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A critical review of existing innovative science and drilling proposals within IODP

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In the present phase of the Integrated Ocean Drilling Program (IODP) activities are guided by the Initial Science Plan that identified three major themes: The Deep Biosphere and the Subseafloor Ocean; Environmental Change, Processes and Effects; and Solid Earth Cycles and Geodynamics. New initiatives and complex drilling proposals were developed that required major advances in drilling platforms and technologies, and expansion of the drilling community into new areas of specialization. The guiding themes in the Initial Science Plan are instrumental for the proposal development and evaluation, and will continue to represent the goals of IODP until 2013.

A number of innovative and highly ranked individual proposals and coordinated sets of proposals ready to be drilled has been forwarded by the Science Planning Committee (SPC) to the IODP Operations Task Force (OTF) for scoping, planning and scheduling. For the Deep Biosphere theme these include proposals to drill targets in the Central Atlantic, the Okinawa Trough, and the Southern Pacific. The Environmental Change, Processes and Effects theme is proposed to – among others - be studied by a coordinated approach regarding the Southeast Asian Monsoon, but also by proposals addressing sdimentation, facies evolution and the paleoclimate record in the Atlantic and Indian Oceans. The Solid Earth Cycles and Geodynamics theme is represented by several proposals addressing subduction processes, seismogenesis, and oceanic crust formation mainly in the Pacific. Some of these have shaped drilling programs that are already in the process of being carried out, such as drilling in the Nankai Trough off Japan (the NantroSEIZE project), or drilling in oceanic crust created in a superfast spreading environment in the Eastern Pacific.

There are many remaining issues to be addressed, and drilling programs to be completed before the end of the present phase of IODP in 2013. Planning of expeditions needs to be done in such a way that a balance between risk, cost, and scientific impact is achieved. At least part of the dilling also is required to be a necessary precursor for future investigations in coming phases of Ocean Drilling.

Presently IODP faces the challenges of tight budgetary constraints, increasing operating costs of their platforms, and the need to develop drilling schedules that allow off-contract work of the R/V Chikyu and R/V Joides Resolution drilling vessels. Chikyu will operate within IODP for an average of 7 months per year over a 5-year period with the goals of achieving major milestones in NantroSEIZE, maximizing the use of the vessel for riser drilling, and start a new IODP project that requires riser drilling. Joides Resolution will also operate an average of 7 months per year with the goal of optimizing operating days within the restrictions imposed by the prioritized science. Mission Specific Platform expeditions will be carried out once every two years on average, with the goal of pioneering drilling in new, challenging environments.

For the first time in IODP history, operations of Chikyu, Joides Resolution and Mission Specific Platform expeditions will be conducted simultaneously in 2009. This new phase of operations provides an unprecedented chance of progress in scientific ocean drilling.