IODP
INTERNATIONAL OCEAN DISCOVERY PROGRAM

ECORD
EUROPEAN CONSORTIUM FOR OCEAN RESEARCH DRILLING

A new ECORD in a new IODP :

New opportunities in sub-seafloor investigation

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IODP INTERNATIONAL OCEAN DISCOVERY PROGRAM

To answer questions of fundamental scientific significance, urgent questions as to how society should manage the global environment and resources and questions related to major geological hazards

1. **Climate and Ocean Change : Reading the Past, Informing the Future**

   CO_2, Climate variability, Sea-level change, Ocean chemistry, Ocean acidification

2. **Biosphere Frontiers : Deep Life, Biodiversity, and Environmental Forcing of Ecosystems**

   Limits of Life, Deep Biosphere, Impact of Environmental and Chemical Changes on Ecosystems

3. **Earth Connections : Deep Processes and their Impact on Earth's Surface Environment**

   Ocean crust formation, Subduction zones, Volcanic Arcs, Magmatic Processes at Ridges

4. **Earth in Motion : Processes and Hazards on Human Time Scales**

   Earthquakes, Landslides, Tsunamis, Fluid Flows, Carbon Storage

IODP
INTERNATIONAL OCEAN DISCOVERY PROGRAM

Science Community

Science Support Office and Site Survey Data Bank

Science Evaluation Panel (SEP)

Environmental Protection and Safety Panel (EPSP)

> Coordination through the IODP Forum

JR partners

ECORD, Australia, Brazil, China, India, Korea

US Facility Board

***Chikyu* IODP Board**

ECORD Facility Board

NSF

MEXT

Chikyu partners

ECORD

ECORD

IODP members ; EC ; Industry ; Other countries

Flow of proposals and information

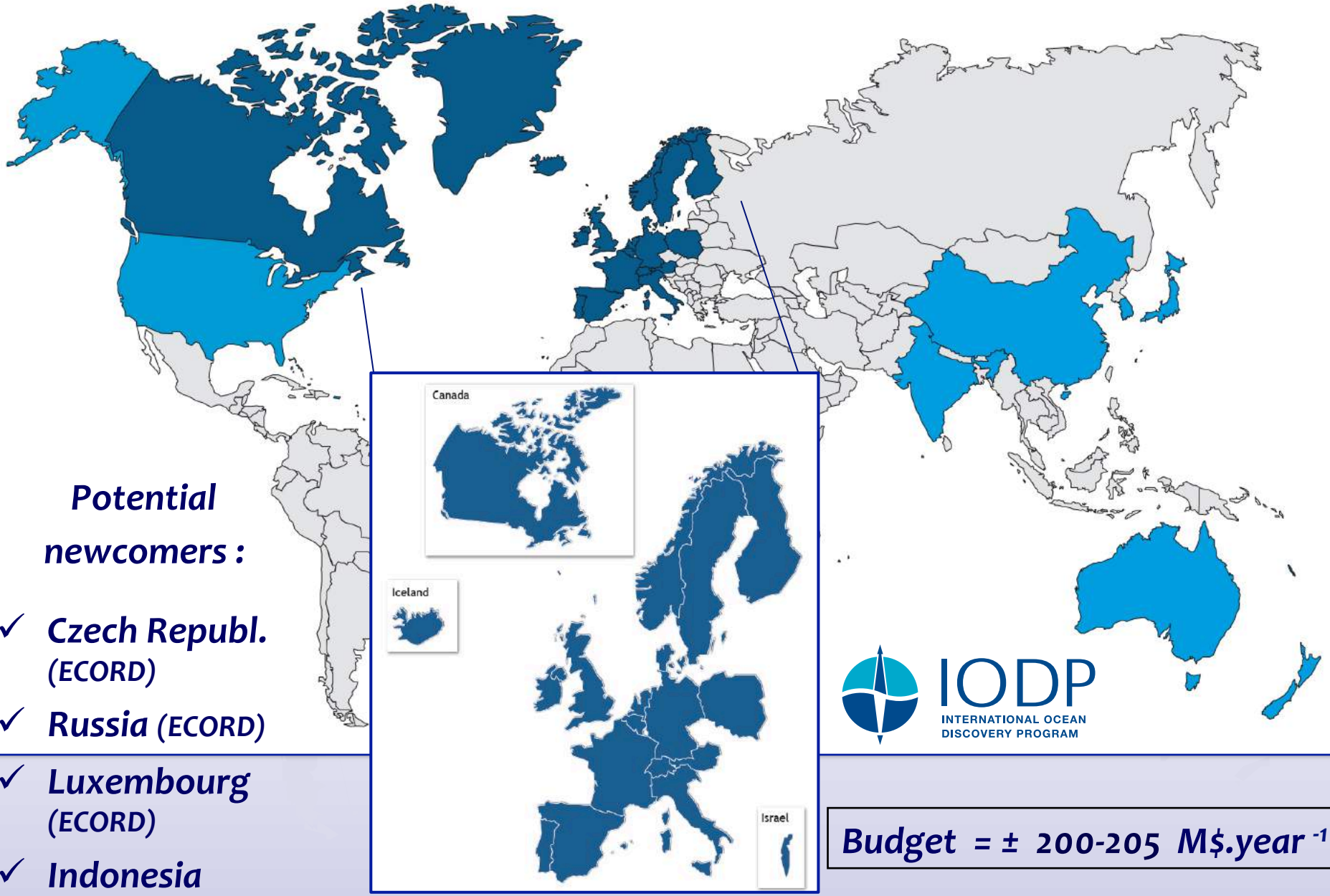
Flow of information

Annual funding

Project-basis funding

I O D P F O R U M

27 member countries : USA, Japan, ECORD (19 countries), China, S-Korea, India, Australia / New Zealand, Brazil



Potential newcomers :

- ✓ ***Czech Republ.*** *(ECORD)*
- ✓ ***Russia*** *(ECORD)*
- ✓ ***Luxembourg*** *(ECORD)*
- ✓ ***Indonesia***

IODP
INTERNATIONAL OCEAN DISCOVERY PROGRAM

Budget = ± 200-205 M$.year $^{-1}$

ECORD
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ECORD Council
(Funding agencies)

ECORD Facility Board

Science Board

Executive Bureau

Member EC Industry

MagellanPlus
(workshops)

EMA
(Managing Agency)

NSF

MEXT

Science community

Mission Specific Platforms

ESO
(Implementing Organisation)

ESSAC
(Scientific Committee)

Education / Outreach Task Force

ECORD ILP
(Industry Liaison)

Vision Task Force

Science community, Public & medias

Industry, Other science programs, EC

Annual funding

Project basis funding

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		($US)
Austria		100,000
Belgium		25,000
Canada	> FY15	150,000
Denmark	> FY16	170,000
Finland	> FY18	80,000
Germany		5,600,000
Iceland	>FY14	30,000
Ireland	>FY18	140,000
Israel	> FY16	30,000
Italy		400,000
Netherlands	>FY18	500,000
Norway	>FY18	1,100,000
Portugal	>FY18	90,000
Poland	>FY18	30,000
Spain		?
Sweden	>FY18	528,000
Switzerland	>FY16	600,000
UK	>FY18	4,080,000
France	>FY18	5,200,000
TOTAL		18,853,000

> Annual contributions : $ 30,000 to $ 5,600,000

> 3 major contributors : 79 % of the ECORD budget

> Potential newcomers

> Additional project-based cash and in-kind contributions

Minimum ECORD budget : ~ US$ 18.85 M (vs 19.858 to 21.2)

✓ ~9 – 10% of the IODP total budget

✓ 30% of scientists on expeditions and committees

- *Science, Education, Outreach and Management : US$ 1.25 M*
- *Fixed operational costs : US$ 2.5 M*
- *Annual budget for JR and Chikyu operations : US$ 8 M*
- *Annual budget available for MSP operations : US$ 7.1 M (vs US$ 3.06 to 4.4 M)*

✓ ~ 80% of the ECORD budget for operations

✓ 38 – 57% increase in MSP operational budget

Fundamentals of the ECORD MoU

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MSP expeditions

- ✓ *ECORD is responsible for funding and implementing MSP operations for the International Ocean Discovery Program as an independent Platform Provider*
- ✓ *ECORD is aiming to fund and implement one MSP expedition per year on average for the International Ocean Discovery Program*
- ✓ *ECORD will also encourage and help proponents for MSP proposals to seek for additional funding sources on a project basis (e.g. EC, industry, increased contributions from ECORD and IODP members, foundation support, in-kind contributions)*
- ✓ *Mission-specific platforms might include specifically outfitted polar vessels, jack-up rigs, geotechnical vessels, seafloor drilling systems, long-piston coring, anchored barges and others, as determined by scientific priorities and operational efficiency*

ECORD as ..... a Platform Provider

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The ECORD Science Operator (ESO) is an Implementing Organisation

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL
Marine Geoscience Programme

Universität Bremen
marum
Center for Marine Environmental Sciences

EPC
European Petrophysics Consortium

University of Leicester
Geophysics & Borehole Research Group

UM2 Université Montpellier 2 Sciences et Techniques
Géosciences Montpellier
Laboratoire de Géophysique et Hydrodynamique en Forage

RWTH Aachen
Angewandte Geophysik

to run Mission Specific Platform (MSP) Expeditions under the auspices of the IODP

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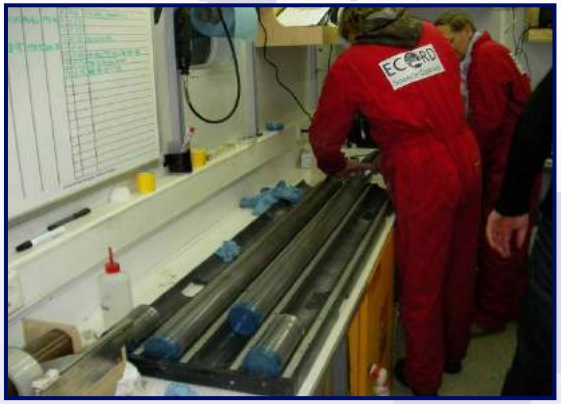
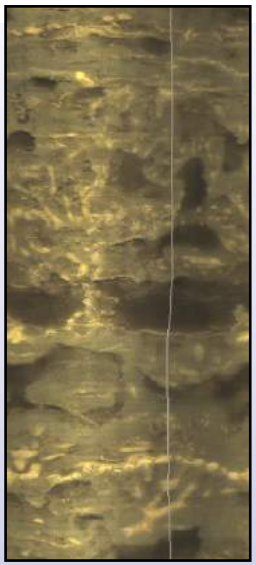
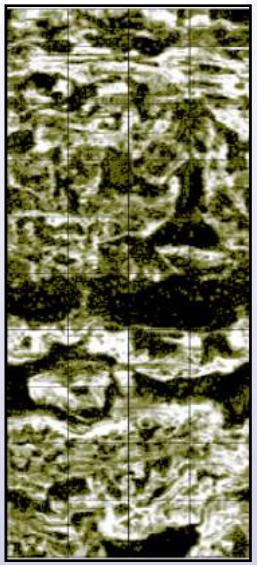
Offshore







Onshore

*Active MSP proposals concern **diverse oceans and environments** (Atlantic, Pacific, Mediterranean, Arctic and Southern Ocean) and **various science topics** (e.g. climate change, ocean crust formation and hydrogeology, deep biosphere, geohazards)*

16 Mission-Specific Platform proposals

(as of Oct. 1st, 2013)

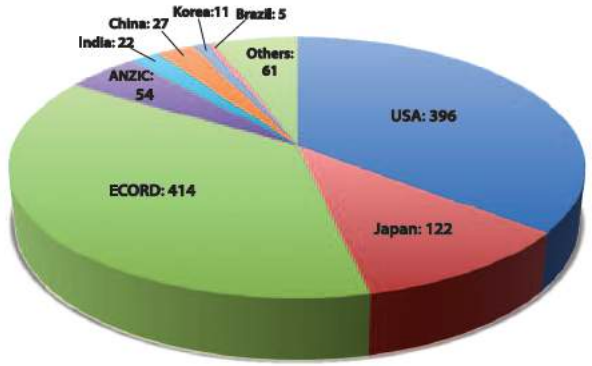
Single Platform:

Proposal ID	category	Short Title		Lead Proponent	Stage
548	Full3	Chicxulub K-T Impact Crater	ECORD	Morgan	FB
581	Full2	Late Pleistocene Coralgal Banks		Droxler	FB
637	Full2	New England Shelf Hydrogeology		Person	FB
680	Full	Bering Strait Climate Change		Fowell	SEP
708	Full	Central Arctic Paleoceanography	ECORD	Stein	FB
716	Full2	Hawaiian Drowned Reefs		Webster	FB
730	Pre2	Sabine Bank Sea Level		Taylor	SEP
756	Pre	Arctic Ocean Exit Gateway	ECORD	Jakobsson	SEP
758	Full2	Atlantis Massif Seafloor Processes	ECORD	Früh-Green	FB
761	Pre	South Atlantic Bight Hydrogeology		Wilson	SEP
796	Full	Ligurian Landslide	ECORD	Kopf	SEP
806	Pre	Beaufort Gas Hydrate		Paull	SEP
812	Pre	Ross Sea Glacial History		Wilson	SEP
813	Full	Antarctic Cenozoic Paleoclimate		Williams	FB

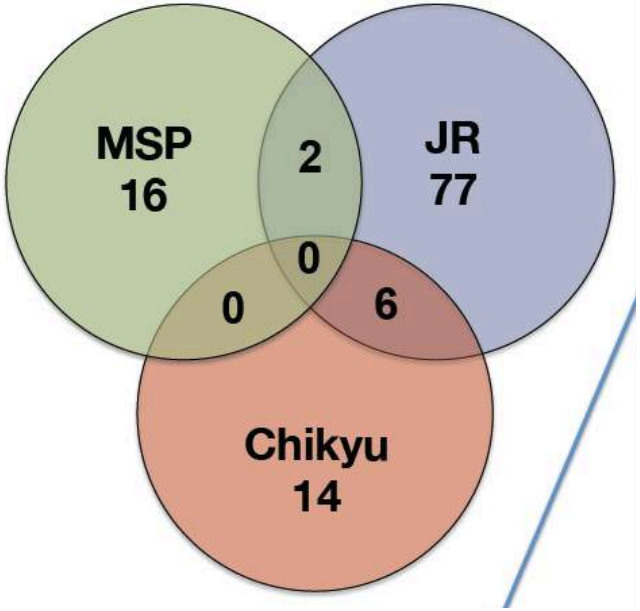
Green: Listed in E-FB meeting agenda

Multiple Platform:

750	Pre	Beringia Sea Level History	Polyak	SEP
797	Pre	Alaska Beaufort Margin	Ruppel	SEP



Geographic distribution of 1,126 proponents for 106 active proposals.



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5 yrs MSP Operational Plan

ECORD is aiming to fund and implement one MSP expedition per year on average for IODP by adjusting the numbers of low, medium, and high-cost expeditions and creating new opportunities through external co-funding and in-kind contributions

FY14 : no MSP expedition

FY15 : Atlantis Massif Expedition (seabed drilling)

FY16 : "Low cost" expedition (e.g. seabed, long piston coring)

FY17 : "Low cost" expedition (e.g. seabed, long piston coring)

FY18 : Arctic Expedition

Staffing : 10+ ECORD ; 13 US and ass. memb. ; 4 JPN ; 1-3 co-funded projects (cash / in-kind) by ECORD members or ECORD « associated partners »

Co-Chief scientists not counted against participation levels on all IODP expeditions

ECORD's partnership

✓ **ECORD will contribute**

to the annual funding (US$ 7 M)

of the JOIDES Resolution

> access to the JR for ECORD scientists :

8 ECORD's berths / JR exp

✓ **ECORD will contribute to the funding of the Chikyu :**

- Level of annual funding defined each year by the ECORD Council (US$ 1 M min.)

- Potential project basis funding of a Chikyu expedition in European/Canadian waters (up to US$ 10M)

> access to the Chikyu for ECORD scientists :

3+ ECORD's berth / Chikyu exp

Co-Chief scientists not counted against participation levels on all IODP expeditions

JOIDES Resolution FY14 operation schedule

4 expeditions / yr for FY14 onwards

28 Jan – 30 Mar 2014 : Expedition 349 - South China Sea CPP

30 Mar – 30 May 2014 : Expedition 350 - Izu Bonin Mariana : Rear-arc

30 May – 30 Jul 2014 : Expedition 351 - Izu Bonin Mariana : Arc Origins

30 Jul – 29 Sept 2014 : Expedition 352 - Izu Bonin Mariana : Forearc

Crustal genesis and mantle evolution of the Izu-Bonin-Mariana (IBM) arc system

JOIDES Resolution FY15 operation schedule

29 Nov 2014 – 29 Jan 2015 : Expedition 353 - Indian Monsoon

29 Jan – 31 Mar 2015 : Expedition 354 - Bengal Fan

31 Mar – 31 May 2015 : Expedition 355 - Arabian Sea CPP

31 Jul – 30 Sept 2015 : Expedition 356 - Indonesian Throughflow

Climate variability, changes in monsoonal precipitation, erosion, and run-off across multiple time scales

Chikyu FY14 – FY15 operation schedule

	JPFY2013							JPFY2014												JPFY2015											
	###	oct	nov	déc	###	févr	###	avr	mai	juin	juil	###	###	oct	nov	déc	###	févr	###	avr	mai	juin	juil	###	###	oct	nov	déc	janv	févr	###
PlanA	C0002 Riser 9/13 - 1/20 (130days)															C0002 Riser to MegaSplay Fault											Riserless LTBMS				
PlanB	C0002 Riser 9/13 - 1/15 (125days)											Riserless LTBMS																C0002 Riser to MegaSplay Fault				

5 months / yr for FY14 onwards

NanTroSEIZE C0002 Riser drilling down to Mega Splay Fault (5,200 mbsf)

Riserless drilling (LTBMS=Long Term Borehole Monitoring System)

Developing the concept of MSPs

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Sea Floor Drills deployed from conventional R/V

MARUM – Bremen, Germany

MeBo-1 (75 m) MeBo-2 (200 m)

British Geological Survey – Edinburgh, UK

50m rockdrill

oriented drill

European Commission

Research Infrastructures

Long Piston coring

IPEV – Brest, France
IFREMER – Brest, France

(35 to 50 m)

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Developing and using new tools

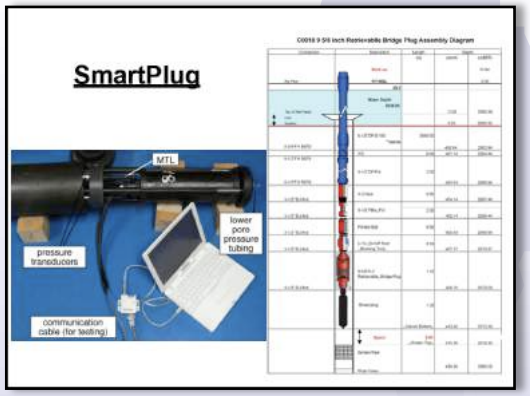
European Commission

Research Infrastructures

Borehole observatories

P, T, fluid flows, sismicity, geochemistry, microbiology

***Genius plus**, MARUM*



Necessary coordination with EMSO :

european multidisciplinary seafloor observatory emso

- *sensors*
- *data transmission*
- *standards*

In situ pressure sampling

Gas hydrates, Deep biosphere

HYACE rotary corer
(TU Berlin, TU Clausthal, Univ. Cardiff, Fugro, Geotek)

DeepIsoBUG
Isolation Chamber
Univ. Cardiff

High temperatures tools

Hydrothermal systems
ISOR (Iceland GeoSurvey)

300°C natural gamma ray

300° borehole televiewer

Science

- ✓ *New drilling/coring targets / scientific issues*
- ✓ *Services to the European Science community*

Technology

- ✓ *Technological development*
- ✓ *Sharing of experience and capabilities*

Networking

- ✓ *Stronger collaboration between :*
  - *research & operational groups across Europe*
  - *ECORD/IODP and other programmes (e.g. ICDP, IMAGES) and initiatives (e.g. EMSO)*

Funding

- ✓ *Optimise use of research vessels and sampling capabilities*
- ✓ *Cost efficiency for IODP MSP operations*
- ✓ *New opportunities for funding (national level, EC, partnership with industry, SMEs)*

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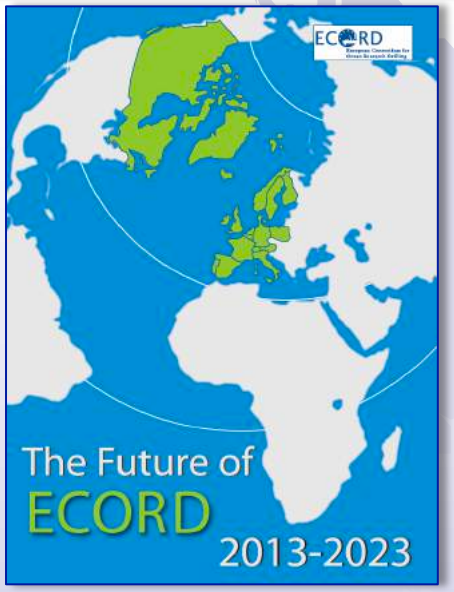
European Commission

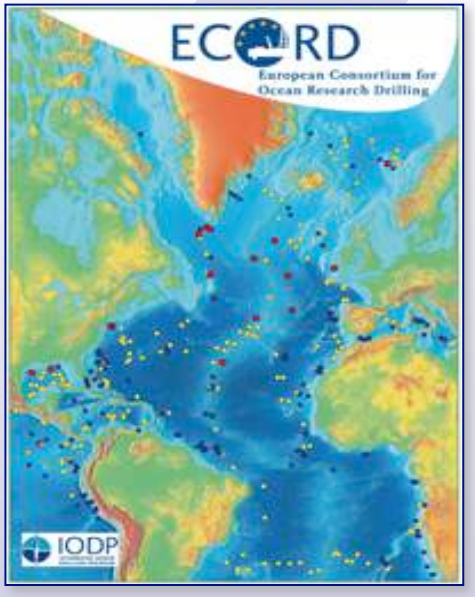
Research Infrastructures

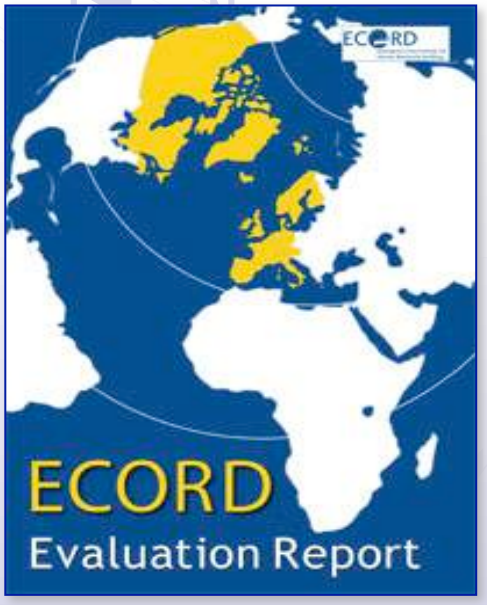
For more information visit the ECORD and IODP websites :

www.ecord.org

www.iodp.org







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INDUSTRY LIAISON PANEL

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Industry, Other science programs, EC

Annual funding

Project basis funding

ILP terms of reference -1

Provide support and offering guidance to the academic community on the appropriateness of the programme for meeting industrial, and related scientific objectives.

To identify within the emerging programme topics of interest to the industrial community and to suggest others that might be initiated by industrial members but developed jointly with academics;

Facilitation of mutual communication and cooperative scientific activities between IODP and related industries, (petroleum, mining, technology-development and innovation, engineering etc) with the aim of benefiting deep-sea drilling science and technology.

ILP terms of reference -2

The ECORD ILP seeks to maximise economic benefits from sharing resources, such as manpower, the drilling of sites, the development of joint drilling and sampling technologies, core and data analysis, and improved downhole measurement and observatory capabilities.

Finally, the aim is to facilitate the development of joint academic and industry drilling proposals from the ECORD countries