

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING

**of
European and Other Funding Organisations
on
Membership and Operation of ECORD
in the
International Ocean Discovery Program
(IODP)**



**European Consortium for
Ocean Research Drilling**

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European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING of European and Other Funding Organisations on Membership and Operation of ECORD in the International Ocean Discovery Program (IODP)

Introduction and Background

Scientific drillships allow scientists to access some of Earth's most challenging environments, collecting data and samples of sediment, rock, fluids and living organisms from below the seafloor. Drilling expeditions and experiments during the past international ocean drilling programmes (the *Deep Sea Drilling Program* - DSDP in 1968-1983, the *Ocean Drilling Program* - ODP in 1983-2003 and the *Integrated Ocean Drilling Program* - IODP in 2003-2013) have transformed the understanding of our planet by addressing some of the most fundamental questions about Earth's dynamic history, processes and structure, and by opening up new lines of inquiry. Drilling scientists and engineers have developed tools and methodologies that are now used across the terrestrial and marine geosciences, and in the private sector. Equally important, scientific ocean drilling has fostered enduring international collaborations, trained new generations of multidisciplinary students and scientists, and engaged the public worldwide in scientific discovery.

Between 2010 and 2012, the Integrated Ocean Drilling Program's (IODP) 25 international partners, the platform operators and the scientific leadership of the Science Advisory Structure have come together to consider the IODP experience and design a management structure and business model for future operations that retain both the multi-platform capabilities and transformative science goals outlined in the new Science Plan "*Illuminating Earth's Past, Present, and Future: The International Ocean Discovery Program Science Plan for 2013-2023*" while addressing constraints facing the main financial sponsors.

With multiple platforms, proven drilling, sampling and long-term observational techniques, as well as the diverse range of science that can be addressed by studying Earth beneath the sea, the **International Ocean Discovery Program (IODP)** will build on this legacy and address global challenges facing current and future generations with new research approaches, expanded scientific communities and continued development of its unique collaborative model.

The Science Plan for the **International Ocean Discovery Program: "Illuminating the Earth's Past, Present and Future"** is designed to guide multidisciplinary, international collaboration in scientific ocean drilling during the period 2013 to 2023. This Science Plan highlights four main themes, each encompassing a short list of high-priority scientific challenges. These themes incorporate shared interests with other national and international research programmes, some marine-based (e.g. ocean-observing initiatives, Past Global Changes, InterRidge, InterMARGINS) and others focused on land (e.g. the International Continental Scientific Drilling Program).

- **Climate and Ocean Change: Reading the Past and Informing the Future**, targets one of the most pressing questions about the climate, ocean and ice-sheet response to ongoing increase in greenhouse gases. Only scientific drilling can recover samples and data having sufficient distribution and resolution to understand the causes and impacts of global climate change in Earth's past.
- **Biosphere Frontiers: Deep Processes and Their Impact on Earth's Surface Environment** includes exploration of deep life within the sub-seafloor, facilitated by rapid developments in microbiology and related technologies. Scientific drilling will also investigate ecosystem response to environmental forcing and the impacts of climate and ocean events on individual and whole ecosystems, including hominid evolution.
- **Earth Connections: Deep Processes and Their Impact on Earth's Surface Environment** will concentrate on the links between surface, lithospheric and deep Earth processes. Drilling is an essential tool for unravelling and understanding the geologic, tectonic, geochemical, magmatic and hydrological processes responsible for development and evolution of these solid Earth systems.
- **Earth in Motion: Processes and Hazards on Human Time Scales** addresses dynamic processes that occur on human time scales, including those leading to and resulting from earthquakes, landslides, and tsunamis. Scientific ocean drilling, coupled with real-time observations from individual and linked networks of long-term, sub-seafloor observatories installed in boreholes will address the frequency, magnitude, mechanisms and impacts of these events.

No single platform can meet the drilling requirements of the four science themes. To maximise drilling capability, the **International Ocean Discovery Program** will use **three primary platforms** (Fig. 1, below), which will be operated by **three independent Individual Platform Providers** contributing to IODP by fulfilling objectives identified in the Science Plan “**Illuminating the Earth's Past, Present and Future**”.



Fig. 1: The three IODP primary platforms. From left to right, the Chikyu (K. Michibayashi ©IODP/JAMSTEC), the Mission-Specific Platform I/B Vidar Viking used during the Arctic Coring Expedition (IODP 302) in 2004 (M. Jakobssen ©ECORD/IODP) and the JOIDES Resolution (Tim Fulton, IODP/TAMU).

- The National Science Foundation (**NSF**) will operate the US-supplied multipurpose drillship **JOIDES Resolution** with enhanced capabilities since its refurbishment in 2008;
- The Japanese Ministry of Education, Culture, Sports, Science and Technology (**MEXT**) and the Japanese Agency for Marine-Earth Science and Technology (**JAMSTEC**) will operate the riser-drilling-capable **Chikyu** for ultra-deep drilling in the ocean crust, the underlying mantle, and subduction zone environments;
- The European Consortium for Ocean Drilling Research (**ECORD**) will operate **Mission-Specific Platforms (MSP)** chartered on a specific project basis for drilling in technically challenging conditions, including high latitudes and shallow-water environments.

Long-term borehole observatories provide data through which generations of researchers can build on the legacy of scientific ocean drilling, collecting new samples and deploying new instruments as technology and ideas change.

The **European Consortium for Ocean Research Drilling (ECORD)** was created by 12 countries in 2003 to join the international IODP programme as a single member. ECORD co-ordinates the European contribution to this programme with the initiation of the mission-specific platform concept. The scientific and operational accomplishments of ECORD within IODP have been prolific and of high quality, and recognised by our global partners as a crucial contribution to the largest marine geosciences programme in the world. ECORD now has 18 member countries, with Poland as the most recent member.

This **ECORD MEMORANDUM OF UNDERSTANDING** (hereinafter the ECORD MoU) defines how through its partnership with the USA and their associate members, and with Japan, ECORD will play a major role in the construction and operation of the **International Ocean Discovery Program**.

ECORD will sign a Memorandum of Understanding with NSF that includes access to the *JOIDES Resolution* for ECORD scientists and in reciprocity access to MSPs for US scientists and scientists from *JOIDES Resolution* Members and Associate Members.

ECORD will sign a Memorandum of Understanding with MEXT that includes access to the *Chikyu* for ECORD scientists and in reciprocity access to MSPs to Japanese scientists through a berth exchange mechanism between those two platforms.

The new framework of the **International Ocean Discovery Program** <http://www.iodp.org/new-program-international-ocean-discovery-program> gives more independence to the Platform Providers and more funding flexibility (see Annex A: IODP and ECORD Principles and Annex B: ECORD Structure) and therefore represents an excellent opportunity to raise ECORD's profile and visibility, and better serve the community in Europe, Canada and Associate Partners.

More independence at the consortium level, and in particular in the implementation of MSP expeditions, has required to reshape ECORD to reflect the new IODP architecture.

The operation of the ECORD MoU will be achieved through Annexes detailing:

- **Annex A: IODP and ECORD Principles**
- **Annex B: ECORD structure**
- **Annex C: ECORD Council**
- **Annex D: ECORD Managing Agency (EMA)**
- **Annex E: ECORD Science Support and Advisory Committee (ESSAC)**
- **Annex F: ECORD Science Operator (ESO)**

- **Annex G: ECORD Executive Bureau (E-EB)**
- **Annex H: ECORD Facility Board (E-FB)**
- **Annex I: ECORD Industry Liaison Panel (E-ILP)**
- **Annex J: ECORD Task Forces**
- **Annex K: ECORD membership and financial contribution**

ECORD acknowledges that IODP is, in principle, a 10-year programme. However, this ECORD MoU anticipates that a 5-year review of the effectiveness of ECORD membership will be implemented.

ECORD Membership is defined in terms of signatories to the current ECORD Memorandum of Understanding and the criteria for membership of the ECORD Council set out in the Annex C.

This Memorandum of Understanding comes into effect when members have signed.

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING of European and Other Funding Organisations on Membership and Operation of ECORD in the International Ocean Discovery Program (IODP)

Annex A: IODP and ECORD Principles

- **IODP Principles**

The new programme architecture and management system were developed by the International Working Group+ (IWG+), a committee composed of representatives from all Integrated Ocean Drilling Program funding agencies.

The **International Ocean Discovery Program** will have a simplified funding model that will provide better value-for-money than the current Integrated Ocean Drilling Program.

The architecture of the International Ocean Discovery Program will maintain an overarching international umbrella and an international scientific evaluation system, but will allocate more independence to the Platform Providers (*see Fig. 2, page 8*).

- The **Science Plan “Illuminating Earth’s Past, Present and Future”** is the guiding scientific document for the International Ocean Discovery Program.
- The **IODP Forum** will be the custodian of the Science Plan and a venue for exchanging ideas and views on the scientific progress of the programme, and will also provide advice to IODP Facility Boards on Platform Provider activity. Members will include active community scientists and representatives from the funding agencies (to any platform), the Implementing Organizations (IOs) and the Program Member Offices (PMOs).
- A **Support Office**, funded through contributions to the U.S. Facility Board to support *JOIDES Resolution* operations, will support primarily the Science Advisory Structure (SAS) and the IODP Forum, and will handle drilling proposals for the *JOIDES Resolution*, *Chikyu*, and Mission-Specific Platforms.
- The **Science Advisory Structure (SAS)** will include the Proposal Evaluation Panel (PEP), the Environmental Protection and Safety Panel (EPSP) and the Site Characterization Panel (SCP). The PEP, SCP and EPSP representatives will be staffed by the Program Member Offices using a quota system based both upon national/consortia contributions to the operations of the *JOIDES Resolution* and the overall programmatic contributions.
- The **Proposal Evaluation Panel (PEP)** will be the key scientific panel that integrates the programme and ensures scientific excellence in accordance with the Science Plan of IODP. The Proposal Evaluation Panel will forward all approved proposals to the appropriate Facility Board(s) for future project consideration.

- Nations supporting platform(s) towards IODP Science Plan goals may have **berths** on *JOIDES Resolution*, *Chikyu*, MSP expeditions and other platforms through an exchange programme agreed upon bilaterally between individual Platform Providers.
- Individual **Platform Providers** contribute to IODP by fulfilling objectives identified in the Science Plan. NSF will operate the *JOIDES Resolution* as an independent Platform Provider. ECORD will operate Mission-Specific Platforms as an independent Platform Provider. MEXT/JAMSTEC will operate the *Chikyu* as an independent Platform Provider.
- Each Platform Provider will have its own **Facility Board (FB)** that will be responsible for the effective delivery of the Facility's contribution to the IODP Science Plan with the available resources.

The architecture of the International Ocean Discovery Program is shown below (Fig. 2).

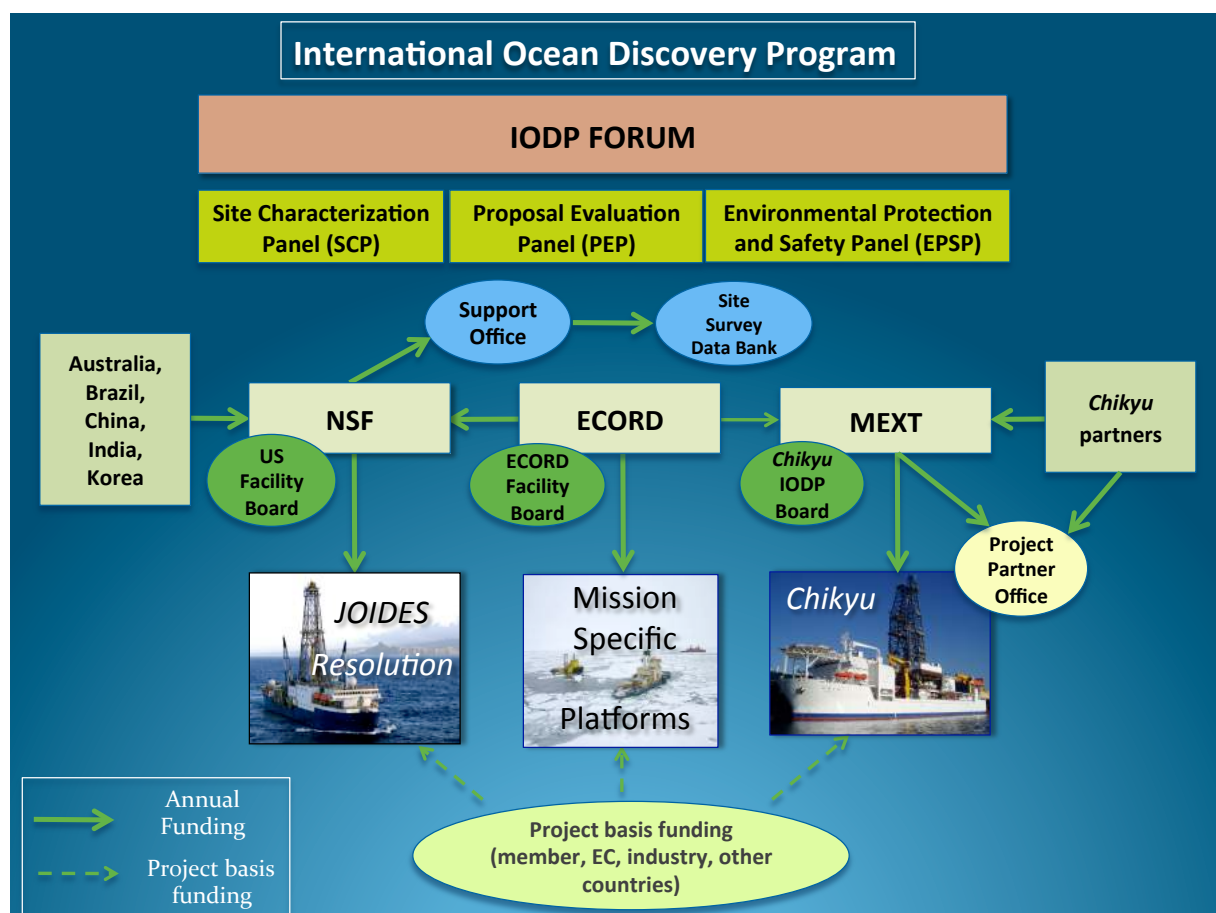


Fig. 2: Architecture of the International Ocean Discovery Program

• ECORD Principles

This section details the ECORD Principles in the International Ocean Discovery Program, including management, membership, responsibilities and rights, and operations. The ECORD Principles defined at the start of the Integrated Ocean Drilling Program have been updated to fit with the new structure of the International Ocean Discovery Program and to operate ECORD in a more autonomous way.

ECORD aims to maximise the scientific excellence of the International Ocean Discovery Program and to ensure the high impact of science and engineering innovations, collaboration and technology transfer. ECORD will ensure that within the science programme, high priority is given to the ECORD member countries' relevant strategic science with socio-economic impacts.

• Management

- The European Consortium for Ocean Research Drilling (ECORD), formed in 2002 through a concerted action of the European scientific community together with funding agencies, is maintained for the period 2013-2023.
- The **ECORD Council** will be the governing body for ECORD and provide oversight for all ECORD activity.
- The **ECORD Executive Bureau (E-EB)** will act as the ECORD Executive entity between the meetings of the ECORD Council.
- The ECORD Council designates an **ECORD Managing Agency (EMA)** to act as a single voice for the ECORD members in the International Ocean Discovery Program. The ECORD Managing Agency will be an ECORD entity.
- The **ECORD Science Support and Advisory Committee (ESSAC)** will be responsible for the science planning and co-ordination. The ECORD Science Support and Advisory Committee will be an ECORD entity supported by a Science Office.
- The ECORD Council appoints an **ECORD Science Operator (ESO)** as the Mission-Specific Platform Implementing Organization (IO) for the International Ocean Discovery Program. The ECORD Science Operator will be an ECORD entity contracted by the ECORD Managing Agency.
- The ECORD Science Operator will be in charge of contracting Mission-Specific Platforms and related scientific support, and will operate in the best interest of the International Ocean Discovery Program and all its member organisations, without preference. The ECORD Managing Agency will provide funds directly to the ECORD Science Operator for Mission-Specific Platform science and operational costs.
- The **ECORD Facility Board (E-FB)** will be the key planning forum for the Mission-Specific Platform (MSP) expeditions by providing operational and management oversight of those expeditions.
- Through appropriate formal arrangements, and as defined in the NSF-ECORD Memorandum of Understanding, the ECORD Managing Agency will make financial contributions to the US National Science Foundation for access to the drilling vessel *JOIDES Resolution*.
- Through appropriate formal arrangements, and as defined in the MEXT-ECORD Memorandum of Understanding, the ECORD Managing Agency will make financial contributions to the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) for access to the drilling vessel *Chikyu*.

• Membership

- ECORD membership is available to European (EU and non-EU) governmental and/or national agencies (or their representatives). Organisations from non-European countries may be invited to join the Consortium upon request.

- Membership is defined by a Memorandum of Understanding between each member and the ECORD Managing Agency.

- **Intellectual Property Rights**

The Intellectual Property Rights (IPR) associated with participation in ECORD will be governed by European Commission (EC) IPR arrangements.

- **Financial structure**

- ECORD will join the International Ocean Discovery Program as a single entity and, as such, will sign through the ECORD Managing Agency a Memorandum of Understanding with the US National Science Foundation and a Memorandum of Understanding with the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT).
- To be a member of ECORD and have voting rights on the ECORD Council, a member must contribute according to their scientific interests and funding commitments with a defined annual minimum membership fee that has been agreed with the ECORD Managing Agency (EMA). This contribution has to be a cash contribution. Funding contributions to ECORD for the first year and projections for the first 5 years are detailed in Annex K. Fiscal years will be aligned on calendar years.
- ECORD members may increase their contribution on a project basis.
- When a full cash contribution has been made, ECORD members may offer additional in-kind contributions to implement a Mission-Specific Platform expedition, such as the provision of a ship or any equipment required for the relevant expedition. The ECORD Council, in consultation with the ECORD Science Operator, will decide on the suitability of the in-kind offer and the level of financial contribution represented by the offer.
- Additional funding will be sought from the European Commission through applications to the European Infrastructure and research funding programmes.

- **Responsibilities and rights**

- ECORD Members will receive benefits in direct proportion to their financial contributions.
- ECORD Members will have the responsibility to **(a)** actively participate in all aspects of the International Ocean Discovery Program, **(b)** ensure publication and sharing of scientific results with proper credit to ECORD and **(c)** participate in providing data and proposals for planning of drilling programmes etc..
- Each ECORD member will be represented by one delegate on the ECORD Council and one delegate on the ECORD Science Support and Advisory Committee.
- ECORD members will have the right to **(a)** apply to participate to all expeditions of the International Ocean Discovery Program, **(b)** apply to represent ECORD on all planning and advisory panels, **(c)** have access to data, samples, scientific and technical results following expedition moratorium principles and **(d)** submit proposals to the advisory structure for drilling or engineering developments in support of IODP science. Benefits will be allocated to give the best return for ECORD, as a whole, as such individual member benefits may not be directly proportional

to contributions for an individual year. Increased participation on an expedition may be acceptable if this is balanced by reduced participation in other expeditions.

- Participation in drilling expeditions and on IODP panels will be calculated in direct proportion to the financial contributions of ECORD members. ESSAC, in consultation with EMA, shall annually review the distribution and make recommendations in view of the above target ratio and of specific drilling interests. Any extra contribution (in cash or in-kind) from an ECORD member to a Mission-Specific Platform expedition will provide additional rights to the relevant ECORD member for the relevant expedition. The ECORD Council will define the additional rights, in consultation with the ECORD Science Operator.
- SAS membership shall reflect the financial contribution of each participating country over a rolling three-year period. Normally all ECORD representatives on SAS shall serve for a three-year period and may not be re-appointed for a second consecutive term.

• **Mission-Specific Platform operations**

- ECORD will be responsible for funding and implementing Mission-Specific Platform operations for the International Ocean Discovery Program as an independent Platform Provider.
- ECORD will endeavour to ensure that an appropriate budget will be committed to Mission-Specific Platform operations with the aim to implement on average one expedition per year for the period 2014-2023 (calendar years). In addition to its own funding, ECORD will encourage and help the proponents to seek additional funding sources on a project basis, with the aim to offer more opportunities. Possible additional funding may come, *inter alia*, from the European Commission, partnership with industry and specific funding at the national level.
- 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.

• **Financing of the ECORD entities**

The ECORD Managing Agency (EMA) (*see Annex D*), the ECORD Science Support and Advisory Committee (ESSAC) (*see Annex E*) and the ECORD Science Operator (ESO) (*see Annex F*) will be funded by the ECORD Council, based on an agreed workplan, provided by EMA, which will include ESO and ESSAC workplans and annually agreed budgets. New funding sources such as in-kind contributions and additional funding from new sources, *e.g.* new members, industry, funding organisations, Research Infrastructure resources, will be considered in ECORD's overall programme finance plan.

○ **ECORD Managing Agency (EMA)**

The budget of the ECORD Managing Agency (EMA) is defined by the proposal at Annex D and will be reviewed annually by the ECORD Council.

EMA will act as the banker for ECORD and be the organisation responsible for managing all money flows (*see Annex B*). EMA will receive funds from ECORD members and other funding organisations, and distribute ECORD funds to IODP partners as defined in the Memoranda of Understanding.

The ECORD funding organisations will fund the activities of EMA from pooled funds before making contributions to IODP partners.

EMA will manage cash flow as detailed in tasks under Annex D of this ECORD MoU.

- **ECORD Science Support and Advisory Committee (ESSAC)**

EMA will advise the ECORD Council on reasonable funding levels to support the ECORD Science Support and Advisory Committee (ESSAC), including a Science Office to support ESSAC and a financial compensation for the ESSAC Chair. Indicative costs are given in Annex E. The ECORD Council will agree these funding levels on the basis of annual plans submitted by EMA, in accordance with the ECORD Annual Plan.

- **ECORD Science Operator (ESO)**

EMA will advise the ECORD Council on reasonable funding levels to support the activities of the ECORD Science Operator (ESO) as defined in Annex F. The ECORD Council will agree these funding levels on the basis of annual plans submitted by EMA, in accordance with the ECORD Annual Plan.

The ECORD funding organisations will fund the ESO activities from pooled funds before making contributions to IODP partners.

European Consortium for Ocean Research Drilling (ECORD)

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Annex B: ECORD Structure

This section details the new ECORD structure that was developed to face the new challenges and opportunities offered by the new framework of the International Ocean Discovery Program. This new ECORD structure takes also into account the recommendations of the ECORD Evaluation Panel to increase ECORD efficiency and visibility (http://www.ecord.org/pub/ECORD_evaluation-report.pdf).

- The **ECORD Council**, the ECORD funding entity, will co-ordinate a common ECORD approach to IODP policy with membership from European and associate Funding Organisations. The principles by which the ECORD Council will operate its contribution to IODP - the IODP and ECORD Principles - are set out in Annex A. These principles complement the principles agreed internationally for IODP - the New Framework Document (<http://www.iodp.org/new-program-international-ocean-discovery-program>). This common approach will secure an appropriate role in IODP and is anticipated to contribute significantly to the establishment of a European Research Area and future participation in Europe's Research Infrastructures.
- ECORD will be managed by the **ECORD Managing Agency (EMA)**. As the legal entity representing ECORD, EMA will sign a Memorandum of Understanding with the National Science Foundation (NSF) representing the USA and its associate members, and a Memorandum of Understanding with the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT).
- The **ECORD Science Support and Advisory Committee (ESSAC)** is the ECORD Science Committee and is responsible for scientific planning and co-ordination. ESSAC will maximise the scientific and technological contribution of ECORD to IODP, as well as promoting appropriate representation of the ECORD scientific community in the IODP Scientific Advisory Structure (SAS). ESSAC will also advise on requests to the European Commission (EC) and other funding entities to provide funds in support of IODP science and other European IODP-related activities.
- The **ECORD Science Operator (ESO)** will be contracted through EMA and will be the ECORD Mission-Specific Platform (MSP) Implementing Organization for IODP.
- The **ECORD Executive Bureau (E-EB)** will act as the ECORD Executive entity between the meetings of the ECORD Council.

- The **ECORD Facility Board (E-FB)** will be the key planning forum for MSP expeditions through its roles in scheduling MSP drilling proposals and will advise on the long-term planning of ECORD's activities and functions.
- The **ECORD Industry Liaison Panel (E-ILP)** will be composed of representatives from both academia and industry and will form the ECORD link between the scientific community and industry.
- The **ECORD Vision Task Force (E-VTF)** will be the ECORD strategic entity in charge of developing a long-term scientific and funding strategy and monitoring the ECORD progress toward the completion of the IODP Science Plan.
- The **Outreach and Education Task Force (E-OETF)** will co-ordinate ECORD's communication tasks, such as outreach/public information and educational activities related to IODP in ECORD countries.

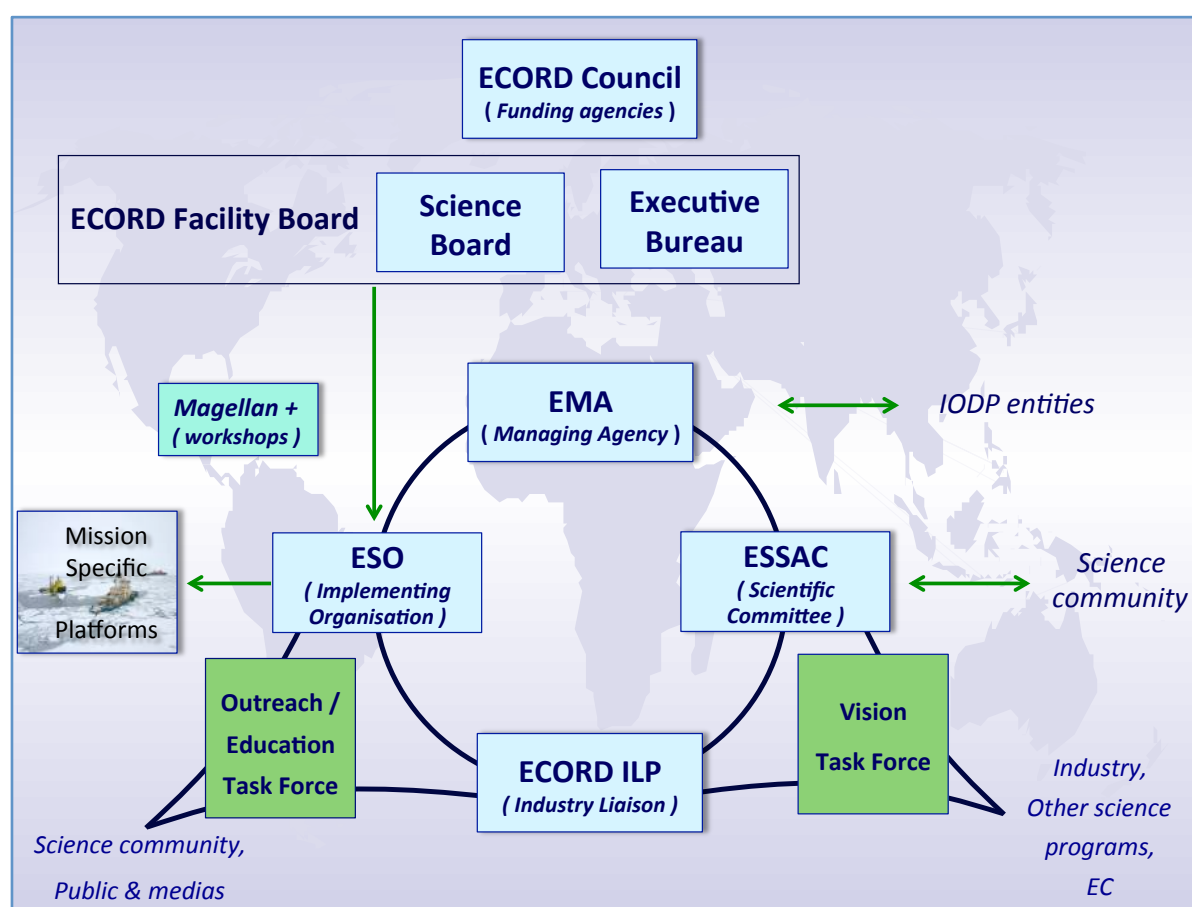


Fig. 3: ECORD structure

The ECORD Council has already agreed to extend the current mandate for EMA (managed by INSU-CNRS in France) and ESO (led by the BGS in the UK) until 2016, to ensure a smooth change-over during the IODP renewal process. After that three-year transition period, these responsibilities will be opened to competition, if necessary.

The structure of ECORD and interactions between the various entities defined for the International Ocean Discovery Program are shown above (Fig. 3) and page 15 (Fig. 4). The component parts are defined in Annexes C to J.

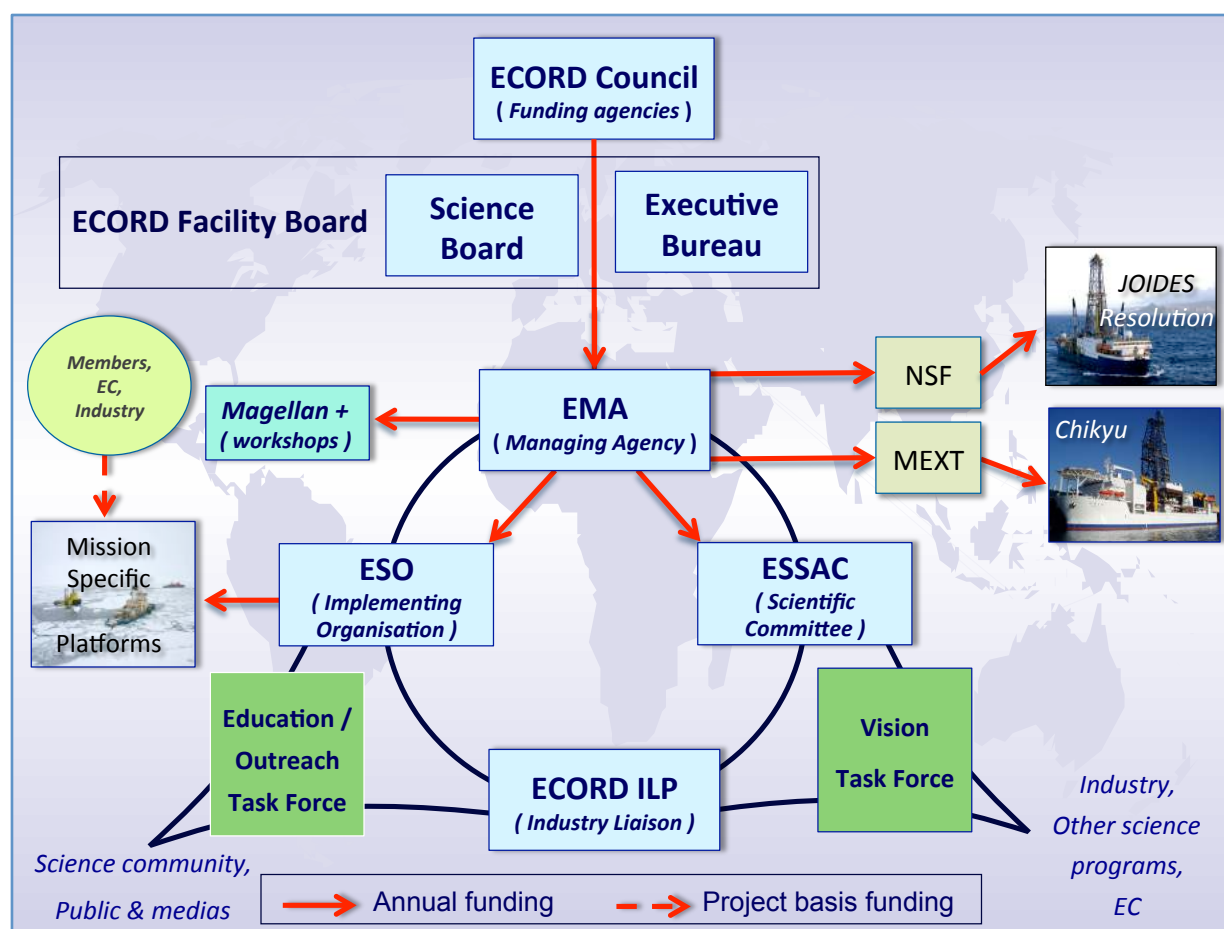


Fig. 4: ECORD structure and money flow

Table B1 : Entities of the ECORD structure

ECORD Council	The ECORD funding entity
	Oversight of ECORD contribution to IODP
ECORD Managing Agency (EMA)	The ECORD management entity
	ECORD representation in all IODP entities; Fund holder for the consortium in IODP; Oversight of ESO and ESSAC
ECORD Science Support and Advisory Committee (ESSAC)	The ECORD science committee
	Scientific planning and co-ordination of ECORD contribution to IODP

Table B1 - continued

ECORD Science Operator (ESO)	The ECORD operational entity
	Implementation of Mission-Specific Platform Operations
ECORD Executive Bureau (E-EB)	The ECORD executive entity
	The ECORD executive entity acting between the meetings of the ECORD Council
ECORD Facility Board (E-FB)	The ECORD planning forum for MSP expeditions
	Scheduling of drilling proposals and advising on the long-term planning of ECORD's activities and functions
ECORD Industry Liaison Panel (E-ILP)	The ECORD link between academia and industry
	Fostering and promoting scientific and technologic collaboration between academia and industry
ECORD Vision Task Force (E-VTF)	The ECORD strategic entity
	Development of a long-term scientific and funding strategy, and monitoring the ECORD progress toward the completion of the IODP Science Plan
ECORD Outreach and Education Task Force (E-OETF)	The ECORD communication entity
	Co-ordination of ECORD outreach/public information and educational activities related to IODP in ECORD countries

European Consortium for Ocean Research Drilling (ECORD)

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Annex C: ECORD Council

- **Purpose**

The ECORD Council will oversee and approve a shared approach to IODP policy with membership from European and associate Funding Organisations.

- **Mandate**

The main tasks of the ECORD Council will be to:

- Implement ECORD as an integrative part of IODP;
- Structure ECORD by (re)defining the mandate and responsibilities of its entities;
- Approve the nominations of ECORD members serving on SAS panels;
- Approve the nominations of the Chair of the Science Support and Advisory Committee (ESSAC) (*see Annex E*), the Chair of the ECORD Facility Board (E-FB) (*see Annex H*) and the Chair of the ECORD Industry Liaison Panel (E-ILP) (*see Annex I*);
- Select and oversee the ECORD Managing Agency (EMA) and the ECORD Science Operator (ESO);
- Take measures to secure sufficient funding for IODP and specifically MSP operations;
- Assure effective planning, management and operation of ECORD;
- Decide to conduct independent reviews of ECORD activities and management.

- **Membership**

- **Delegates**

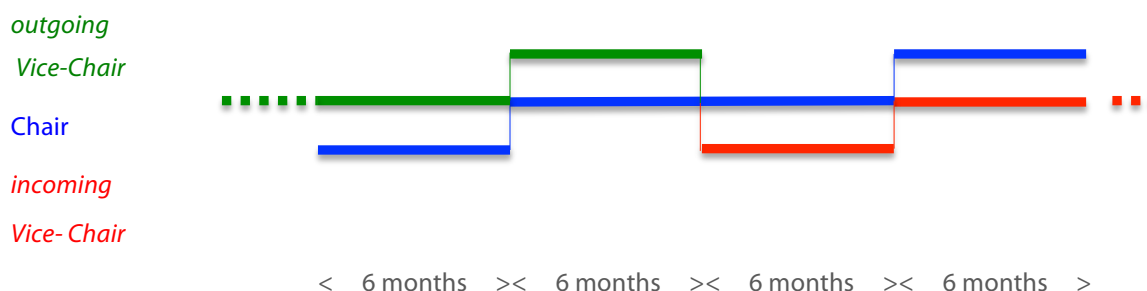
The ECORD Council membership will be restricted to one funding organisation representative for each of the countries that has signed the ECORD MoU. Where a country has more than one funding organisation contributing to ECORD, the country will choose a single ECORD Council Delegate to represent those organisations on the ECORD Council. The funding organisations other than that with the chosen ECORD Council Delegate may, by right, send an observer to both open and closed sessions of the ECORD Council meetings.

Each member will have a single vote on the ECORD Council, qualified by the voting procedure detailed under the section on Council decisions (*page 19*).

A core group consisting of the Chair, the Vice-Chair and three additional Council Delegates will be members of the ECORD Executive Bureau. The three major ECORD contributors (France, Germany and the United Kingdom) will automatically belong to this core group.

- **Chair and Vice-Chair**

The Chair will be appointed for a year. After the end of his/her term, the Chair will become the outgoing Vice-Chair for six months. An incoming Vice-Chair will be then appointed to become the Chair after six months. At any time, there will be a Chair and one Vice-Chair - as shown on the figure below.



Vice-Chairs will rotate at each election among member countries.

The Chair will have a casting vote in situations where voting members are equally divided, unless the Chair is conflicted; in that case, the Vice-Chair (Chair elect) will assume the casting vote.

The Chair will be responsible for conveying the ECORD position at the meetings of the IODP Forum along with the Director of the ECORD Managing Agency.

- **Meetings**

The ECORD Council will normally meet twice a year; additional meetings may be held when necessary.

The ECORD Council meetings will be organised by EMA and may include both open and closed sessions.

Closed Council sessions will be organised at the discretion of the Chair of the ECORD Council and the Director of EMA.

- **Liaisons**

Liaisons will include the Director of EMA and the Chairs of ESO, ESSAC, E-ILP and E-FB at both the open and closed sessions of the ECORD Council meetings. These representatives are invited in an *ex-officio* capacity and will have no voting rights.

○ **Observers**

Observers may include:

- Members of the ECORD Task Forces;
- Representatives from IODP entities, such as funding agencies, the Proposal Evaluation Panel and Facility Boards;
- Representatives of countries expressing an interest to join ECORD;
- Representatives of European funding or research organisations;
- Representatives from non-European countries, which are members of IODP;
- Representatives from science programmes collaborating with ECORD or expressing an interest to collaborate with ECORD;
- other observers who may contribute to the planning and implementation of ECORD and IODP.

Observers will be welcome at the open sessions of the ECORD Council meetings, but may only attend closed sessions by invitation.

• **Decisions**

The decisions to be taken by the ECORD Council will follow the rules listed below:

- The ECORD Council will usually reach decision by general consent, *i.e.* when a motion is not likely to be opposed; reasonable effort will be made to attain a general consent.
- If a motion fails to be approved by general consent, the ECORD Council Chair can decide either to defer further action, or to ask for a standard vote. A motion will be accepted if approved by 75 % of the votes cast at the meeting. Voting will be normally done by 'show of hands'.
- If a motion fails to be approved by a standard vote, the ECORD Council Chair can decide either to defer further action, or to ask for a weighted voting procedure by ballot. The number of votes per Council Delegate will be tied to the annual financial contribution of his/her country:

▪ 5 M\$: 10	▪ < 500-100: 3
▪ < 5M\$-2M\$: 8	▪ < 100-50 k\$: 2
▪ < 2 M\$-500 k\$: 4	▪ < 50 k\$: 1
- Quorum requirements for weighted voting are (a) Representatives of all ECORD major contributors must participate in the voting and (b) the votes to be cast at the meeting must represent 75 % of the theoretical maximum number of votes.
- The Council Chair has the right to defer weighted voting to closed sessions of Council meetings. Deferment of voting to a closed session of the meeting can also be requested by a Council Delegate who is seconded by another Delegate.

- **Amendments**

Amendments to the ECORD MoU or any of its Annexes may be proposed to the ECORD Council by any Member Organisation by giving the Council Chair written notice, and providing a copy to the Director of EMA. The proposed amendment needs to be seconded by another ECORD Council Delegate (from a different country). EMA will inform all Council Delegates of any amendment so notified at least three months before it is discussed in the Council.

If an amendment cannot be adopted with the agreement of all Council Members present at the Council meeting, a majority of 75% of the votes cast will be required for the adoption of an amendment to the ECORD MoU or its annexes. The Director of EMA will inform the Member Organisations of any amendment and of the date of entry into force.

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING of European and Other Funding Organisations on Membership and Operation of ECORD in the International Ocean Discovery Program (IODP)

Annex D: ECORD Managing Agency (EMA)

- **Purpose**

On behalf of the ECORD Council, the ECORD Managing Agency (EMA) will manage the participation of ECORD's members in IODP, represent the link between ECORD and the other IODP members, provide the central services for funds and oversee the other ECORD entities.

EMA will be administered by INSU-CNRS, Paris, France. INSU is a national Institute that has as its central role the co-ordination of national and international programmes and large infrastructure projects in the natural sciences and, in particular, solid earth, ocean, atmosphere and astronomical observations. INSU is part of the CNRS. The Deputy Director for the INSU Solid Earth Sciences will have the specific role of supervising ECORD activities within his/her division and will oversee EMA and facilitate access to the INSU contractual and budgetary offices. INSU will provide financial information updates and relevant budget documentation (e.g. copies of the signed MoUs, invoices, proof of transfer of payments) to EMA.

EMA will have a central office located at the Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement (CEREGE) in Aix-en-Provence. EMA will be staffed with a Director, assisted by an Assistant Director, Secretary and an Outreach and Education Co-ordinator. The staffing may evolve with time.

- **Roles in the IODP Structure**

The EMA Director will be the official contact point for ECORD in all relationships with the IODP Forum, Support Office, the Science Advisory Structure and IODP partners (NSF and its associate members, and MEXT).

The EMA Director will be responsible for conveying the ECORD position at the meetings of the IODP Forum along with the ECORD Council Chair.

On behalf of ECORD members, EMA will sign contracts, a Memorandum of Understanding with NSF and a Memorandum of Understanding with MEXT, on implementation of IODP.

EMA, via INSU-CNRS, will provide ECORD contribution to NSF on annual basis, to cover the operations of the US-supplied riserless vessel *JOIDES Resolution*.

EMA, via INSU-CNRS, will provide ECORD contribution to MEXT on annual basis, to cover the operations of the riser vessel *Chikyu*.

EMA will represent ECORD in all the relevant IODP entities.

EMA will ensure that the public and private liabilities associated with the ECORD contribution in IODP are all understood and that all ECORD sub-structures have the appropriate liability insurances in place.

- **Roles in ECORD**

- **Funding**

EMA, via INSU-CNRS, will pool the funds from all ECORD partners. EMA will prepare and sign the Memorandum of Understanding with ECORD members and will issue requests for a timely contribution of annual funds. The CNRS (via INSU-CNRS) will be the banker for ECORD and will have the financial responsibility for EMA.

EMA will administer the financial contributions from ECORD members and the other funding sources, made in support of IODP:

- On advice of the ECORD Facility Board (E-FB) and the ECORD Council, EMA, via INSU-CNRS, will negotiate an annual contract with and transfer funds to the ECORD Science Operator (ESO). ESO will have the role of implementing the Mission-Specific Platform (MSP) contribution to the IODP science plan and must ensure the appropriate liabilities.
- On advice from the ECORD Council and in negotiation with the Chair of the ECORD Science Support and Advisory Committee (ESSAC), EMA, via INSU-CNRS, will provide funds to support ESSAC.

- **Interaction with other ECORD entities**

EMA will attend the meetings and will oversee the activities of other ECORD entities, *i.e.* ESSAC, ESO, E-FB, the ECORD Industry Liaison Panel (E-ILP) and the ECORD Task Forces (Vision, and Outreach and Education Task Forces). In addition, EMA will organise the meetings of the ECORD Council.

EMA will report regularly to the ECORD Council on its actions and other issues as required.

EMA will provide the ECORD Council with an ECORD programme plan for approval and a budget for each upcoming fiscal year. It will include:

- Support for the EMA, ESO and ESSAC offices;
- Funds provided by ECORD to NSF to support the operations of the US-supplied riserless vessel *JOIDES Resolution*;
- Funds provided by ECORD to MEXT to support the operations of the riser vessel *Chikyu*;
- Funds provided by ECORD to ESO to implement MSP expeditions;
- Support for the MagellanPlus Workshop Series Programme;
- Potential additional items such as the ECORD member cash and in-kind contributions, and the support from European central funds (*e.g.* European Commission contracts).

EMA will provide the ECORD Council and funding sources, when appropriate, with an annual audited financial report.

In co-ordination with ESSAC, EMA will be responsible for maintaining the ECORD archives.

○ **Science and technological strategy**

EMA will seek to extend the consortium to non-member countries.

EMA will implement a funding model in which proponents of expeditions will be encouraged to seek co-funding from other sources, including industry and other funding bodies, such as the European Commission.

EMA, with ESO, will support a pro-active role for technology development for seafloor drills, innovative coring, logging and sub-seabed technology.

EMA, with other ECORD entities and in collaboration with other research entities, will work towards the establishment of a European Infrastructure focussed on sub-surface sampling and observing systems. This network will be fundamental to develop and operate tools with a concerted and cost-efficient approach to maximise scientific outputs. It will also facilitate the technological innovation and the improvement of existing technologies through the sharing of knowledge and experience.

○ **Communication**

EMA will co-ordinate, through the ECORD Outreach and Education Task Force, the ECORD communication activities, specifically:

- In association with ESSAC, EMA will be responsible for organising ECORD workshops and conferences;
- In association with ESO and ESSAC, EMA will be responsible for informing the public and the scientific community of the progress in IODP. This activity will focus on the specific role of ECORD scientists in the programme, including co-ordination of releases in the international press on MSP operations and on the participation of ECORD scientists in IODP.

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING of European and Other Funding Organisations on Membership and Operation of ECORD in the International Ocean Discovery Program (IODP)

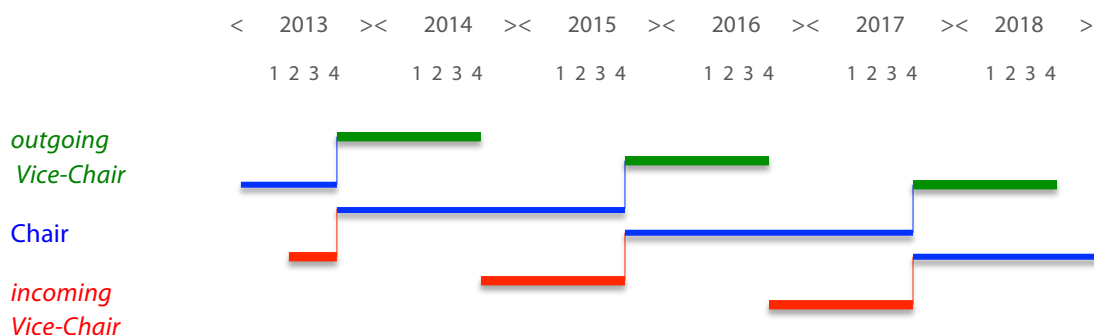
Annex E: ECORD Science Support and Advisory Committee (ESSAC)

• Representation

The ECORD Science Support and Advisory Committee (ESSAC) consists of a national delegate and an alternate from each participating country in the European Consortium for Ocean Research Drilling appointed by the respective Member Organisation(s). Alternates can attend, when in addition to delegates, as non-voting members. Additional non-voting representation may be invited on an *ad-hoc* basis. Terms of office of committee members will be reviewed every three years. It is advised that there is rotation where possible and that no more than one-third of the membership is replaced each year. The first rotation review will be in 2016 after an appointment of 3 years. Terms of office will normally begin in October.

○ Chair and Vice-chair

A Chair and Vice-Chair shall be appointed by the ECORD Executive Bureau (E-EB) and approved by the ECORD Council following an open call, review of applications and nominations by ESSAC. The incoming Chair will serve one year as Vice-Chair followed by two years as Chair and rotates off as Vice-chair during the fourth year as shown below. The Chair cannot serve two consecutive terms. The Chair is responsible for reporting to the ECORD Council and liaising with the ECORD Managing Agency (EMA) and the ECORD Science Operator (ESO).



ESSAC's representation on the ECORD Facility Board (E-FB) should comprise the Chair or the Vice-Chair. In addition, the ESSAC Chair will act as Chair of the ECORD Vision Task Force (E-VTF) organised by EMA.

- **Division of membership benefits**

The IODP assigned quota of Expedition participants granted to ECORD shall reflect the financial contributions of each member country and specific interests of each participating country. ESSAC, in consultation with EMA, shall annually review the distribution effective as of 1 October 2014 and make recommendations in view of the above target ratio and of specific drilling interests.

The delegates and alternates on IODP Science Advisory Structure (SAS) panels shall be designated by ESSAC after an open call and recommendations from national offices and shall be approved by the ECORD Council. SAS membership shall reflect the financial contribution of each participating country over a rolling three-year period. Normally all ECORD representatives on SAS shall serve for a three-year period and may not be re-appointed for a second consecutive term.

- **Obligations of ESSAC delegates**

- To ensure that all IODP and ECORD meetings are attended by the delegates or by their alternates. If neither can participate, the relevant committee shall be informed and, if possible, a substitute nominated.
- To ensure that the scientific interests of ECORD as a whole are presented by whoever attends SAS meetings on behalf of ECORD.
- To ensure that minutes of meetings are distributed to the national alternates and ECORD representatives.
- To attend ECORD workshops and to report to ESSAC when requested.

- **Voting**

A quorum will be required before decisions can be taken. There is no power of attorney for absent members. A quorum will require the presence of a majority of the members. Where possible, ESSAC shall proceed by consensus; if this is impossible, there shall be a majority vote. Each delegate present has one vote and the Chair has a casting vote. If no decision is reached, the issue will be passed to the ECORD Council.

- **Secretariat**

The ESSAC office shall be funded from the ECORD budget. It shall rotate, on a two-year basis, with the Chair of ESSAC. The budget shall be sufficient to provide for a Science Co-ordinator with a scientific background, the full cost of maintaining an office and resources to compensate the Chair.

- **Tasks**

ESSAC is responsible for the scientific planning and co-ordination of Europe's contribution to and participation in IODP. The main purpose of ESSAC will be to maximise ECORD's scientific and technological contribution to IODP.

ESSAC is responsible for (not in priority order):

- Advising ECORD funding organisations on IODP issues;
- Interacting with the appropriate IODP bodies, in particular the IODP scientific bodies;

- Reporting to the ECORD Council;
- Liaising with EMA and ESO;
- Assisting and advising EMA on the formulation of proposals for funding European-related infrastructure;
- Assisting and advising EMA on extending the scientific community of the consortium to non-member countries;
- Involvement in the ECORD Executive Bureau (E-EB) and the ECORD Facility Board (E-FB) to provide advice on ECORD science priorities and long-term scientific planning in accordance with the IODP Science Plan;
- Involvement in the evaluation of applications of scientists to participate in the E-FB;
- Involvement in the E-VTF to assist and monitor the ECORD scientific strategy;
- Responding to the ECORD Council on requests for evaluation of its activities and initiation of evaluations of the European scientific input to IODP;
- Nominating representatives (delegates and alternates) on Science Advisory Structure (SAS) panels;
- Co-ordinating expedition applications, nominating shipboard participants and reviewing quotas of shipboard scientists between participating countries;
- Initiating and monitoring workshops on specific scientific themes and syntheses of European IODP programmes;
- Providing stimulation and guidance for the writing of drilling proposals in accordance with the IODP Science Plan and encouraging IODP-related activities among participating countries;
- Encouraging (a) innovative science and technology development, and (b) the formulation of long-term integrated IODP studies;
- Co-ordinating ECORD training, education and outreach programmes, through the evaluation of applications and the funding of ECORD Grants, ECORD Schools, ECORD Scholarships and the Distinguished Lecturer Programme;
- Assisting and advising EMA and ESO on public outreach.

• **Proceedings**

ESSAC shall meet twice a year, or at the request of one-fourth of the members, the ECORD Council or the ESSAC Chair. The ordinary agenda shall include:

- Reports from recent SAS meetings;
- Staffing nominations, progress and evaluation;
- Planning of ECORD initiatives for forthcoming SAS meetings;
- Reports from completed expeditions;
- Any other tasks.

ESSAC can implement working groups and define their terms of reference.

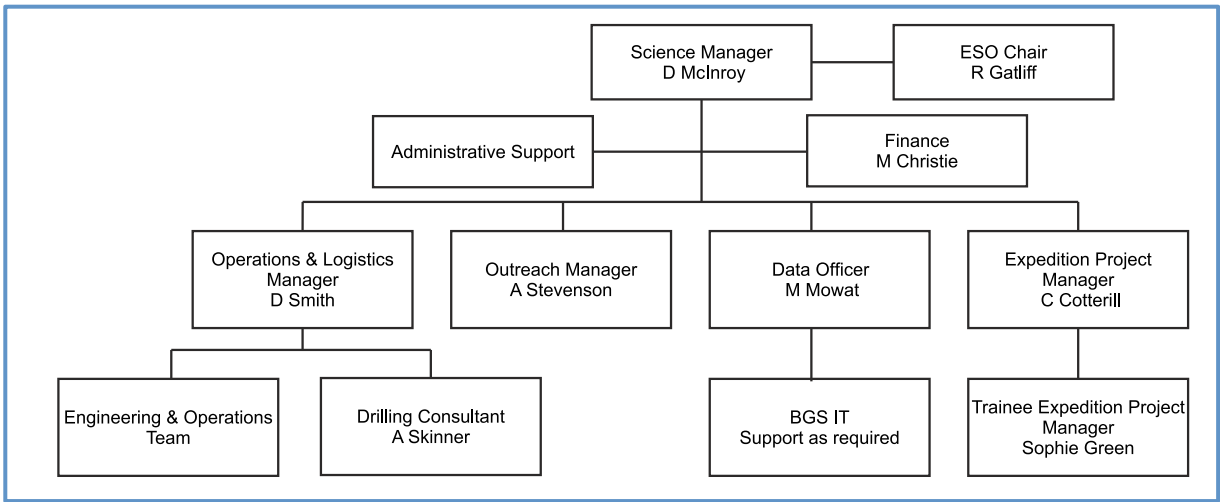


Fig. 6: Organisational chart of the ECORD Science Operator at the British Geological Survey

The **European Petrophysics Consortium (EPC)** will be contracted by BGS to carry out logging and petrophysical activities (Fig. 7).

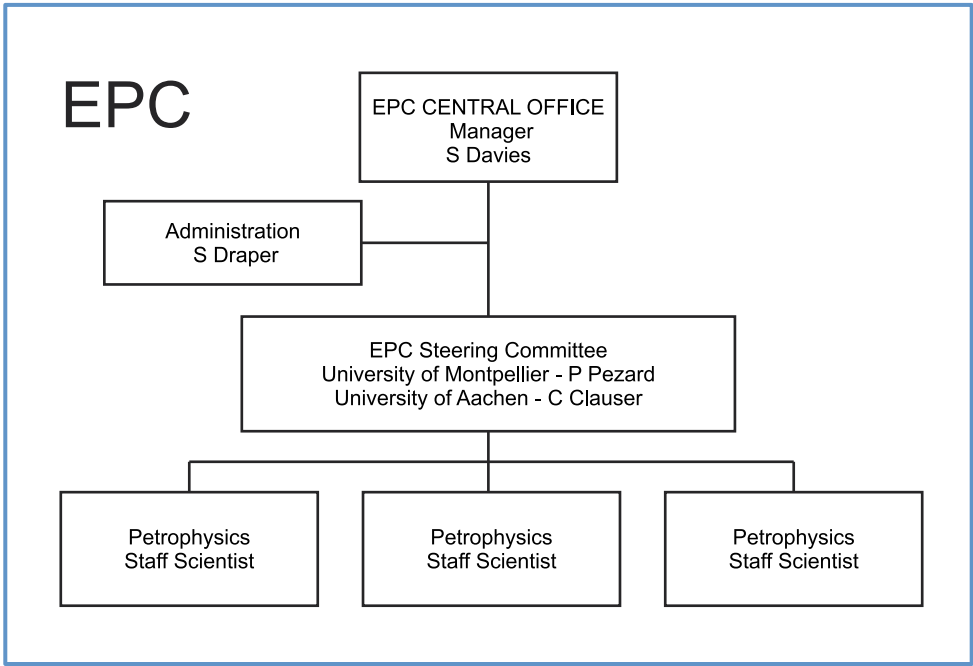


Fig. 7: Organisational chart of the European Petrophysics Consortium

The **University of Bremen** will be contracted by BGS to carry out curation and data management tasks (Fig. 8, page 29).

BGS will contract other organisations on behalf of ESO as required by the IODP annual science and operations plan.

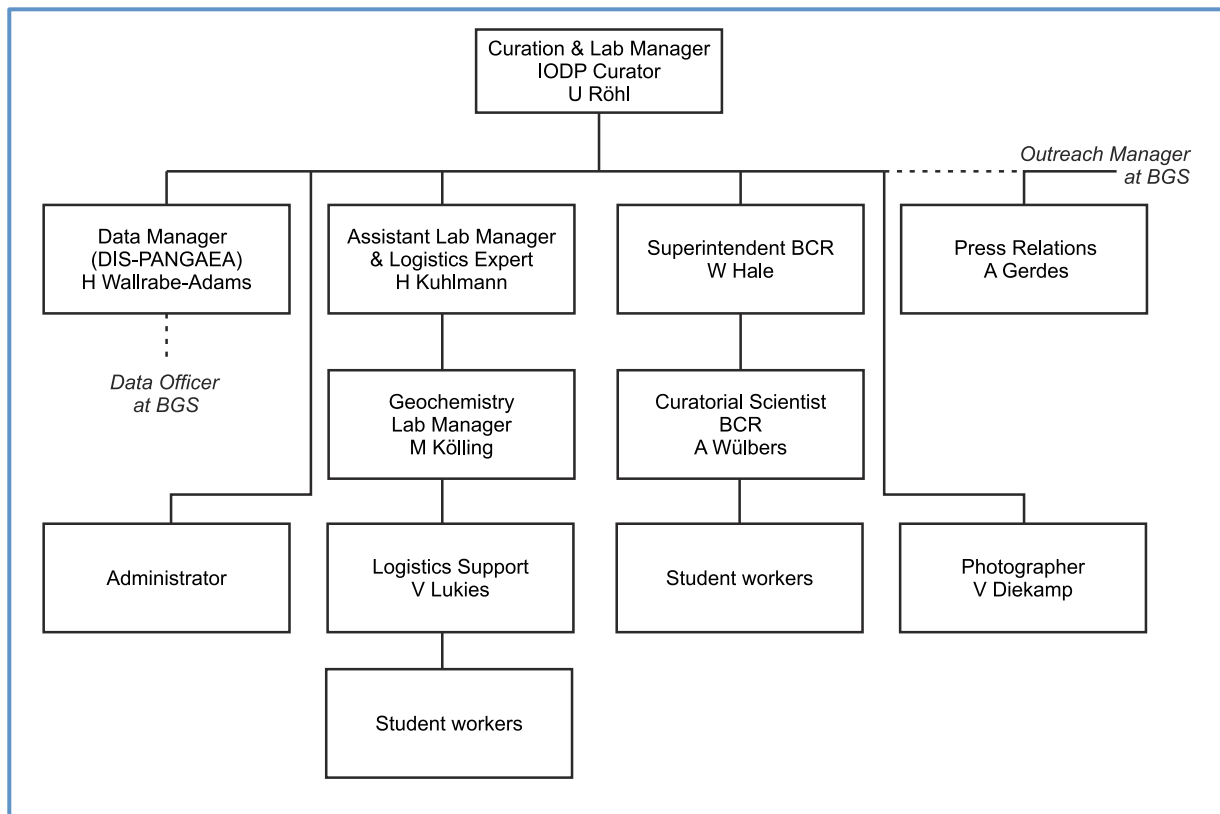


Fig. 8: Organisational chart of the ECORD Science Operator at the University of Bremen

• Interactions with other ECORD entities

ESO will report to EMA on an as-needed basis, but as a minimum every six-months. Communication between ESO and EMA will be very frequent. As will be defined in the contract between EMA and ESO, EMA, on behalf of the ECORD Council, is the only body authorised to direct ESO.

ESO will submit to EMA an annual workplan, including an estimated budget, for the consideration of the ECORD Council. This workplan will be prepared in consultation with all relevant IODP bodies, the ECORD Facility Board (E-FB) and EMA. Once agreed, the annual workplan is the definitive statement of work and can only be changed through a written contract variation.

BGS will, on behalf of ESO, receive monies from EMA and subsequently disburse these as appropriate both within ESO and to contractors in accordance with approved public financial management practice.

ESO will report directly to the ECORD Council when requested by the ECORD Council Chair or Vice-Chairs, but the normal channel of communication will be through EMA.

ESO will participate in the ECORD Executive Bureau (E-EB), the ECORD Facility Board (E-FB), the ECORD Outreach and Education Task Force (E-OETF), the ECORD Industry Liaison Panel (E-ILP) and the ECORD Vision Task Force (E-VTF).

ESO will report to the E-FB on at least an annual basis and more frequently if requested.

ESO will be an observer at all ESSAC meetings, and will advise ESSAC on ESO actions and plans.

ESO will contribute to the Annual ECORD Plan as required.

ESO undertakes to provide guidance to all IODP prospective drilling proponents who require MSPs to carry out their proposals.

- **Interactions with IODP entities**

ESO will undertake to implement MSP operations as prioritised by the E-FB and carry out all logistics as required by the IODP ECORD Member Memorandum and IODP Principles.

ESO will communicate regularly with other IODP IOs and attend IO meetings.

ESO will act as an observer on relevant Science Advisory Structure (SAS) panels and committees, and will report to such panels and committees as requested.

ESO will organise the ECORD Technology Panel (E-TP) on a project specific basis to support developments associated with MSP expeditions.

- **Communication**

ESO will communicate regularly and as required with the European IODP science community, partly through ESSAC and ECORD Council sponsored events.

ESO recognises the importance of outreach and education in the IODP programme, and all its component organisations will take responsibility in their area of specialisation. ESO will co-operate with ECORD, ESSAC, EMA and IODP bodies in outreach and education programmes as they affect MSPs.

- **Mission-Specific Platform operations**

ESO will undertake all aspects of MSP operations for IODP in accordance with agreed procedures. ESO and/or EMA shall be a party to the formulation of the procedures.

Such activities will be: operational and scientific planning, engineering development, platform and equipment procurement, contracting, essential training of personnel, safety surveys, data management, curation, shore-sampling parties, publications, outreach and other related pre-, intra- and post-operational activities.

ESO will undertake the staffing of MSP scientific parties in consultation with the Program Member Offices (PMO), USSAC, J-DESC and ESSAC.

ESO will, where required and appropriate, align its procedures with those of IODP, notably in data management, minimum measurements and publications.

ESO will, in common with other IOs, observe best practice in Health, Safety and Environmental issues.

ESO will obey appropriate international standards and undertake all operations according to programme management procedures.

ESO will ensure compliance with international and national regulations and obligations.

- **Logging and Petrophysics (EPC)**

The European Petrophysics Consortium (EPC) comprises a consortium of the University of Leicester (Co-ordinator), Université de Montpellier and RWTH Aachen University.

On behalf of ESO, and as directed under the contract, EPC will provide appropriate staff and facilities to enable and integrate all aspects of the acquisition, management and distribution

of petrophysical measurements on core and downhole petrophysical measurements resulting from IODP MSP operations.

EPC will be responsible for maintaining and developing petrophysical shore-based support facilities and training as required by the scientific community and as mandated by the IODP ECORD Member Memorandum and IODP Principles.

EPC will sub-contract services as required.

- **Curation**

The University of Bremen will undertake, as directed under the contract, to provide ESO with curatorial services and appropriately staffed ship- and shore-based laboratory facilities as required by each MSP operation.

The University of Bremen will manage a core repository for geographically selected IODP cores and provide appropriate facilities under IODP Principles.

The University of Bremen will also contribute data management services using the World Data Center for Marine Environmental Sciences (WDC-MARE) Pangaea Network to ESO.

The University of Bremen will sub-contract services as required.

- **Annual Workplan**

ESO will provide facilities and staff to ensure the maintenance of capability in science operations for ECORD on a year-by-year basis, irrespective of carrying out any MSP operations. This capability will include:

- Consultation with the IODP SAS and ESSAC;
- Co-operation with other IOs;
- Preparation of annual plans for ECORD;
- Communication with EMA and demonstrating accountability to ECORD Council;
- Advise on engineering developments.

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING of European and Other Funding Organisations on Membership and Operation of ECORD in the International Ocean Discovery Program (IODP)

Annex G: ECORD Executive Bureau (E-EB)

- **Purpose**

The ECORD Executive Bureau (E-EB) will act as the ECORD Executive entity between the meetings of the ECORD Council.

- **Mandate**

The main tasks of the E-EB will be to:

- Prepare the meetings of the ECORD Council;
- Participate in the ECORD Facility Board (E-FB) (*see Annex H*);
- Participate in the ECORD Vision Task Force (E-VTF) (*see Annex J*);
- Nominate the Chairs of the Science Support and Advisory Committee (ESSAC) (*see Annex E*), of the ECORD Facility Board (E-FB) (*see Annex H*), and of the ECORD Industry Liaison Panel (E-ILP) (*see Annex I*) before approval by the ECORD Council;
- Assess the ECORD programme plan prepared by the ECORD Managing Agency (EMA) (*see Annex D*) for approval by the ECORD Council;
- Oversee the MagellanPlus Workshop Series Programme.

- **Membership**

The E-EB will consist of the Chair and the Vice-Chair of the ECORD Council, the three additional Council Delegates belonging to the Council core group defined in Annex C, the Director of EMA, the Chairs of ESO, ESSAC and E-ILP.

- **Meetings**

The E-EB will normally meet twice a year. However, additional meetings including electronic meetings, may be held when necessary.

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING of European and Other Funding Organisations on Membership and Operation of ECORD in the International Ocean Discovery Program (IODP)

Annex H: ECORD Facility Board (E-FB)

- **Purpose**

The ECORD Facility Board (E-FB) will be the key planning forum for the Mission-Specific Platform (MSP) expeditions by providing operational and management oversight of those expeditions, approving the expedition section of the Annual ECORD Plan and advising on the long-term planning.

- **Mandate**

The main tasks of the E-FB will be to:

- Determine the operations schedule for MSP expeditions to implement high-priority science proposals forwarded to the E-FB by the Proposal Evaluation Panel (PEP), based upon science priorities, optimal geographic distribution and costs;
- Approve the expedition section of the Annual ECORD Plan, which will include the following elements associated with the Mission-Specific Platform operations: operations schedule, data management, publications, core curation, and engineering and scientific technical development;
- Advise on long-term planning of MSP expeditions.

- **Membership**

The ECORD Facility Board will include the members of the **ECORD Executive Bureau** (E-EB; see *Annex G*) and a **Science Board** defined below.

- **Science Board**

The Science Board will consist of five leading scientists from any country funding IODP. They will be nominated by the E-EB and their nominations will be approved by the ECORD Council, based on the recommendations provided by the ECORD Science Support and Advisory Committee (ESSAC) following an open nomination process. The Science Board members will be selected to serve on the E-FB on 3-year staggered rotations.

Chair

The Chair of the E-FB will be an ECORD scientist selected for his/her scientific and managerial leadership. The Chair is expected to attend meetings of the PEP, IODP Forum and selected international scientific conferences.

The Chair shall serve two years and will be nominated by the E-EB and his/her nomination is approved by the ECORD Council.

The Chair will be provided with logistical support through EMA.

• Meetings

The meetings of the E-FB will be organised by EMA.

The E-FB will convene once annually to execute its mandate, but additional meetings may be organised as appropriate.

The E-FB will commence no later than the beginning of calendar year 2013.

In addition to the E-EB members and the E-FB Science Board defined above, representatives from the ECORD Science Operator (ESO) and representatives from IODP funding agencies will be invited to the E-FB meetings.

The E-FB will have liaisons from all major entities of IODP including:

- The Chair of the IODP Forum or his/her nominated representative;
- The Chair of the PEP or his/her nominated representative;
- The Chair of the IODP Support Office;
- Representatives from other Platform Providers.

Observers will normally include representatives from Program Member Offices (PMO), additional representatives from Funding Agencies and/or Platform Providers. Guests who may contribute to the E-FB activities will be invited as appropriate.

All potential conflicts of interest will be declared at the start of every meeting, or at an otherwise appropriate time during the meeting.

Members of the E-FB or other meeting attendees determined as having a conflict of interest regarding an MSP-related proposal should not be present when the relevant proposal is evaluated, considered for ranking, ranked, considered for scheduling, or scheduled.

• Decisions

The E-FB will usually reach decision by general consent, *i.e.* when a motion is not likely to be opposed. Reasonable effort will be made to attain a general consent. If a motion fails to be approved by general consent, the Chair of the E-FB can decide either to defer further action, or to ask for a standard vote involving only the Science Board members. A motion will be accepted if approved by the majority of the votes cast at the meeting. Voting will be normally done by 'show of hands'.

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING of European and Other Funding Organisations on Membership and Operation of ECORD in the International Ocean Discovery Program (IODP)

Annex I: ECORD Industry Liaison Panel (E-ILP)

- **Purpose**

The ECORD Industry Liaison Panel (E-ILP) will act as a link between academia and industry to promote scientific and technologic collaboration.

- **Mandate**

The main tasks of the E-ILP will be to:

- Provide support and offer guidance to the academic community for meeting industrial and related scientific objectives;
- Identify topics of interest to the industrial community that might be initiated by industrial members but developed jointly with academics;
- Facilitate mutual communication and cooperative scientific activities between ECORD and related industries;
- Maximise economic benefits from sharing resources (e.g. manpower, drilling of sites, development of joint drilling and sampling technologies, core and data analysis, improved downhole measurement and observatory capabilities, etc.);
- Participate, through its Chair, in the activities of the ECORD Executive Bureau (E-EB) and of the ECORD Vision Task Force (E-VTF).

- **Membership**

The E-ILP will include representatives from interested industries and representatives from academia with a strong experience of collaboration with industry.

Membership to the E-ILP will be solicited by any ECORD entity and subject to recommendations by the E-EB and approval by the ECORD Council.

- **Chair**

The Chair will be selected by the E-ILP members among the ECORD representatives from academia of this panel and his/her nomination approved by the ECORD Council.

The Chair of the E-ILP will be member of the ECORD Executive Bureau and of the E-VTF. He /she will act as a liaison at the meetings of the ECORD Council to report on the activities of the E-ILP.

The Chair will be provided with logistical support through the ECORD Managing Agency (EMA).

- **Meetings**

The ECORD E-ILP will convene once annually to execute its mandate, but additional meetings may be organised as appropriate.

The E-ILP will commence no later than the first semester of calendar year 2013.

Observers at the meetings of the E-ILP may include the Chair and/or the Vice-Chair of the ECORD Council, the Director of EMA, the Chairs of the ECORD Science Operator (ESO) and of the ECORD Science Support and Advisory Committee (ESSAC).

Guests who may contribute to the activities of the E-ILP will be invited as appropriate.

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING of European and Other Funding Organisations on Membership and Operation of ECORD in the International Ocean Discovery Program (IODP)

Annex J: ECORD Task Forces

- **Introduction**

ECORD will utilise task forces to implement a focused task or activity and/or to provide concrete advice on policy, so that the relevant ECORD committees can proceed with implementation.

The ECORD Task Forces will include representatives from various ECORD entities and guests who may contribute to their activities.

Two ECORD Task Forces have been defined at the start of the International Ocean Discovery Program: the ECORD Vision Task Force (E-VTF) and the ECORD Outreach and Education Task Force (E-OETF). Additional task forces may be appointed on an *ad-hoc* basis when necessary.

- **ECORD Vision Task Force (E-VTF)**

- **Purpose**

The ECORD Vision Task Force (E-VTF) will be the ECORD strategic entity, in charge of identifying long-term scientific, technological challenges and funding opportunities.

- **Mandate**

The main tasks of the E-VTF will be to:

- Identify new scientific challenges;
- Advise the ECORD Science Support and Advisory Committee (ESSAC) on ECORD long-term planning and scientific and operational strategy, including science, technology and partnership;
- Assist the ECORD Managing Agency (EMA) to establish a European infrastructure focussed on sub-surface sampling and observing systems;
- Identify co-funding opportunities (industry, EC, national funding agencies, etc.);
- Plan the relationships with industry and other science programmes and organisations;
- Identify potential new members for the consortium and take the appropriate actions.

- **Membership**

The E-VTF will consist of the Director and the Assistant Director of EMA, the Chair of ESSAC, the Chair and the Outreach Manager of the ECORD Science Operator (ESO) and the Chair of the ECORD Industry Liaison Panel (E-ILP).

The E-VTF will be chaired by the Chair of ESSAC. The Chair of the E-VTF will report to the ECORD Council and to ESSAC.

- **Meetings**

The E-VTF will normally meet immediately prior to the meetings of the ECORD Council; additional meetings may be held when necessary. The meetings of the E-VTF will be organised by EMA.

- **ECORD Outreach and Education Task Force (E-OETF)**

- **Purpose**

The ECORD Outreach and Education Task Force (E-OETF) will be the ECORD communication entity through the promotion of IODP activities and achievements in the ECORD countries, and the co-ordination of outreach/public information and educational activities related to ECORD.

- **Mandate**

The main tasks of the E-OETF will be to:

- Inform the general public and the scientific community about the IODP scientific results and technological advances in ECORD countries;
- Promote ECORD and IODP activities via the ECORD website, information database, publications, reports, exhibition booths, Mission-Specific Platform (MSP) expedition publications and press releases;
- Assist the ECORD Science Support and Advisory Committee (ESSAC) in the Distinguished Lecturer Programme, the organisation of ECORD conferences, workshops, and ECORD Summer Schools and Scholarships;
- Develop educational activities related to IODP expeditions for teachers, pupils and students from ECORD countries.

- **Membership**

The E-OETF consists of the Outreach and Education Co-ordinator, the Director and the Assistant Director of the ECORD Managing Agency (EMA), the Outreach Manager and Public Relations representative of the ECORD Science Operator (ESO), and the Chair and Science Co-ordinator of ESSAC.

The EMA Outreach and Education Co-ordinator will chair the E-OETF.

- **Meetings**

The E-OETF will normally meet twice a year; additional meetings may be held when necessary. The meetings of the E-OETF will be organised by EMA.

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING of European and Other Funding Organisations on Membership and Operation of ECORD in the International Ocean Discovery Program (IODP)

Annex K (I): ECORD Membership and Agreed Financial Contribution

The member elects to be an ordinary member with rights, privileges and financial commitments as defined in this ECORD Memorandum of Understanding (MoU). All cooperative activities under this ECORD MoU, including exchange of technical information, equipment and data, shall be conducted in accordance with international law, as well as the international obligations, national laws and regulations of each party and within the limits of available funds.

The ECORD MoU is not legally binding and will have no effect as a legal or political precedent.

The member wishes to endorse cooperation in the International Ocean Discovery Program (IODP), with commitment, in principal, as an ordinary member to support of the IODP science programme in the period 1 October 2013 to 30 September 2023.

The member will have rights as defined in this ECORD MoU on a pro-rata and equitable basis dependent upon the Memoranda signed by the ECORD Managing Agency (EMA), on behalf of ECORD members, with the IODP partners.

Obligations arising from the ECORD MoU may be terminated by any of the ECORD members giving all other members written notice at least one year in advance.

The members are listed in Table K1, pages 41-42, and the agreed financial contributions of each member in Table K2, page 43.

Each member will sign the ECORD MoU to agree the contributions listed in Table K2.

This ECORD MoU can be altered by written agreement of all ECORD members.

The party signing this ECORD Memorandum of Understanding wishes to support, subject to its budget process, ECORD in the International Ocean Discovery Program (IODP).

	FY14 \$M	FY15 \$M	FY16 \$M	FY17 \$M	FY18 \$M

FOR AND ON BEHALF OF _____

Signature

Date

Name (block capitals)

Position

FOR AND ON BEHALF OF THE ECORD MANAGING AGENCY (EMA)

Signature

Date

Name (block capitals)

Position

Table K1 - List of ECORD funding agencies

Austria	Austrian Academy of Sciences (ÖAW) Helmut Denk, President Herwing Friesinger, General Secretary	Österreichische Akademie der Wissenschaften (ÖAW) Dr. Ignaz Seipel-Platz 2 1010 Wien, Austria
	Austrian Science Fund (FWF) Christoph Kratky, President	Austrian Science Fund (FWF) Sensengasse 1, 1090 Wien, Austria
Belgium	Fonds voor Wetenschappelijk Onderzoek Vlaanderen, Elisabeth Monard, Secretary-General.	Fonds voor Wetenschappelijk Onderzoek Vlaanderen, Egmontstraat 5 1000 Brussels, Belgium
Denmark	The Danish Agency for Science, Technology and Innovation Michael Broberg Palmgren	Danish Agency for Science, Technology and Innovation, Bredgade 40 1260 Copenhagen, Denmark
Canada	Université du Québec à Montréal Anne de Vernal, Chair of the CCOD and Professor at UQAM	Université du Québec à Montréal Centre GEOTOP - UQAM - McGill LP 8888, Succursale Centre-Ville Montréal QL H3C 3P8, Canada
Finland	Academy of Finland Paula Eerola, Chair of the Research Council for Natural Sciences and Engineering	Academy of Finland P.O. Box 131, 00531 Helsinki, Finland
France	Institut National des Sciences de l'Univers - Centre National de la Recherche Scientifique (INSU-CNRS) Jean François Stéphan, Director	INSU-CNRS 3, rue Michel-Ange, BP 287 75766 Paris CEDEX 16, France
Germany	Deutsche Forschungsgemeinschaft (DFG) Peter Strohschneider, President	Deutsche Forschungsgemeinschaft Kennedyallee 40 53175 Bonn, Germany
Iceland	Rannsóknamiðstöð Íslands - The Icelandic Centre for Research (RANNIS) Hallgrímur Jonasson, Director	The Icelandic Centre for Research – RANNIS, Laugavegi 13, 101 Reykjavík, Iceland
Italy	Consiglio Nazionale delle Ricerche (CNR) Luigi Nicolais, President	CNR, Dipartimento Attività Internazionali (DAI), Piazzale Aldo Moro 7 00185 Rome, Italy

Table K1 - continued

Ireland	Geological Survey of Ireland (GSI) Koen Verbruggen	Geological Survey of Ireland Beggars Bush, Haddington Road, Dublin 4, Ireland
Netherlands	Netherlands Organisation for Scientific Research (NWO) Frans Martens, Director of NWO Council for Earth and Life Sciences	Netherlands Organisation for Scientific Research (NWO) Laan van Nieuw Oost Indië 300 2593 CE Den Haag, The Netherlands
Norway	Research Council of Norway Arvid Hallén, Director General,	Research Council of Norway P.O. Box 2700 St. Hanshaugen N-0131 Oslo, Norway
Poland	Polish Geological Institute - National Research Institute Jerzy Nawrocki, Director	Polish Geological Institute - National Research Institute 4, Rakowiecka Street 00975 Warsaw, Poland
Portugal	FCT - Fundação para a Ciência e Tecnologia Miguel Seabra, President	FCT - Fundação para a Ciência e Tecnologia Av. D. Carlos I, 126-2º 1249-074 Lisbon, Portugal
Spain	Spanish Ministry of Science and Innovation Miguel Ángel Quintanilla, Secretary of State for Universities and Research	Ministerio de Ciencia e Innovación (MICINN) C / Albacete 5, 2ª Este 28027 Madrid, Spain
Sweden	Swedish Research Council Mille Millnert, Director General	Swedish Research Council, Västra Järnvägsgatan 3, Box 1035, 101 38 Stockholm, Sweden
Switzerland	Swiss National Science Foundation (SNSF) Martine Vetterli, President of the Research Council	Swiss National Science Foundation (SNSF) Wildhainweg 3 3001 Bern, Switzerland
United Kingdom	Natural Environment Research Council (NERC) Duncan Wingham, Chief Executive	Natural Environment Research Council Polaris House, North Star Avenue, Swindon SN2 1EU, United Kingdom.

Table K2 : Projections of financial contributions (in USD)

	FY14 \$M	FY15 \$M	FY16 \$M	FY17 \$M	FY18 \$M
Austria					
Belgium					
Canada					
Denmark					
Finland					
France					
Germany					
Iceland					
Ireland					
Italy					
Netherlands					
Norway					
Poland					
Portugal					
Spain					
Sweden					
Switzerland					
United Kingdom					
TOTAL					

European Consortium for Ocean Research Drilling (ECORD)

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Annex K (II) – Annual/Multiannual Financial Contribution

(document to be sent to the ECORD Managing Agency upon request)

The party signing this ECORD Memorandum of Understanding will support, subject to its budget process, ECORD in the International Ocean Discovery Program (IODP) with a total contribution of _____ United States dollars (U.S. \$ _____) or any other currency to be specified _____ (_____) in cash for the period 1 January 20__ to 30 December 20__.

Payment shall be made to the ECORD Managing Agency in one installment, made payable to CNRS, France, on or about 1 April 20__. Should the IODP be terminated before 31 December 20__, the party will be reimbursed on the basis of one-twelfth of its contribution for each month of curtailment, after due commitments made by ECORD have been settled.

Should the party withdraw from ECORD, and therefore IODP, no refund of contributions will be made.

FOR AND ON BEHALF OF _____

Signature

Date

Name (block capitals)

Position

FOR AND ON BEHALF OF THE ECORD MANAGING AGENCY (EMA)

Signature

Date

Name (block capitals)

Position

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING of European and Other Funding Organisations on Membership and Operation of ECORD in the International Ocean Discovery Program (IODP)

Acronyms

- BCR: Bremen Core Repository
- BGS: British Geological Survey
- CEREGE: Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement
- DIS-PANGAEA: Drilling Information System
- DSDP: Deep Sea Drilling Project
- E-EB: ECORD Executive Bureau
- E-FB: ECORD Facility Board
- E-ILP: ECORD Industry Liaison Panel
- E-OETF: ECORD Outreach and Education Task Force
- E-TP: ECORD Technology Panel
- E-VTF: ECORD Vision Task Force
- EC: European Commission
- ECORD: European Consortium for Ocean Research Drilling
- EMA: ECORD Managing Agency
- EPC: European Petrophysics Consortium
- EPSP: Environmental Protection and Safety Panel
- ESO: ECORD Science Operator
- ESSAC: ECORD Science Support and Advisory Committee
- FB: Facility Board
- INSU-CNRS: Institut National des Sciences de l'Univers - Centre National de la Recherche Scientifique
- IO: Implementing Organization
- IODP - Integrated Ocean Drilling Program (2003-2013)
- IODP - International Ocean Discovery Program (2013-2023)
- IPR: Intellectual Property Rights
- IWG+: International Working Group +
- J-DESC: Japanese Earth Drilling Science Consortium
- JAMSTEC: Japan Agency for Marine-Earth Science and Technology
- JOIDES: Joint Oceanographic Institutions for Deep Earth Sampling
- MEXT: Ministry of Education, Culture, Sports, Science & Technology
- MoU: Memorandum of Understanding
- MSP: Mission-Specific Platform
- NERC: Natural Environment Research Council
- NSF: National Science Foundation
- ODP: Ocean Drilling Program
- PEP: Proposal Evaluation Panel
- PMO: Program Member Office
- RWTH Aachen: Rheinisch-Westfälische Technische Hochschule Aachen
- SAS: Science Advisory Structure
- SCP: Site Characterization Panel
- USSAC: United States Science Advisory Committee
- WDC-MARE: World Data Center for Marine Environmental Science

