



New technologies and the Mission Specific Platform approach

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Within the Integrated Ocean Drilling Program (IODP), ECORD-operated Mission Specific Platforms (MSPs) have allowed scientific ocean drilling to recover core from targets that are generally inaccessible to the two dedicated IODP platforms: the US-operated JOIDES Resolution and the Japanese-operated Chikyu. By contracting vessels, drilling and logging services on a case-by-case basis, IODP has used MSPs to successfully conduct expeditions in the high Arctic Ocean and around Tahiti, and has shown that the program can recover cores in ice-covered waters and in very shallow water.

The key strength of the MSP approach is that vessels, drilling and logging systems can be contracted to meet the particular needs of a scientific proposal. Within IODP, MSPs carry the necessary staff and equipment to recover and curate the core, to carry out initial descriptions, undertake a tailored downhole logging program and conduct essential measurements of physical and ephemeral properties. Comprehensive description and analysis of the cores to IODP standards takes place after the offshore phase has ended at the IODP Bremen Core Repository (BCR) in Germany.

Depending on availability and cost, potentially any vessel, drilling or logging system can be hired to conduct an MSP. Future possibilities may include the Aurora Borealis that is currently being planned as an ice-breaking drilling vessel with the capability to penetrate 1000 m in 5000 m of water.

The concept of MSPs could also be widened beyond vessels with conventional drill rigs. New and alternative technologies can be contracted as part of an MSP Expedition, for example remotely-operated shallow rock drills like MeBo (developed by the MARUM - Center for Marine Environmental Sciences) and the BGS Rockdrills (developed by the British Geological Survey). Such technologies have many advantages: they can be quickly deployed from a range of research and industry vessels, they can operate in a wide range of water depths (up to 6000 m by the BGS Oriented Drill), they are stable platforms for drilling as they are detached from the vessel, they are generally compact and easily transportable, and they are cost effective.

The MSP approach has many advantages, and expands our knowledge by exploring the sub-seabed in a far wider range of environments than has been previously possible. The MSP concept is a facility that should be developed and utilised in the next phase of scientific ocean drilling, after the current phase of IODP ends in 2013.