Guide

(User Guide also available within SDRM next to 'Create new sample and research request' button)

SAMPLE SIZE

Sample size varies by the type of analysis planned. For legacy samples, material is more likely to be dried out (harder) and may require sampling by spatula. IODP samples are based on volume (cm^3 or cc). Request the correct volume of material needed for your analysis – material remaining in legacy cores is often limited.

From the mass of material needed for your analysis, convert to volume based on density.

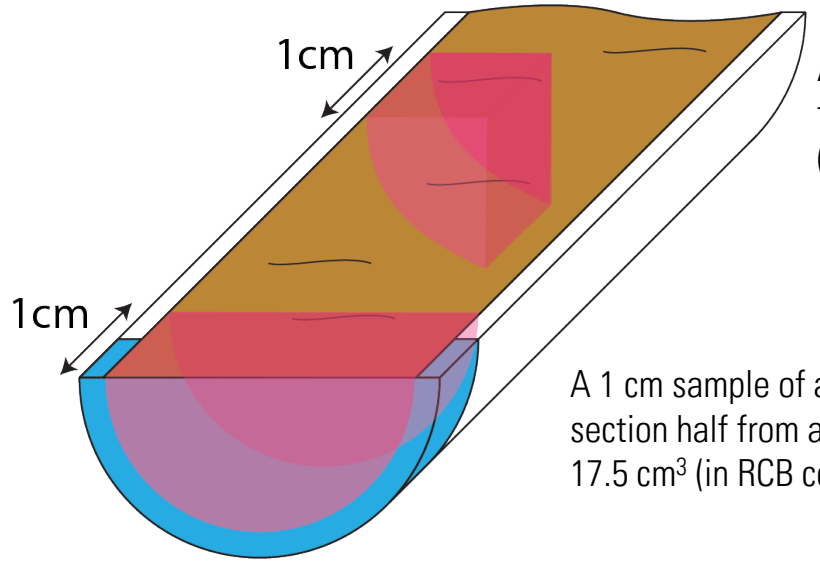
Calculator:

12	=	20.0	/	1.70
volume	=	mass (g)	/	density (g/cm^3)

Example densities:

basalt = 2.9 g/cm^3

clay = 1.7 g/cm^3



A 1 cm sample of quarter round from a sediment core is 8.75 cm^3 (in RCB core, 6.7 cm^3)

A 1 cm sample of all material from a section half from a sediment core is 17.5 cm^3 (in RCB core, 13.4 cm^3)

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A more comprehensive list of sample sizes: https://iodp.tamu.edu/curation/sampletypes.html

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REPOSITORY FACILITIES

- Some measurements can be made on cores (or samples) at the repositories.

- All three repositories have XRF (X-ray fluorescence) scanners.
  - Requests to XRF scan are made through the Sample, Data, and Research Request Manager (SDRM; see Requesting Samples for further information).

- Other equipment varies between the repositories.
  - Requests to make other measurements at repositories should be coordinated through the respective curator.

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XRF SCANNING

- Submit request through Sample, Data, and Research Request Manager
- Check the individual repository website(s) and contact the relevant repository curator for more information on XRF scanning and available facilities. There may be a cost associated with using repository instrumentation.

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THE REPOSITORIES

Bremen Core Repository (BCR)

Location: Bremen, Germany

Website

Curator: bcr@marum.de

Example Instrumentation:

- XRF scanners
- Possibly other instruments
- Contact the curator for more information

see website for details

Gulf Coast Repository (GCR)

Location: College Station, Texas, USA

Website

Curator: curator@iodp.tamu.edu

Example Instrumentation:

- XRF scanners
- Section half image scanner
- More instrumentation arriving in Fall 2024

see website for details

Kochi Core Center (KCC)

Location: Kochi, Japan

Website

Curator: curator@jamstec.go.jp

Example Instrumentation:

- X-Ray Diffraction
- Paleo and Rock Magnetism
- Geochemistry

see website for details

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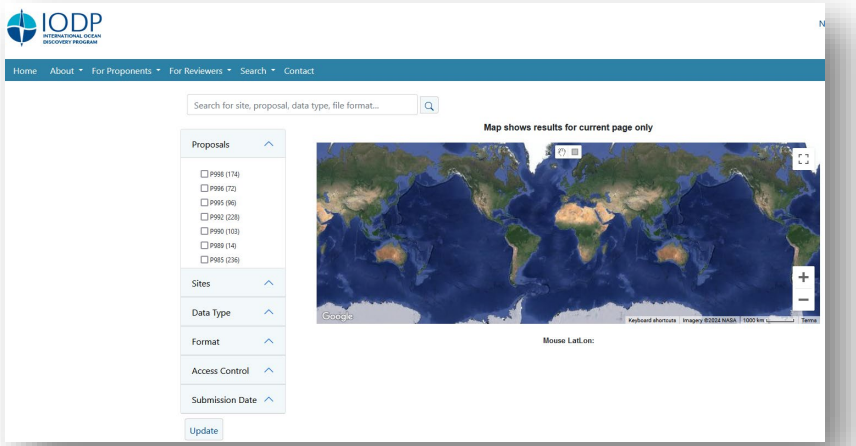
SITE SURVEY DATA

Single-Channel Seismic (SCS) or Multi-Channel Seismic (MCS) reflection data and other site survey data are collected to plan the location of coring/drilling sites.

These data are stored in The Site Survey Data Bank (SSDB).

The data bank can be searched by proposal number, proposed site, format, and several other metrics – Advanced Search



Legacy data (ODP) is also available in the digital collection: https://ssdb.iodp.org/SSDBquery/SSDBlegacy.php

Site survey data from implemented expeditions may be published on Zenodo in the future.

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DSDP SHIPBOARD DATA

NOAA NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NOAA NCEI (National Centers for Environmental Information; formerly NGDC) operates the long-term archive for data from geologic samples collected by the Glomar Challenger during expeditions of the Deep Sea Drilling Project (DSDP), through an agreement with the National Science Foundation (NSF).

High-resolution TIFF images of core photographs are also archived, including close-ups, and microphotographs of thin sections and smear slides. Due to their large volume, and current availability in PDF in the Janus Web Database, these images are only available offline, by request.

Archive Main Page Data

Logging data is available through LDEO-Columbia University.

Site/hole/core summaries, sample reports, core photos, and some close-up photos are available in the Janus Web Database.

Other DSDP data were not imported to the Janus Web Database and are available through NOAA NCEI.

Janus Main Page

Janus Data Queries (all)

Janus Core Images

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DSDP DATA – ARCHIVE

NOAA NCEI (National Centers for Environmental Information; formerly NGDC) operates the long-term archive for data from geologic samples collected by the Glomar Challenger during expeditions of the Deep Sea Drilling Project (DSDP), through an agreement with the National Science Foundation (NSF).

High-resolution TIFF images of core photographs are also archived, including close-ups, and microphotographs of thin sections and smear slides. Due to their large volume, and current availability in PDF in the Janus Web Database, these images are only available offline, by request.

Archive Main Page Data

Zenodo is a FAIR (findability, accessibility, interoperability, and reusability) data repository.

DSDP shipboard data are generally not included in Zenodo, however core composite images may be uploaded in the future.

Downhole logging data are available on Zenodo.

You can upload manuscript-related IODP data to Zenodo and ask for it to be linked to the IODP Community. See "New upload" green button on the IODP Community page.

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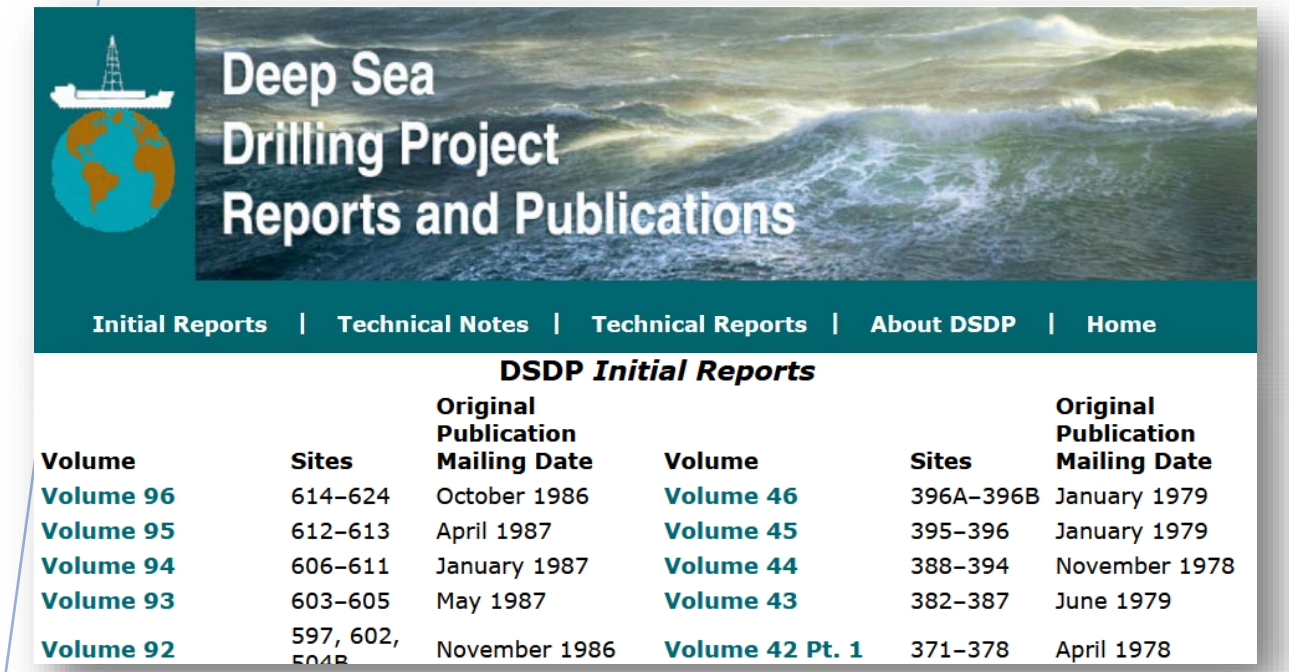
DSDP PUBLICATIONS



DSDP *Initial Reports*

Volume	Sites	Original Publication Mailing Date	Volume	Sites	Original Publication Mailing Date
Volume 96	614–624	October 1986	Volume 46	396A–396B	January 1979
Volume 95	612–613	April 1987	Volume 45	395–396	January 1979
Volume 94	606–611	January 1987	Volume 44	388–394	November 1978
Volume 93	603–605	May 1987	Volume 43	382–387	June 1979
Volume 92	597, 602, 504B	November 1986	Volume 42 Pt. 1	371–378	April 1978

DSDP publications are Public Domain, Public Access, and Open Access, including:

volume { initial reports
scientific results (in volume link for each initial report)

which can be found on the DSDP Publications page.

Publications can also be found through the Scientific Ocean Drilling Bibliographic Database. This database also links expedition related journal articles.

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DSDP PUBLICATIONS – ARCHIVE

Electronic backup and preservation of access to published content includes digital archiving available at:

- Archive-IT/Internet Archive: https://archive-it.org/collections/9148
- US Library of Congress: https://lccn.loc.gov/2007215151
- Hathi Trust: https://babel.hathitrust.org/cgi/mb?a=listis&c=1930557976

HathiTrust

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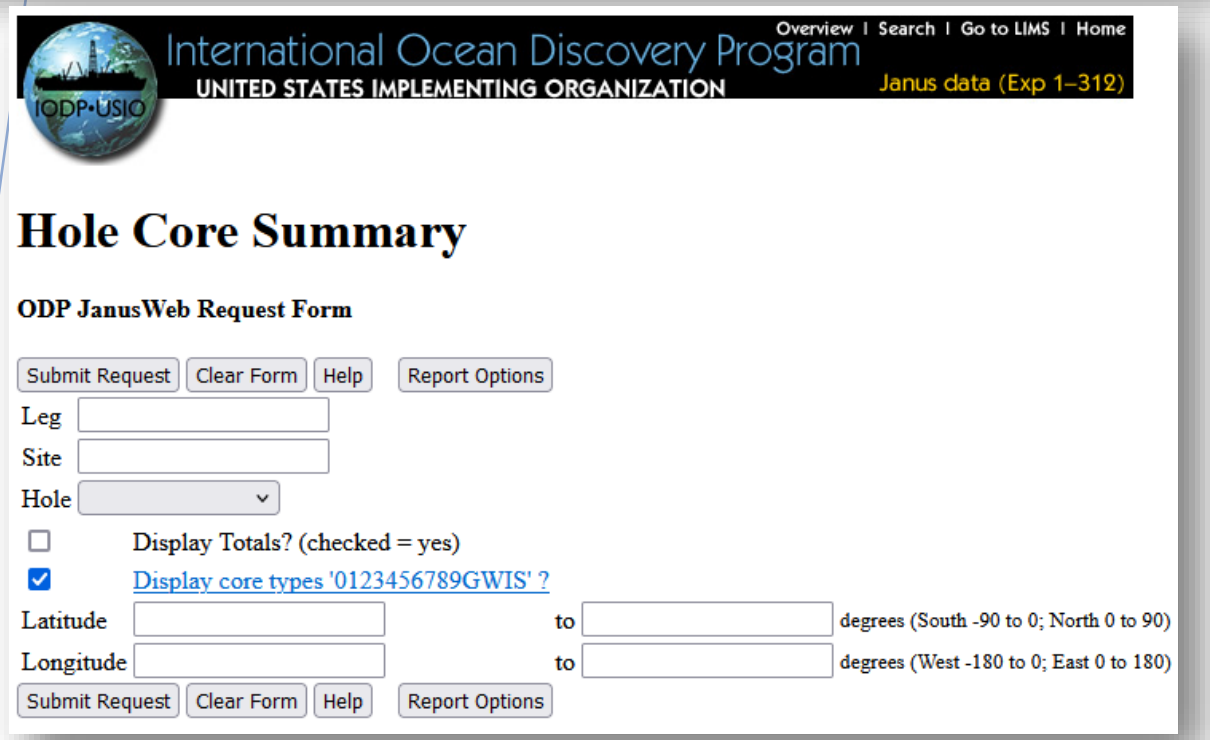
ODP SHIPBOARD DATA



ODP data is available through the Janus Web Database.

Janus Main Page

Janus Data Queries (all)

Janus Core Images

Janus Data Types & Examples

Logging data are available through LDEO-Columbia University.

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ODP DATA – ARCHIVE

NOAA NCEI (National Centers for Environmental Information; formerly NGDC) operates the long-term archive for data from geologic samples collected by the JOIDES Resolution during expeditions of the Ocean Drilling Program (ODP), through an agreement with the National Science Foundation (NSF).

High-resolution TIFF images of core photographs are also archived, including close-ups, and microphotographs of thin sections and smear slides. Due to their large volume, and current availability in PDF in the Janus Web Database, these images are only available offline, by request.

Archive Main Page JR Data

Zenodo is a FAIR (findability, accessibility, interoperability, and reusability) data repository.

ODP data (from Janus) may be deposited into Zenodo in the future.

Downhole logging data are available on Zenodo.

You can upload manuscript-related IODP data to Zenodo and ask for it to be linked to the IODP Community. See "New upload" green button on the IODP Community page.

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ODP PUBLICATIONS

ODP publications are Public Domain, Public Access, and Open Access, including:

scientific prospectus
preliminary report
volume { initial reports / scientific results }

which can be found on the ODP-TAMU Publications page.

Publications can also be found through the Scientific Ocean Drilling Bibliographic Database. This database also links expedition related journal articles.

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ODP PUBLICATIONS – ARCHIVE

Electronic backup and preservation of access to published content includes digital archiving available at:

- Archive-IT/Internet Archive: https://archive-it.org/collections/9148

- US Library of Congress:
  - Ocean Drilling Program Initial Reports: https://lccn.loc.gov/sn97004709
  - Ocean Drilling Program Scientific Results: https://lccn.loc.gov/sn97004867

- Hathi Trust: https://babel.hathitrust.org/cgi/mb?a=listis;c=1868324439

HathiTrust

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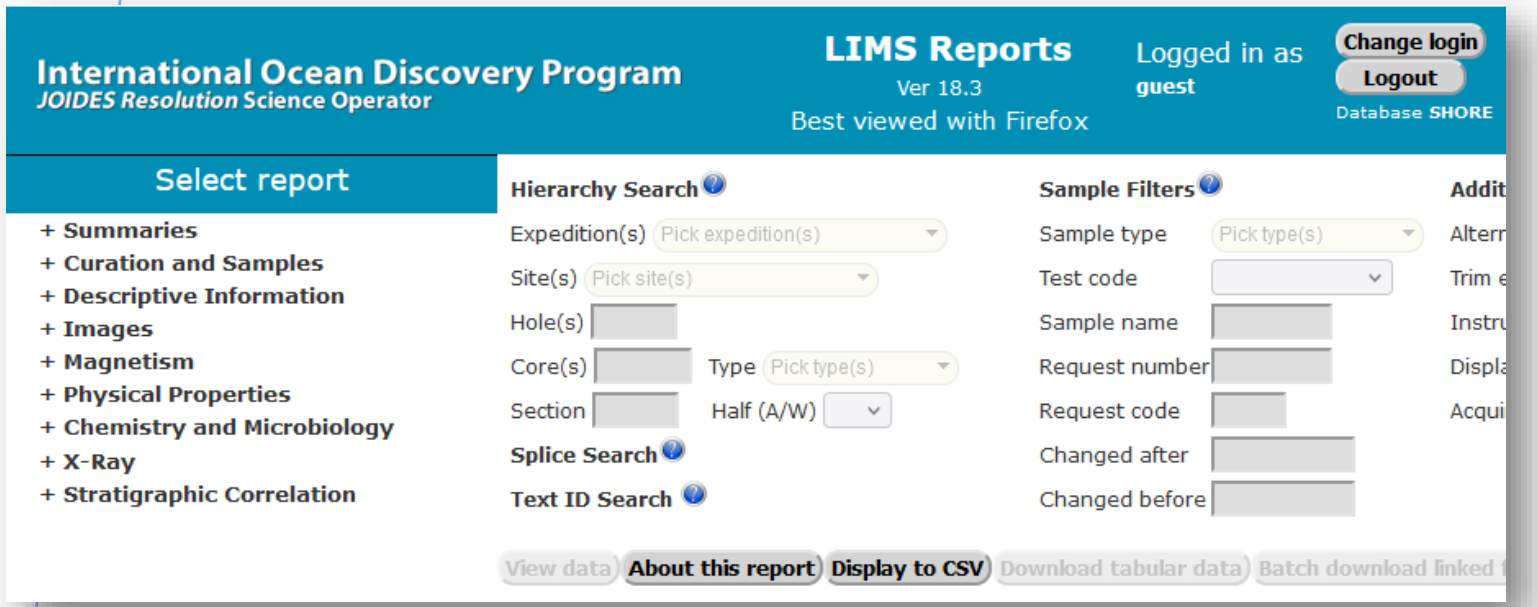
IODP SHIPBOARD DATA



IODP data is available through LIMS.

LIMS is the Laboratory Information Management System used to organize operations and scientific data collected by expeditions of the JOIDES Resolution. LORE is the LIMS Online Report portal used to access the data stored in LIMS.

LIMS contains operations and scientific data for IODP Phase I and II (Expedition 301, 312, and 317 through present). Expedition 302 – 311 are available in the Janus Web Database.

Operations data for prior expeditions (DSDP, ODP) are also available through LIMS, however scientific data are accessed through Janus.

Logging data are available through LDEO-Columbia University.

LIMS Overview Diagram

LIMS Overview Tutorial or User Guide

LIMS Sample Tutorial

LIMS Depth Scales Tutorial

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IODP DATA – ARCHIVE

NOAA NCEI (National Centers for Environmental Information; formerly NGDC) operates the long-term archive for data from geologic samples collected by the JOIDES Resolution during expeditions of the Integrated Ocean Drilling Program (IODP) and International Ocean Discovery Program (IODP), through an agreement with the National Science Foundation (NSF).

High-resolution TIFF images of core photographs are also archived, including close-ups, and microphotographs of thin sections and smear slides. Due to their large volume, and current availability in JPG in LIMS, these images are only available offline, by request.

Archive Main Page JR Data

Zenodo is a FAIR (findability, accessibility, interoperability, and reusability) data repository.

IODP data are being deposited into Zenodo in an effort to make the data more easily accessible. Not all expeditions have been deposited yet, and some data is pending.

Downhole logging data are also available on Zenodo.

You can upload manuscript-related IODP data to Zenodo and ask for it to be linked to the IODP Community. See "New upload" green button on the IODP Community page.

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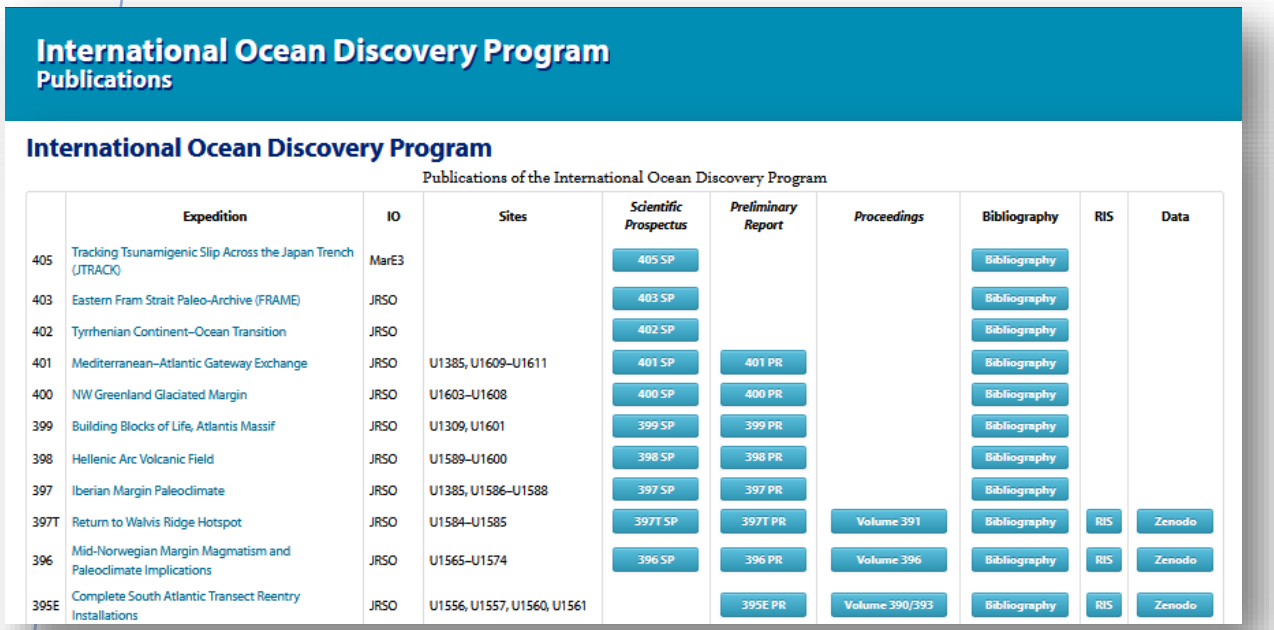
IODP PUBLICATIONS



International Ocean Discovery Program
Publications

International Ocean Discovery Program

Publications of the International Ocean Discovery Program

	Expedition	IO	Sites	*Scientific Prospectus*	*Preliminary Report*	*Proceedings*	Bibliography	RIS	Data
405	Tracking Tsunamigenic Slip Across the Japan Trench (JTRACK)	MarE3		405 SP			Bibliography		
403	Eastern Fram Strait Paleo-Archive (FRAME)	JRSO		403 SP			Bibliography		
402	Tyrrhenian Continent–Ocean Transition	JRSO		402 SP			Bibliography		
401	Mediterranean–Atlantic Gateway Exchange	JRSO	U1385, U1609–U1611	401 SP	401 PR		Bibliography		
400	NW Greenland Glaciated Margin	JRSO	U1603–U1608	400 SP	400 PR		Bibliography		
399	Building Blocks of Life, Atlantis Massif	JRSO	U1309, U1601	399 SP	399 PR		Bibliography		
398	Hellenic Arc Volcanic Field	JRSO	U1589–U1600	398 SP	398 PR		Bibliography		
397	Iberian Margin Paleoclimate	JRSO	U1385, U1586–U1588	397 SP	397 PR		Bibliography		
397T	Return to Walvis Ridge Hotspot	JRSO	U1584–U1585	397T SP	397T PR	Volume 391	Bibliography	RIS	Zenodo
396	Mid-Norwegian Margin Magmatism and Paleoclimate Implications	JRSO	U1565–U1574	396 SP	396 PR	Volume 396	Bibliography	RIS	Zenodo
395E	Complete South Atlantic Transect Reentry Installations	JRSO	U1556, U1557, U1560, U1561		395E PR	Volume 390/393	Bibliography	RIS	Zenodo

IODP publications are Public Domain, Public Access, and Open Access, including:

scientific prospectus
preliminary reports
proceedings volumes

which can be found on the JRSO-IODP Publications page.

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IODP PUBLICATIONS – ARCHIVE

Electronic backup and preservation of access to published content includes digital archiving available at:

- Archive-IT/Internet Archive: https://archive-it.org/collections/9148

- US Library of Congress:
  - International Ocean Discovery Program: https://lccn.loc.gov/2015201542
  - Integrated Ocean Drilling Program: https://lccn.loc.gov/2006213536

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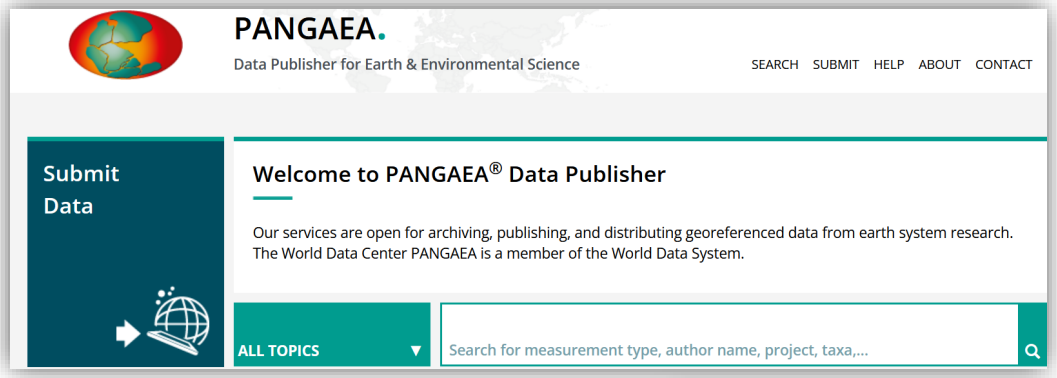
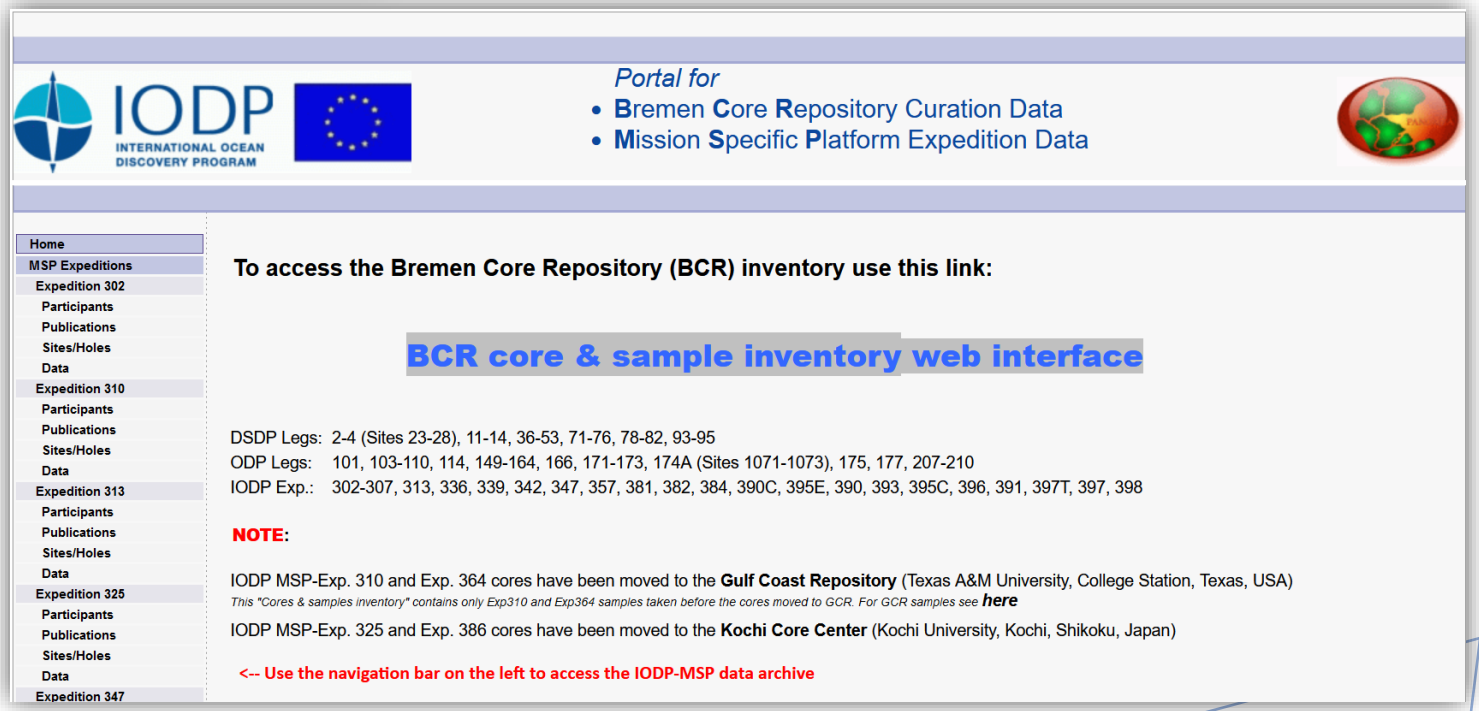
MSP DATA



Data from Mission Specific Platform (MSP) expeditions can be found through PANGAEA.
https://www.pangaea.de/



The Portal for BCR Curation Data and MSP Expedition Data provides an organized navigation of the IODP-MSP data archive.

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Publications are available on the JRSO-IODP Publications page.

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CHIKYU DATA

JAMSTEC 国立研究開発法人 海洋研究開発機構
Japan Agency for Marine-Earth Science and Technology

Data from Chikyu expeditions can be found through JAMSTEC.
https://www.jamstec.go.jp/sio7/

International Ocean Discovery Program

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NanTroSEIZE Stage 4: Plate Boundary Deep Riser: 4

Proceedings

Hole	LAT/LONG	WD (m)	Database	Whole core XCT	Split core image	Well logging
C0002Q	33°18.5070′N, 136°38.2029′E	1939.00	✓			✓
C0002R	33°18.5070′N, 136°38.2029′E	1939.00	✓			✓
C0002S	33°18.5070′N, 136°38.2029′E	1939.00	✓			✓
C0002T	33°18.5070′N, 136°38.2029′E	1939.00	✓	✓	✓	✓
C0024A	33°02.0430′N, 136°47.3991′E	3841.50	✓			✓
C0024B	33°02.0000′N, 136°47.3966′E	3843.50	✓	✓	✓	
C0024C	33°02.0000′N, 136°47.3966′E	3843.50	✓	✓	✓	
C0024D	33°02.0000′N, 136°47.3966′E	3843.50	✓	✓	✓	
C0024E	33°02.0000′N, 136°47.3966′E	3843.50	✓	✓	✓	
C0024F	33°02.0656′N, 136°47.3995′E	3839.50	✓	✓	✓	
C0024G	33°02.0108′N, 136°47.4030′E	3843.00	✓	✓	✓	
C0025A	33°24.0910′N, 136°20.1524′E	2011.00	✓	✓	✓	

Click on check marks to access data.

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Publications are available on the JRSO-IODP Publications page.

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  - Glomar Challenger: https://commons.wikimedia.org/wiki/File:GlomarChallengerBW.JPG
  - Publication icon: https://commons.wikimedia.org/wiki/File:Publication_deluge_1.png
  - Chikyu: https://commons.wikimedia.org/wiki/File:Chikyu_(ship,_2002)_20120929.jpg
  - MSP: Chris Lowery (L/B Myrtle)
  - Site survey icon: Site survey: https://commons.wikimedia.org/wiki/File:Earthquake_-_The_Noun_Project.svg
  - Repository map: U. Röhl adapted from Firth, JV, Gupta, LP and Röhl, U (2009) New focus on the Tales of the Earth - Legacy Cores Redistribution Project Completed. Scientific Drilling, 7. 31-33. doi:10.2204/iodp.sd.7.03.2009. [Map Mar 15, 2016]. Retrieved from http://www.marum.de/en/Cores_at_BCR.html

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