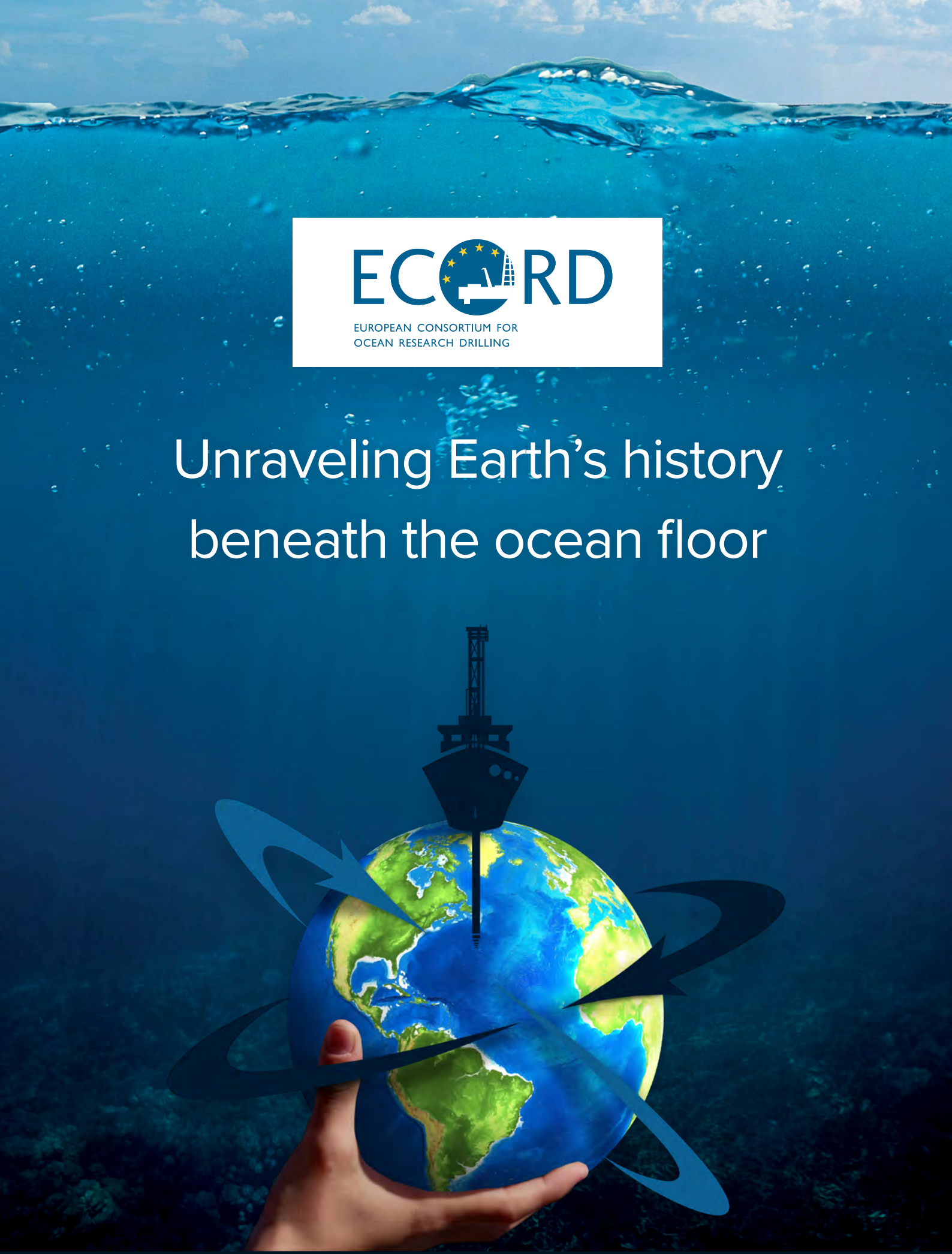
ECORD

EUROPEAN CONSORTIUM FOR
OCEAN RESEARCH DRILLING

Unraveling Earth's history beneath the ocean floor



Scientific ocean drilling

International Ocean Discovery Program (IODP)
addresses fundamental science through ocean drilling

IODP
INTERNATIONAL OCEAN DISCOVERY PROGRAM

CLIMATE AND OCEAN CHANGE

Reading the past to inform the future

- Temperature and precipitation changes
- Ocean chemistry and CO_2 increase
- Ice-sheet history and sea-level change

BIOSPHERE FRONTIERS

Deep life and environmental forcing of ecosystems

- Limits of life
- Biodiversity and environmental change
- Ecosystem evolution

EARTH CONNECTIONS

Deep processes impacting Earth's surface

- Structure of ocean crust and upper mantle
- Subduction zones: shifting continent and creating volcanoes

EARTH IN MOTION

Processes and hazards on human time scales

- Earthquakes,
- Tsunamis,
- Landslides

ECORD's Misson-Specific Platforms:
the European special forces of IODP

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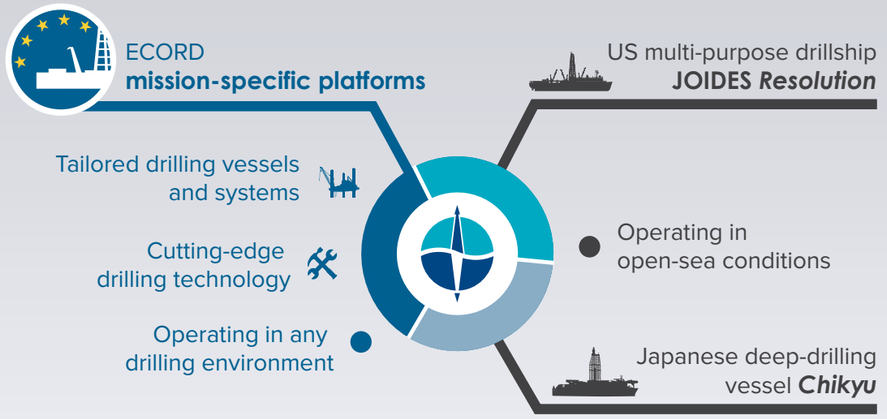
To go where no scientific drilling project has gone before

ECORD is one of the three IODP platform providers, and the only one that is able to conduct expeditions in extreme environmental conditions



To reach new science frontiers
To drill in all environments

MSP expeditions: Making impossible possible

ECORD tailors diverse ships and remote systems as determined by scientific priorities and operational efficiency

MSP statistics

- 9 expeditions
- 96 sites
- 195 holes
- 3,605 cores
- 659 expedition days
- 114,772 research samples

- 10,241 m drilled
- 9,357 m cored
- 7,503 m recovered

84% recovery

- 19.8 m shallowest water depth
- 8,023 m deepest water depth

A European research infrastructure funded by public money

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The European Consortium for Ocean Research Drilling

SOCIO-ECONOMIC IMPACT

Research that supports society, industry and governments

15 ECORD countries

23 IODP countries

Ocean drilling expeditions driven by science

About 70% of our planet is still poorly unknown

ECORD scientists investigate rocks and sediments below the sea floor to unravel Earth's history

ECORD is unique within IODP as it implements expeditions by using diverse mission-specific platforms (MSPs)

ECORD expeditions adress a wide range of fundamental scientific issues concerning our Planet

Addressing fundamental issues affecting society

The Past is the Future

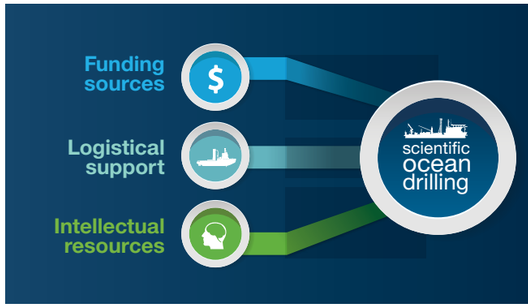
- Sea-level change in a warming climate
- Ecosystem crisis and biodiversity loss
  - New energy sources and mineral resources
- Earthquakes, landslides and tsunamis
- Advances in biotechnology

ECORD budget

Maximum return from investment

95% direct operational costs

ECORD running costs 5%



Earth continues to change.

ECORD helps to better understand major challenges facing humanity.

GLOBAL WARMING
NATURAL HAZARDS
LIMITED RESOURCES
BIODIVERSITY LOSS

SCIENCE AND TECHNOLOGY

ECORD scientists collect and analyze data from the subseafloor to better understand how the Earth system works and how we can use our knowledge of the past to predict future

Interdisciplinary approach in an international scientific community

>150 km of cores

>1.6 million of samples taken

SAMPLES and DATA

- sediments and rocks
- microbial life
- biodiversity
- geological data
- subseafloor fluids

Ocean drill cores and data are freely available to scientists from all over the world

EDUCATION AND OUTREACH

Reaching global audience

Training the next generation of scientists

50% early-career scientists on ECORD expeditions

>150 students on courses per year

3-5 courses and schools per year

www.ecord.org

ECORD Misson Specific Expeditions

Exploring Earth from the tropics to the polar ice caps with cutting-edge **innovative technology**

Exp 302

Arctic Coring Expedition - ACEX

1 — 2004

- Moving ice
- Three operating vessels, including two ice-breakers
- First long record of sediments from the central Arctic Ocean

Exp 310

Tahiti Sea Level

2 — 2005

- Shallow-water, environmentally sensitive area
- Most extensive geological research on coral reefs

Exp 313

New Jersey Shallow Shelf

3 — 2009

- Shallow water
- First use of lift boat in IODP
- Ten-million years record of climate and sea-level change

Exp 325

Great Barrier Reef Environmental Changes

4 — 2010

- Shallow-water, environmentally sensitive area
- Sea-level and climate change since the last ice age (20,000 years ago)

Exp 347

Baltic Sea Paleoenvironment

5 — 2013

- Gravity coring
- First microbiology-focused MSP expedition
- 140,000-years history of the Baltic Sea

Exp 357

Atlantis Massif Seafloor Processes

6 — 2015

- Sea-floor drilling systems and borehole observatories
- Chemistry and life at hydrothermal fields in the Atlantic Ocean

Exp 364

Chicxulub Impact Crater

7 — 2016

- Shallowest water drilling in IODP
- Shore-based mining technology on a lift boat
- Deepest MSP penetration
- Mass extinction 65 million years ago and life recovery after an asteroid impact

Exp 381

Corinth Active Rift Development

8 — 2017

- Geohazards in an active rift system
- Tectonic processes initiating ocean basins
- Recent climate history of the Eastern Mediterranean Sea

Exp 386

Japan Trench Paleoseismology

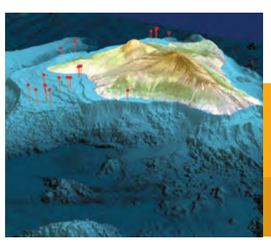
9 — 2021

- First giant piston coring expedition in IODP
- Long history of giant earthquakes off Japan

Exp 389

Hawaiian Drowned Reefs

10 — 2023



- Coring beneath the seafloor using a seabed rockdrill
- Response of coral reef systems to abrupt changes
- Subsidence and volcanic history of Hawaii

Climate and ocean change

Biosphere frontiers

Earth connections

Earth in motion

To be scheduled

Exp 377

Arctic Ocean Paleoceanography ArcOP

Proposal 637

New England Shelf Hydrogeology

Join ECORD's efforts and help continue to build global scientific excellence

Help us understanding our Planet by supporting:

SCIENTIFIC EXPEDITIONS
EDUCATIONAL RESOURCES
OUTREACH ACTIVITIES

Get in contact with us and explore the opportunities to get involved

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