

ECORD Science Operator

Mission-Specific Platforms

The ECORD Science Operator (ESO) is responsible for implementing mission-specific platform (MSP) expeditions on behalf of the International Ocean Discovery Program (IODP). MSPs are unique in that they use a wide range of vessels to carry out IODP expeditions, in areas where the US and Japanese drillships, *JOIDES Resolution* and *Chikyu*, are unable to work. MSP expeditions therefore compliment, and extend, the drilling capability provided by multi-platform operations.

There are significant differences between MSP operations and other IODP expeditions:

- Every MSP requires contracting of a suitable vessel. This has implications for the expedition timeline, requiring flexibility from all participating scientists with regards both start and end dates.
- MSP operations rarely take place on platforms with dedicated laboratory facilities and drilling rigs. ESO consequently modifies the contracted vessel, and operates an offshore scientific programme limited to whole cores, using containerised laboratories, core curation facilities and refrigerated core storage containers.
- The cores are split, sampled and measured during an Onshore Science Party (OSP), hosted by the IODP Bremen Core Repository and MARUM - Center for Marine Environmental Sciences, University of Bremen, Germany. Each MSP therefore comprises two distinct phases.



Assembling the derrick onboard the *DP Hunter* - Exp 310 *Tahiti Sea Level*.

facilities. The limited space onboard dictates that the emphasis offshore is on acquiring the cores and conducting any ephemeral measurements. The un-split cores are then shipped back to the IODP Bremen Core Repository for the OSP. Consequently, only a few researchers and technicians, under the guidance of the Co-chief Scientists, are required during the offshore phase, with the whole Science Party convening at the OSP.



Mobile containers aboard the *Greaship Manisha* - Exp 347 *Baltic Sea Paleoenvironment*.



'Main street' between ESO mobile containers aboard *Liftboat Myrtle* - Exp 364 *Chicxulub K-Pg Impact Crater*.

1. The Offshore Phase

The nature of MSP expeditions, operating from a different platform for every expedition, means that there is generally no laboratory space on the vessel, unlike the two dedicated IODP drillships. ESO therefore provides a series of mobile 20-foot containers for offshore operations. These include core curation, office space, geochemistry, microbiology and petrophysics

2. The Onshore Science Party

Each MSP expedition has an Onshore Science Party (OSP) owing to the limited offshore programme. This usually takes place a few months following completion of the offshore phase, with all Science Party members in attendance. It is at the OSP that comprehensive scientific analyses are carried out on the cores, fulfilling all required IODP measurements, and sampling the cores for Science Party post-expedition research.

The ESO Consortium

The **British Geological Survey (BGS)**, part of the Natural Environment Research Council (NERC), acts as the ESO coordinator and is responsible for overall management. The BGS provides the ESO Chair and Science Manager, who are the main ESO contacts with the ECORD Managing Agency (EMA) and the ECORD Council. BGS also provides the Operations Manager, Expedition-Project Managers (EPMs), the Outreach Manager, Data Manager and various administrative and contracting support (*below*).

The **IODP Bremen Core Repository (BCR)**, based at the MARUM, is the ESO facility for core curation and management, and is one of three IODP Core Repositories. The MARUM provides the Curation and Laboratory Manager (responsible for offshore analytical facilities and the Onshore Science Party), the Media Relations Manager, and assistance with data management (including PANGAEA). See *IODP Bremen Core Repository leaflet for further details*.

The **European Petrophysics Consortium (EPC)** is responsible for all logging and petrophysical activities for ESO. This consortium is coordinated by the University of Leicester (UK) and includes the University of Montpellier (France) and RWTH Aachen (Germany), providing the Petrophysics Staff Scientists, Petrophysicists and technicians for each expedition. See *European Petrophysics Consortium leaflet for further details*.



Scientists at the Onshore Science Party - Exp 313 New Jersey Shallow Shelf.



The ESO Team onboard Liftboat Myrtle - Exp 364 Chicxulub K-Pg Impact Crater.



Liftboat Kayd during Expedition 313 New Jersey Shallow Shelf.



Greatship Maya during Expedition 325 Great Barrier Reef Environmental Changes.



Drillship Vidar Viking during Expedition 302 Arctic Coring (ACEX).

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<http://www.ecord.org/about-ecord/management-structure/eso>

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