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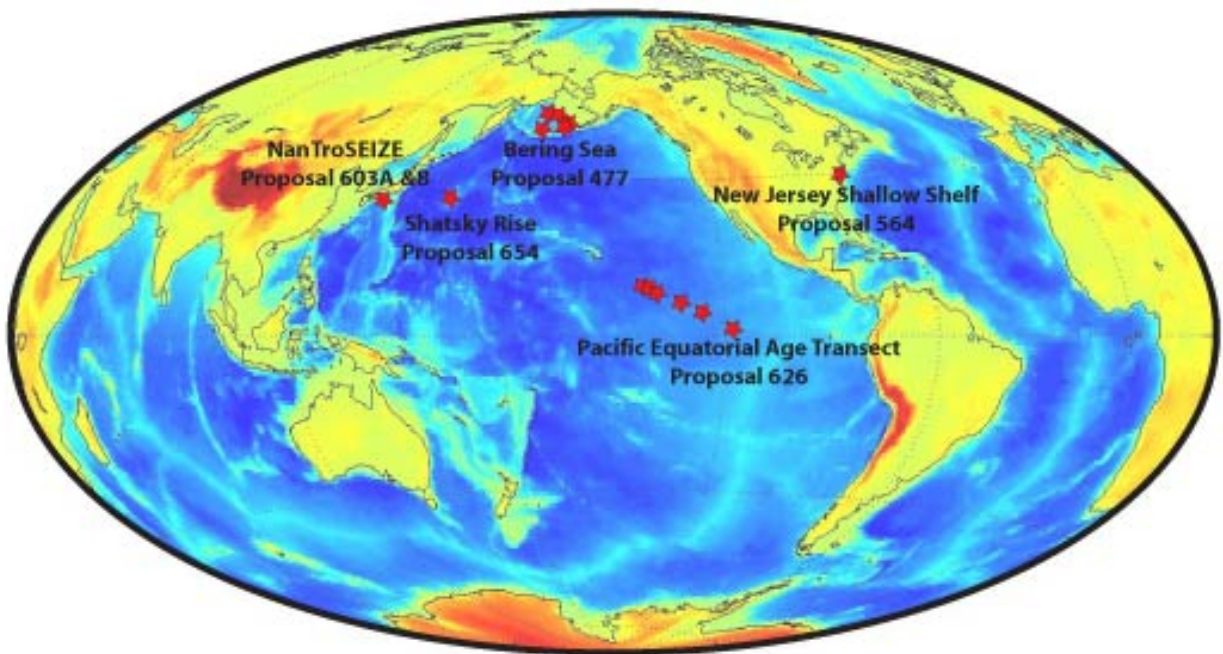


IODDP

INTEGRATED OCEAN
DRILLING PROGRAM

Integrated Ocean Drilling Program

Annual Program Plan
for the Fiscal Year 2008



**Integrated Ocean Drilling Program
Annual Program Plan FY2008**

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IODP Annual Program Plan FY2008

1. INTRODUCTION

The Integrated Ocean Drilling Program (IODP) is an international partnership of scientists and research institutions established to explore Earth's history and structure as recorded in the ocean basins. IODP provides sediment and rock samples (cores), shipboard and shore-based facilities to study the samples, downhole geophysical and geochemical measurements (logging/petrophysics), and opportunities for special experiments (i.e., seafloor and subseafloor observatories) to determine in-situ conditions beneath the seafloor. IODP studies will lead to better understanding of plate tectonic processes, Earth's crustal structure and composition, environmental conditions, life in ancient oceans, and climate change.

IODP is sponsored by Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the U.S. National Science Foundation (NSF) as Lead Agencies; by the European Consortium for Ocean Research Drilling (ECORD); the People's Republic of China, and the Interim Asian Consortium.

FY2008 marks the transition in IODP from Phase 1 to Phase 2. Phase 1 in many ways was a continuation of ODP in that drilling was mainly carried out by the *JOIDES Resolution*, although it was also supplemented by two important expeditions by ECORD Science Operator (ESO) on Mission-Specific Platforms (MSPs). Phase 2 will introduce the Japanese drillship *Chikyu* with its riser capability and the enhanced United States Implementing Organization (USIO)'s riserless drillship. This advanced drilling capability will enable IODP to begin fulfilling many of the objectives stated in the Initial Science Plan (ISP).

FY2008 will also see the creation of "Mission" teams, if the Science Advisory Structure (SAS) favorably reviews the "Mission" proposals in FY2007. The "Mission" concept of proposing and implementing complex drilling expeditions will more efficiently fulfill some of the ISP's important objectives. This new concept will provide a longer lead time and program support earlier for these expeditions.

Phase 2's additional complexity will require planning for engineering development (for instance, with respect to borehole observatories) and developing integrated Data Management systems. These tasks will require the coordinated efforts of the IOs, the relevant SAS panels, and IODP-MI task forces specially formed for these purposes. Another activity which started in 2007, and will continue in FY2008, is the consolidation of the core repositories to three: the Gulf Coast Repository (GCR), the Kochi Core Center (KCC) and the Bremen Core Repository (BCR).

In FY2008 we plan to emphasize Outreach to scientists in a variety of ways. The program's workshops will be continued. Lecturers for the IODP Distinguished Research and

International Leadership Lecture Series (DRILLS) have been selected and will visit countries that support IODP and countries in which we want to extend IODP membership. We have organized a group called “Friends of IODP” aimed at increasing our contacts with members of scientific societies. We also plan to work with industry to secure its participation in IODP and will work towards increasing IODP membership from non-member countries.

We have constructed the proposed budget for FY2008 in accordance with guidance provided by the Lead Agencies. The amount is reduced considerably from the budget estimate provided by IODP-MI to the Lead Agencies. We note the statement by the Lead Agencies that “The IODP budget may be even more challenging in FY 2009 and beyond.” While the POC funds will enable both drillships to carry out expeditions to the end of FY2008, we understand that POC funding will not be available for full-year IODP operations from FY2009 onwards. We also note the statement by the Lead Agencies that “The Lead Agencies urge IODP-MI, working in concert with SASEC and IODP-related committees and organizations, to exert leadership in the reduction of IODP costs...”

For costs beyond 2009, the Management Forum discussed how to deal with restructuring issues and related cost/benefit issues. Following the outline in the Management Forum report, we will carry out discussions with SAS and the IOs on these topics in FY2008. We believe that increasing efficiencies and cost reductions are extremely important for the future of IODP. We will focus on reducing Management and Administration costs as well as other Work Breakdown Elements (WBEs). These will be major topics of discussion with the IODP-MI Board of Governors as well as with the IOs and SAS.

Non-availability beyond FY2009, of POC funding for the full year, will obviously be a matter of great concern to the scientific community. We recognize that non-IODP use for the drillships is strictly a matter for the Lead Agencies and the IOs. If, however, outside funding can be secured for some use of the drillships for IODP, which could greatly benefit the scientific community. IODP-MI in conjunction with SAS and the IOs, can inquire into the possibility of such outside funding from other government agencies, industry as well as other potential IODP member countries. It will only do so with the agreement, full support, and encouragement from the Lead Agencies. We prefer arrangements in which academic scientists can have some participation in how IODP uses drillships rather than arrangements in which they will have no participation.

2. Budget Summary

This Program Plan budget identifies a total program cost of \$144,159,906 for FY2008 (see **Tables APP-1** and **APP-2**) to meet the high-priority needs identified by the SAS. Of this cost, 24% is Science Operation Costs (SOCs) and the remaining 76% is Platform Operation Costs (POCs). The SOCs and POCs are defined in Annex I of NSF/MEXT Memorandum on the IODP, and the latest POC-SOC guidance from Lead Agencies is attached as **Appendix H**.

	IODP-MI Operators & Subcontractors						Total
	IODP-MI	USIO	CDEX	ESO	Bremen	SIO	
SOCs	5,229,077	13,786,568	11,490,505	3,474,600	308,039	300,000	\$34,588,789
POCs		35,753,715	58,205,802	15,611,600			\$109,571,117
Total	\$5,229,077	\$49,540,283	\$69,696,307	\$19,086,200	\$308,039	\$300,000	\$ 144,159,906

Table APP- 1: SOC and POC Budget Summary for FY2008

Description	IODP-MI	USIO	CDEX	ESO	Bremen	SIO	Total
Management and Administration	4,216,707	1,693,592	309,570	671,000			\$ 6,890,869
Technical, Engineering and Science Support		6,783,581	7,678,773	2,230,500			\$ 16,692,854
Engineering Development	29,000		2,081,470				\$ 2,110,470
Core Curation		1,495,782	529,052	79,900	308,039		\$ 2,412,773
Subtotal Core Curation		786,100	519,052	79,900	302,039		\$ 1,687,091
Subtotal DSDP/ODP Core Redistribution		709,682	10,000		6,000		\$ 725,682
Data Management	500,000	2,685,304	374,460	361,000		300,000	\$ 4,220,764
Publications	50,000	1,053,812	91,900				\$ 1,195,712
Outreach	433,370	74,497	425,280	132,200			\$ 1,065,347
	5,229,077	13,786,568	11,490,505	3,474,600	308,039	300,000	\$ 34,588,789

Table APP- 2: SOC Budget Summary for FY2008

The original Lead Agencies' budget guidance for FY2008 was \$36,000,000. Further reduction of \$700,000 was instructed by the Lead Agencies on May 29 due to financial difficulty from the Interim Asian Consortium. The latest budget guidance is \$35,300,000. In addition we have reduced the IODP-MI Management and Administration budget of request by Lead Agencies, to approximately \$4m.

IODP-MI's budget is \$5,229,077. The base Management and Administrative budget is \$4,216,707. This includes salaries and fringe benefits of IODP-MI personnel, travel, SAS support such as the subcontract with AESTO, which provides the infrastructures of IODP-MI Sapporo office. The details of these costs are described in **Appendix A**. The cost of Data Management activities (\$500,000) will be supported under subcontracts to IOs or other entities. Details of the IODP-MI activities are described in **Appendix A**.

The USIO budget is \$49,540,283 (28% SOC; 72% POC). The USIO SOC budget of \$13,786,568 includes costs for science support activities for SODV operations scheduled from March 2008, and nonexpedition-related costs for such things as Management and Administration, Data Management, Publications, Curation, and Outreach. The details of the USIO activities are described in **Appendix B**.

The CDEX budget is \$69,696,307 (16% SOC, 84% POC). The CDEX SOC budget of \$11,490,505 includes support for the *Chikyu* operation for Stage 1 for the Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE) project, as well as costs for Administration and Operations personnel, Education and Outreach, Publications, Project Scoping, and Data Management. The details of the CDEX activities are described in **Appendix C**.

The ESO budget is \$19,086,200 (18% SOC, 82% POC). The ESO SOC of \$3,474,600 for FY2008 includes support of the onshore and offshore activities associated with the New

Jersey Shallow Shelf Expedition, and offshore operation of the Great Barrier Reef as well as associated costs for management administration, data management, publication and education and outreach. The details of the ESO activities are described in **Appendix D**.

The University of Bremen Core Repository budget is \$308,039 (100% SOC). These funds are primarily for personnel and operating costs (consumables, supplies, telecommunications, etc.) associated with normal IODP/ODP core sampling and core archiving operations. Funds for curatorial support for MSP operations are identified in the ESO budget. Details of the University of Bremen activities are described in **Appendix E**.

The Scripps Institution of Oceanography (SIO) budget of \$300,000 (100% SOC) is for operation of the Site Survey Data Bank (SSDB). Details of the SIO activities are described in **Appendix F**.

3. Organizational Structure

3.1. Organizational Framework

IODP operation is based on three components:

The Central Management Office (CMO):

IODP Management International, Inc. (IODP-MI) has received a 10-year contract from the Lead Agencies to run the CMO.

The Implementing Organizations (IOs). There are three IOs:

- The USIO is responsible for operations of the riserless vessel, Scientific Ocean Drilling Vessel (SODV).
- Center for Deep Earth Exploration (CDEX), which is responsible for the riser-equipped ship, *Chikyu*, is operational for IODP starting in September 2007.
- ECORD Science Operator (ESO), which is responsible for mission-specific platforms (MSPs).

The Science Advisory Structure (SAS).

The IODP Science Advisory Structure consists of scientists, engineers, and technologists designated by IODP member organizations.

According to the principles upon which the program was founded, IODP “Science Operations Costs” (SOCs) will be supplied to the nonprofit corporation known as IODP Management International, Inc. (IODP-MI), which provides the Central Management Organization’s (CMO) program functionality (see **Figure APP-1**). In turn, IODP-MI will distribute SOCs to IOs (drilling operators) and to other subcontractors according to the budgets outlined in this and subsequent IODP Annual Program Plans (APPs). SOC funds will be collected from IODP members, commingled by the U.S. NSF, and provided through contract to IODP-MI (see **Figure APP-1**). Currently, IODP members are: the U.S.A. represented by NSF; Japan, as represented by MEXT; ECORD as represented by the ECORD Management Agency (EMA); the People’s Republic of China as represented by the Ministry of Science and Technology (MOST); and the Interim Asian Consortium represented by the Korea Institute of Geoscience and Mineral Resources (KIGAM). The U.S.’s NSF and Japan’s MEXT are designated as Lead Agencies; the EMA is a Contributing Member; and the People’s Republic of China’s MOST and the Interim Asian Consortium are Associate Members.

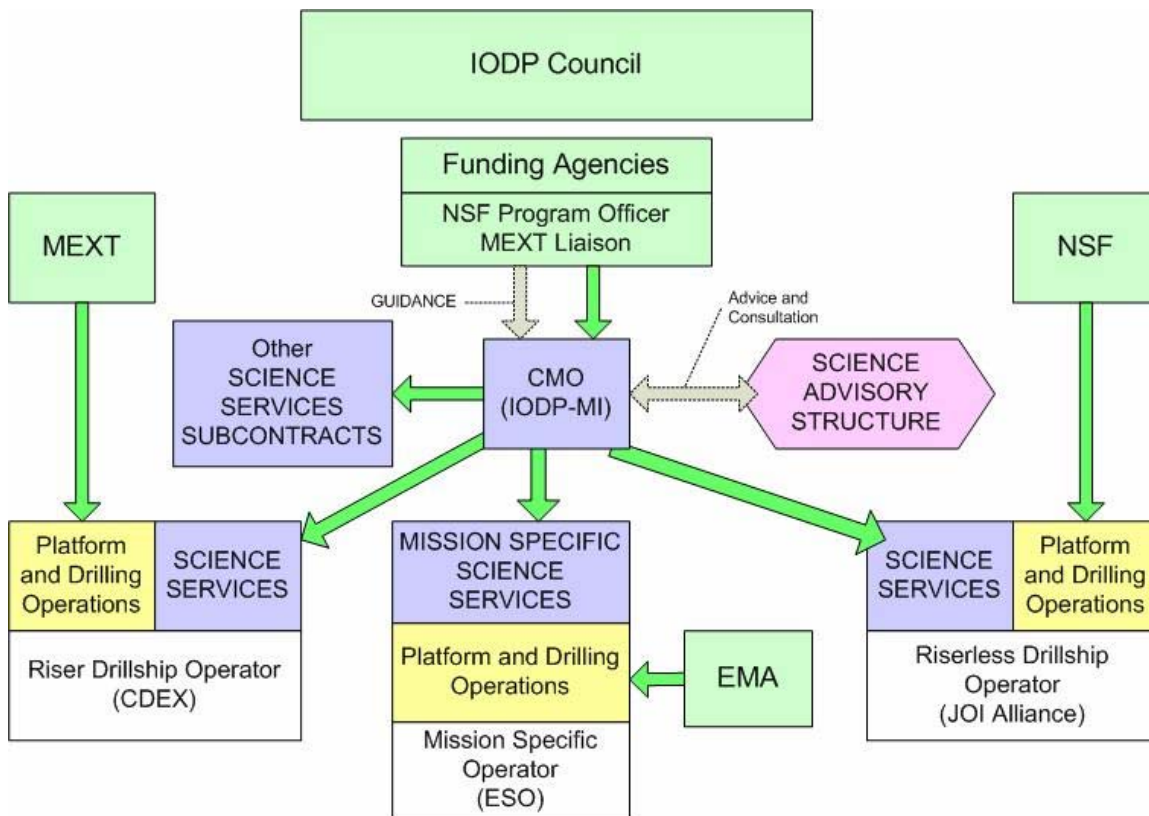


Figure APP- 1: IODP Program Management Structure.

SOCs and POCs are detailed in accompanying budgets, both in the Program Plan and in Appendices A-G. The funding agencies consist of NSF and MEXT (as Lead Agencies), EMA as a Contributing Member, MOST (the People’s Republic of China) and the Interim Asian Consortium as Associate Members. Solid arrows indicate flow of funds. Dotted arrows indicate flow of advice.

As detailed in **Figure APP-1**, Platform Operations Costs (POCs) are supplied directly from individual funding agencies of the countries or consortia operating IODP drilling assets: from NSF to the USIO (JOI Alliance (JOI, Inc., Texas A&M University [TAMU], Lamont-Doherty Earth Observatory [LDEO] of Columbia University) for operation of the SODV; from MEXT to CDEX for the riser-equipped ship *Chikyu*; and from ECORD to ESO for MSP operations.

The technical management relationship consists of the following components:

- a. Overall central management tasks and responsibilities for science operations by IODP-MI
- b. Science advice provided by the SAS, supported by a planning office at IODP-MI
- c. Multiple IOs, as listed above – USIO, ESO, and CDEX

3.2. IODP-MI – The Central Management Organization

A Central Management Organization (CMO) was established with the concurrence of MEXT and NSF to develop and manage IODP science operations and implementation plans. CMO functions are provided by IODP-MI through a 10-year contract with NSF (**Appendix A**). The CMO: a) receives advice and recommendations from SAS on scientific priorities and plans; b) requests plans from IOs responsive to this advice; and c) works with IOs and the SAS to produce an integrated IODP Annual Program Plan (APP) (**Figure APP-2**).

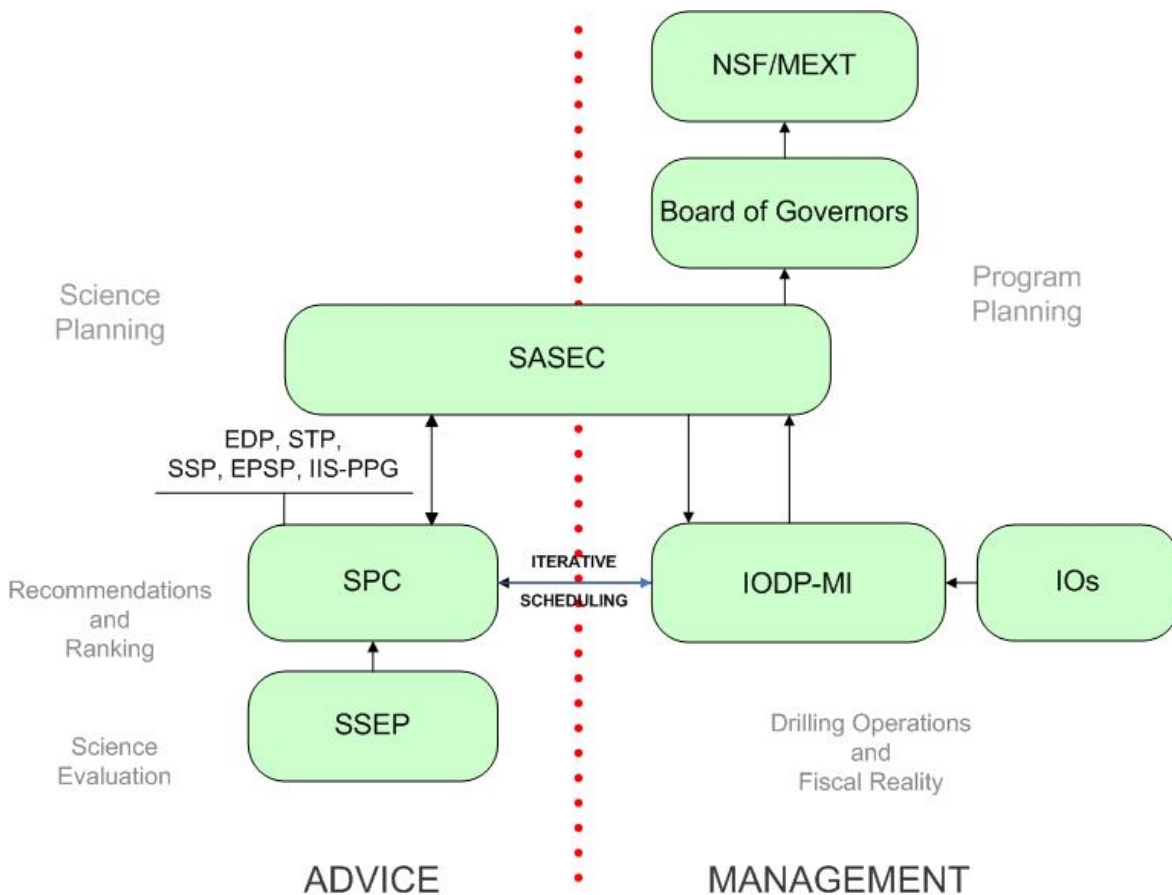


Figure APP- 2: The flow of scientific advice towards expedition scheduling.

Scientific advice to the IODP management structure occurs via advisory panels and committees. Scientific planning for the IODP is provided by a Science Advisory Structure (SAS) led by the Science Planning Committee (SPC). IODP-Management International, Inc. (IODP-MI) is the Central Management Organization (CMO) that translates the scientific priorities of the ocean-drilling community into program plans to carry out scientific IODP operations. It will do so based on advice from the international IODP Science Advisory Structure (SAS), and in consultation with vessel operators or IOs.

IODP-MI submits the program’s Annual Program Plan to SASEC, the executive authority

of the SAS, and to a committee of IODP-MI Board of Governors (BoG) for review and approval prior to consideration by the IODP-MI BoG and Lead Agencies. The NSF has responsibility for contractual approval of the Annual Program Plan (APP) in consultation with MEXT. After approval by the Lead Agencies, any significant changes in the Annual Program Plan are to be considered and approved by IODP-MI and the Lead Agencies prior to implementation, in consultation with the SASEC and the IOs, as appropriate.

The Annual Program Plan is to be consistent with budget guidance provided to IODP-MI by the Lead Agencies. The Annual Program Plan includes a presentation of total program costs, which include both SOCs and POCs. IODP-MI will manage SOC funds provided under contract with the NSF. The NSF is expected to administer the contract with due consideration to the interests of MEXT. POCs will be provided directly to the IOs from the Lead Agencies and EMA (**Figure APP-1**).

3.3. Implementing Organizations

Riserless drilling capability is supplied by the NSF through a contract to the USIO, which consists of JOI, Inc., the prime contractor and overall management; Texas A&M University TAMU), the subcontractor that operates a riserless drillship and provides associated services and functions such as expedition staffing, logistics, program-specific engineering development and operations, shipboard laboratories, curation, and distribution of core samples and data; and Lamont-Doherty Earth Observatory (LDEO) of Columbia University responsible for geophysical and geochemical logging services aboard the riserless vessel, and involving acquisition, processing and interpretation of logging measurements. Details of the JOI Alliance and its operational plans for FY2008 are presented in **Appendix B**.

Riser-equipped drilling capability, by way of the vessel *Chikyu*, is supplied by CDEX (see **Appendix C**). CDEX is part of the Japan Agency for Marine-Earth Science and Technology (JAMSTEC). CDEX also provides administrative services to the Kochi University Center for Advanced Marine Core Research (CMCR) repository.

MSP drilling, sampling, and logging capability is supplied by the ESO, a consortium led by the British Geological Survey (BGS), which conducts MSP operations and program-specific engineering development; the European Petrophysics Consortium (EPC) which provides logging services, and the University of Bremen which provides repository services for MSP samples and cores. The ESO has a contractual arrangement with the EMA, affiliated with the Centre Nationale de la Recherche Scientifique (CNRS) based in Paris. Details of ESO and its operational plans for FY2008 are presented in **Appendix D**. ESO will utilize Bremen curatorial personnel and services during actual MSP operations. These ESO funds are separate from the normal IODP core archive and sampling operations proposed by Bremen in the Annual Program Plan (See **Appendix E**).

3.4. Science Advisory Structure (SAS)

The SAS provides long-term guidance on the scientific planning of the IODP and recommends annual science and engineering plans based on proposals from the international science community. The SAS consists of the Science Advisory Structure Executive Committee (SASEC), the Science Planning Committee (SPC), as well as several advisory panels (see **Figure APP-3**; next page) that contain hundreds of scientists from the international geoscience community in IODP member countries and consortia.

The SASEC is considered the Executive Authority of the SAS and is composed of representatives from scientific organizations in IODP member countries. SASEC is also a committee of IODP-MI BoG. The SASEC provides scientific oversight and long-term planning. An important responsibility of the SPC is to prioritize the recommendations for the drilling sites. It considers recommendations from the various SAS support panels and is the focus of scientific planning for IODP.

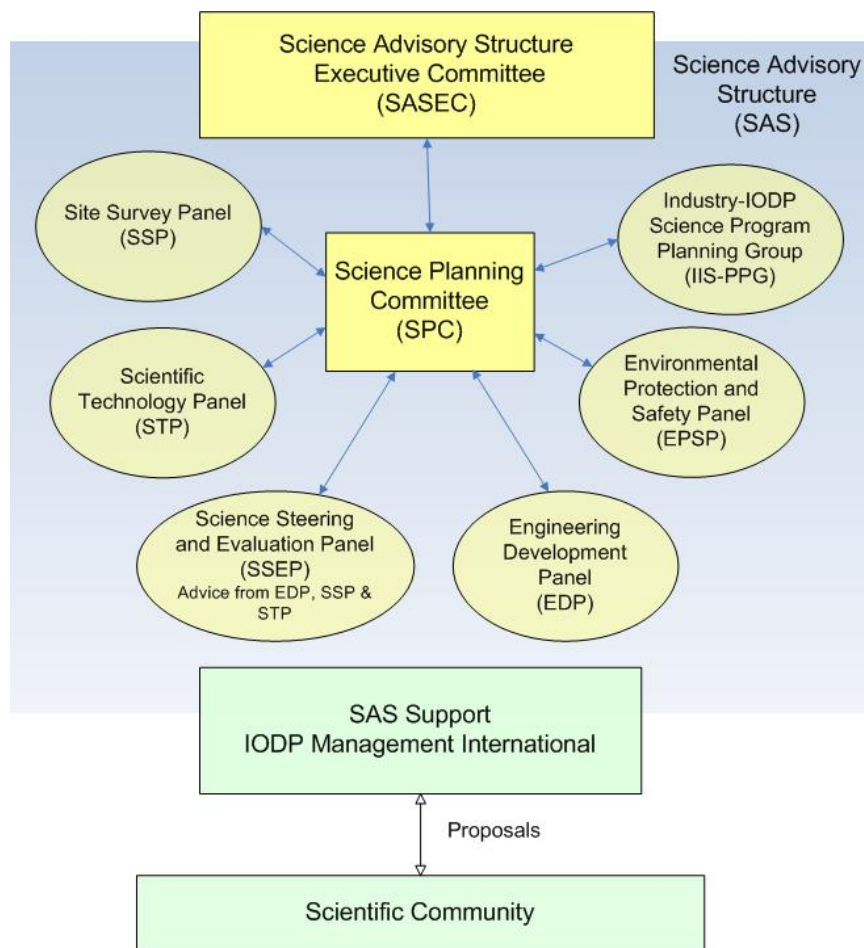


Figure APP- 3: IODP Science Advisory Structure (SAS).

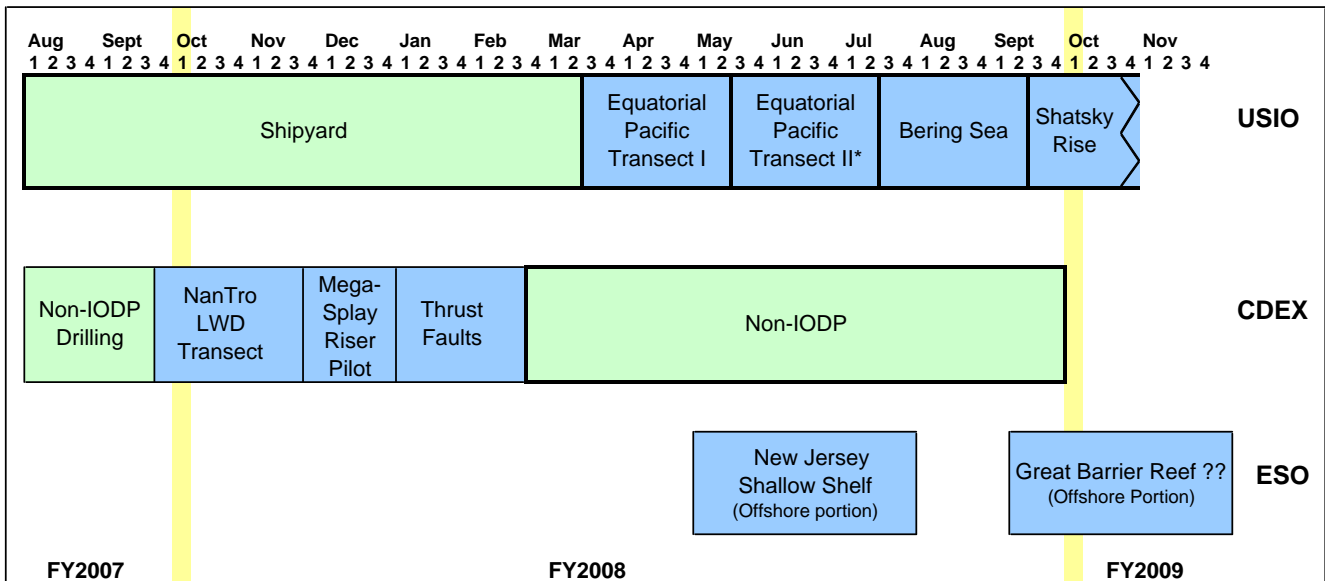
4. FY2008 Expedition Operations

4.1. FY2008 Schedule

Chikyu will begin the first of three IODP FY2008 expeditions towards the end of FY2007, starting with Logging while Drilling (LWD) operations at six NanTroSEIZE sites. Two additional riserless NanTroSEIZE expeditions will directly follow these LWD operations (Figure APP-4).

The USIO will conduct three full operations in FY2008 and one that straddles FY2008/FY2009, beginning with two Equatorial Pacific Transect expeditions, followed by expeditions in the Bering Sea and on Shatsky Rise.

ESO plans to conduct the offshore portion of New Jersey Shallow Shelf program in FY2008, with a proposed May 2008 start date. Depending on contractual arrangements for the New Jersey Shallow Shelf program, ESO may be in position to start the offshore portion of The Great Barrier Reef program towards the very end of FY2008 (September).



* Operations also include remedial cementing of CORK installations at Juan de Fuca

Blue indicates SOC funded operations; Light green indicates Shipyard and/or Maintenance; Dark green indicates Non-IODP Operations; Hachured lines indicate operation start/stop time to be determined

Figure APP- 4: Expedition operations for the USIO, CDEX, and ESO in FY2008.

4.2. FY2008 USIO Operations

The FY08 USIO operations schedule commences after completing the conversion of the *JOIDES Resolution*. Following mobilization in Singapore, operations will commence with

a transit from Singapore to Honolulu, which will include 5 days of sea trials. Three expeditions and one that straddles FY2008/FY2009 comprise the FY2008 schedule, with a total of 227 operating days consisting of 72 days in transit, 22 port call days, and 133 days focused on science delivery (onsite and between-site transit).

The schedule is summarized below.

1 January–17 March 2008	Mobilization/Transit/Sea Trials
17 March–17 May 2008	Pacific Equatorial Age Transect I
17 May–17 July 2008	Equatorial Pacific II /Juan de Fuca Remedial Cementing
17 July–16 September 2008	Bering Sea Expedition
16 September–16 November 2008	Shatsky Rise Expedition

4.2.1. Pacific Equatorial Age Transect Expedition 1

4.2.1.1 Proposed Operations

Pacific Equatorial Age Transect (PEAT) Expedition 1 is the first of two expeditions that will address the goals of Proposal 626. The strategy proposed is to drill a transect using the gradual northward motion of the Pacific plate to target sediments of appropriate Paleogene and Miocene age as they exit the productivity belt, largely avoiding deeply buried diagenetically altered sediment. The PEAT program consists of eight high-priority sites, five of which will be completed during PEAT Expedition 1 (Figure APP-5). Primary tools will include advanced piston corer (APC) and extended core barrel (XCB) coring to target each interval with multiple holes to ensure stratigraphic continuity and overlap. Standard downhole wireline tools will be used to obtain logs for correlation.

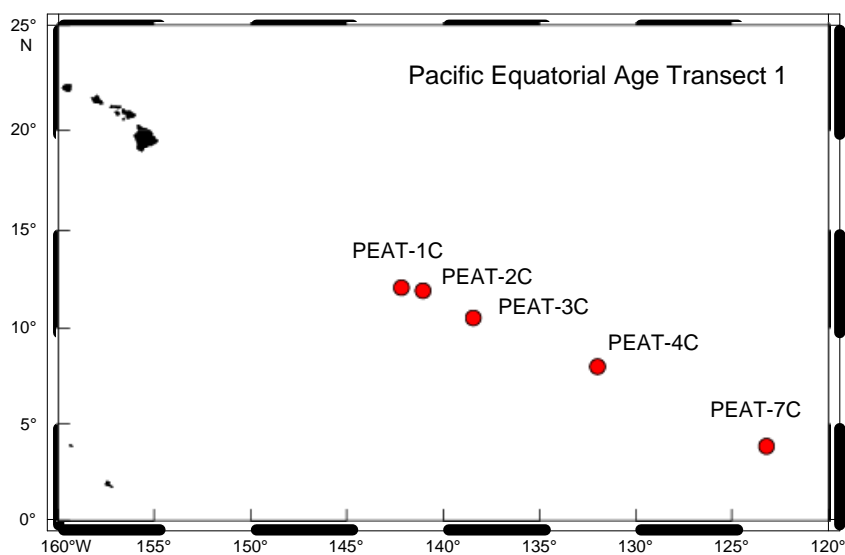


Figure APP-5: Pacific Equatorial Age Transect Expedition 1 site map.

4.2.1.2 Experiments

No experiments are planned for this expedition

4.2.1.3 Environment and Safety

There is a potential for thin chert layers in the basal sections of sites focused on Eocene targets, which could affect recovery.

4.2.1.4 Logistics

Operations for the PEAT Expedition 1 require an estimated 61 days (5 in port, 12 in transit, and 44 on site).

4.2.1.5 Core Storage Location

Cores from PEAT expedition 1 will be stored at the Gulf Core Repository.

4.2.2. Pacific Equatorial Age Transect Expedition 2 and Juan de Fuca Remedial Cementing

4.2.2.1 Proposed Operations

PEAT Expedition 2 is the second of two expeditions that will address the goals of Proposal 626. The strategy proposed is to drill a transect using the gradual northward motion of the Pacific plate to target sediments of appropriate Paleogene and Miocene age as they exit the productivity belt, largely avoiding deeply buried diagenetically altered sediment. The PEAT program consists of eight high-priority sites, two of which will be occupied during PEAT Expedition 2 (Figure APP-6) Primary tools will include APC and XCB coring to target each interval with multiple holes to ensure stratigraphic continuity and overlap. Standard downhole wireline tools will be used to obtain logs for correlation. Following PEAT Expedition 2 operations, we will return to Holes U1301A and U1301B to cement the observatories that were not sealed when installed during Expedition 301 (Juan de Fuca Hydrogeology; see Fig. 2, Table 2).

4.2.2.2 Experiments

No experiments are planned for this expedition.

4.2.2.3 Environment and Safety

There is a potential for thin chert layers in the basal sections of sites focused on Eocene targets, which could affect recovery during PEAT Expedition 2. Effective cementing of the Site U1301 observatories requires good sea states.

4.2.2.4 Logistics

Operations for PEAT Expedition 2 and Juan de Fuca Remedial Cementing require an estimated 61 days (7 in port, 19 in transit, and 35 on site).

4.2.2.5 Core Storage Location

Cores from PEAT Expedition 2 will be stored at the Gulf Coast Repository.

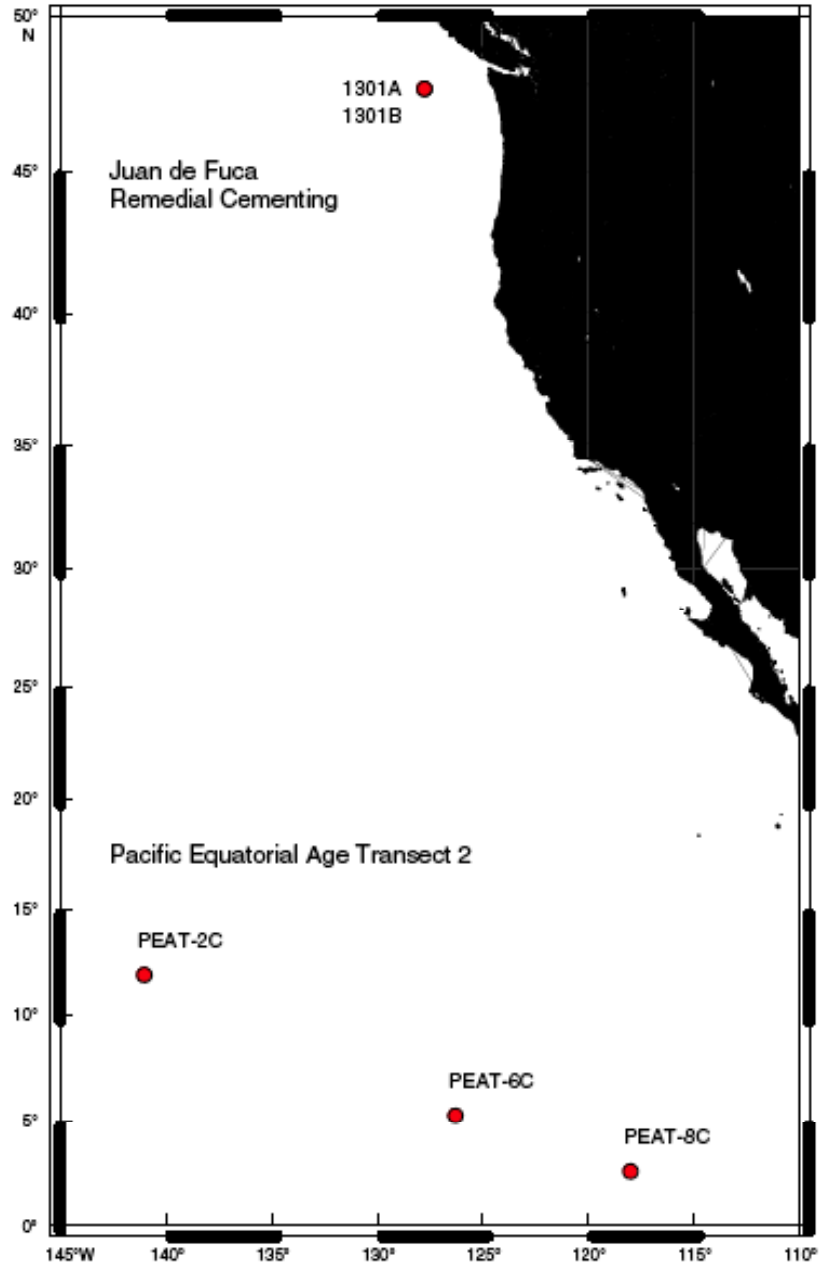


Figure APP- 6: Pacific Equatorial Age Transect Expedition 2 and Juan de Fuca Remedial Cementing.

4.2.3. Bering Sea Expedition

4.2.3.1 Proposed Operations

The primary goal of the Bering Sea Expedition is to recover a continuous, high-resolution sediment record for reconstructing the detailed climate history of the North Pacific (Figure APP-7) from the earliest Pliocene to the present in millennial to Milankovitch time scales. Seven of eight high-priority sites will be triple cored with the APC to refusal (~200 m) to recover the complete stratigraphic section with four select sites cored to depths of ~500–700 meters below seafloor (mbsf) with the XCB to obtain the older record. The rotary core barrel (RCB) may need to be employed to reach depth objectives. Standard downhole wireline tools will be used to obtain logs for correlation.

4.2.3.2 Experiments

No experiments are planned for this expedition.

4.2.3.3 Environment and Safety

Operations will occur in the Bering Sea at the edge of the acceptable weather window, which could impact operations.

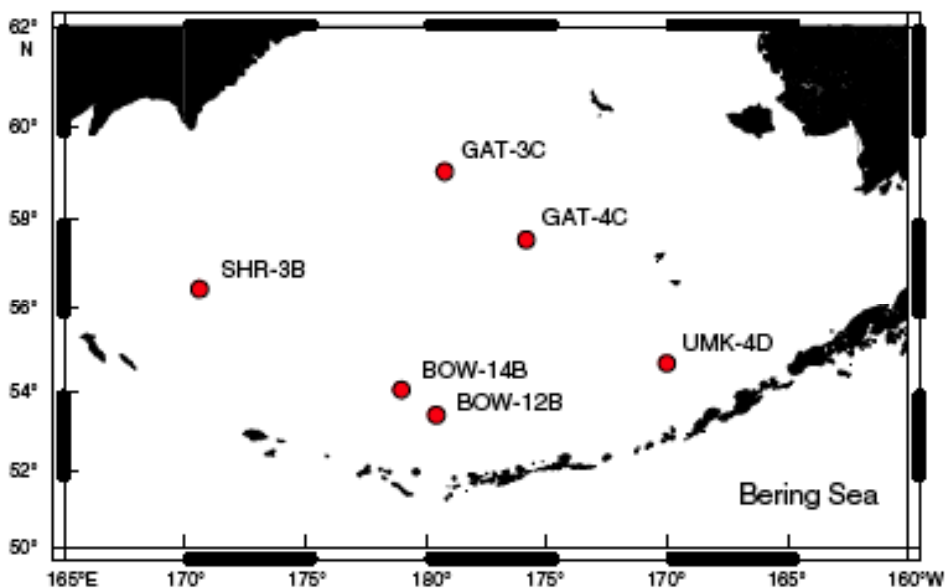
4.2.3.4 Logistics

Operations for the Bering Sea Expedition require an estimated 61 days (5 in port, 13 in transit, and 43 on site). Two primary and one alternate site are located in Russian waters and will require Russian clearance. Contingency plans are in place if clearance is not obtained.

4.2.3.5 Core Storage Location

Cores from the Bering Sea Expedition will be stored at the Kochi Core Center.

Figure APP- 7
Bering Sea Expedition.



4.2.4. Shatsky Rise Expedition

4.2.4.1 Proposed Operations

The primary objective of the Shatsky Rise Expedition is to core igneous rocks from the volcanic massifs of Shatsky Rise to determine the age, sources, and evolution of this oceanic plateau and to test the hypotheses of its origin (Figure APP-8). Five of six high-priority sites will be drilled with the RCB. Four sites will be drilled 100 m into basement and one site will be drilled 300 m into basement. Standard wireline coring tools will be deployed to obtain continuous physical properties measurements and images of the lava sequences to better understand geophysical records and volcanic construction. Standard downhole wireline tools will be used to obtain logs for correlation.

4.2.4.2 Experiments

No experiments are planned for this expedition.

4.2.4.3 Environment and Safety

Operations will occur at Shatsky Rise during the Pacific typhoon season, which could impact operations, although the historical average for this area is 0–1 storms per year during this operational window.

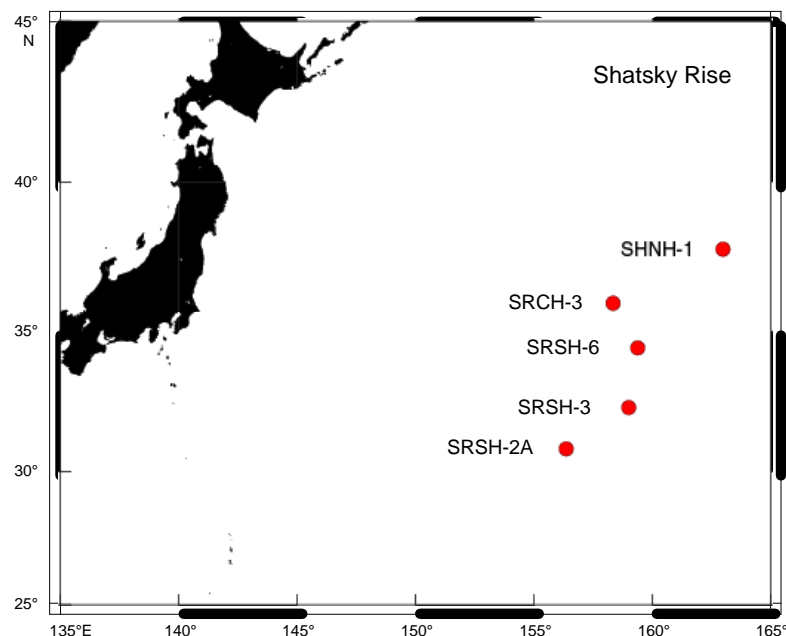
4.2.4.4 Logistics

Operations for the Shatsky Rise Expedition require an estimated 61 days (5 in port, 17 in transit, and 39 on site). For FY2008, these include the 5 days in port, 4 days of transit, and 6 days of on site operations.

4.2.4.5 Core Storage Location

Cores from the Shatsky Rise will be stored at the Gulf Coast Repository.

Figure APP-8:
Shatsky Rise
Expedition.



4.3. FY2008 CDEX Operations

In FY2008, *Chikyū* will conduct three expeditions to the Nankai Trough region, starting with a Logging while Drilling (LWD) expedition at six NanTroSEIZE sites. Two additional riserless NanTroSEIZE expeditions will directly follow these LWD operations.

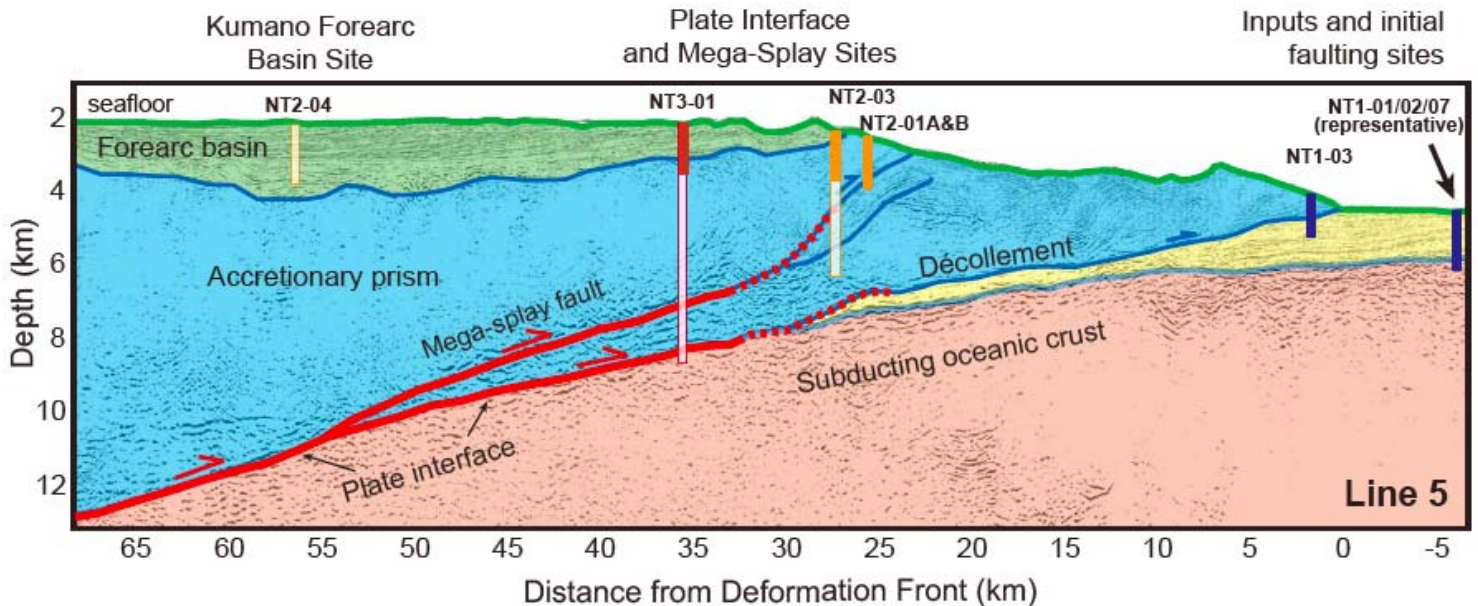


Figure APP- 9: NanTroSEIZE site locations

The schedule is summarized below.

Sept. 21 - Nov. 16, 2007	LWD Transect (Expedition 314)
Nov. 12* - Dec. 17, 2007	MegaSplay Riser Pilot (Expedition 315)
Dec. 13*, 2007 - Feb. 5, 2008	Thrust Faults

* Several days overlap of technical and scientific staff

4.3.1. NanTroSEIZE LWD Transect (Expedition 314)

4.3.1.1 Proposed Operations

The primary objective of the Expedition 314 is to obtain a comprehensive suite of geophysical logs and other downhole measurements at six sites, using state-of-the-art logging-while-drilling (LWD) technology (Figure APP-9). All six sites (NT1-01, NT1-03, NT1-07, NT2-01, NT2-03, and NT3-01) are slated for continuous core sampling during subsequent IODP NanTroSEIZE expeditions. These sites include sampling of the incoming plate trench sediments, the frontal thrust and toe of the accretionary prism, forearc basin deposits, a major

out-of-sequence thrust system (the “mega-splay” fault), and highly deformed rocks of the interior of the accretionary prism. The principal goals of the LWD program are to document: in-situ physical properties; stratigraphic and structural features; sonic to seismic scale velocity data for core-log-seismic integration; and stress, pore pressure, and hydrological parameters.

Expedition 314 will be entirely dedicated to the LWD effort, and no coring or downhole measurement operations are planned. Some casing may be installed to facilitate deep penetration at several sites. Logging data will be analyzed initially by the shipboard scientific party and will be made available to the scientific parties of the subsequent expeditions.

4.3.1.2 Downhole measurements (LWD, Wireline, Others)

The following Schlumberger LWD/MWD tools will be used on Expedition 314: (1) geoVISION – to record formation resistivity (including 360° borehole resistivity imaging) and spectral natural gamma radiation, (2) adnVISION -- to record porosity and neutron-density, (3) sonicVISION – to provide sonic P-wave velocity, (4) seismicVISION – to record check-shot vertical seismic profile arrivals during LWD drilling.

Additional measurements primarily intended for monitoring drilling conditions (measurements while drilling, MWD) include torque and downhole weight on bit, as well as borehole pore fluid pressure (Annular Pressure While Drilling, APWD).

4.3.1.3 Environment and safety

Potential environmental problems include the change in the meander pattern for the high-speed Kuroshio current crossing the drilling area and the occurrence of typhoons. There may also be drilling related problems involved with unstable formations and fault/fracture zones.

4.3.1.4 Logistics

The expedition will run from 21 September to 16 November 2007, departing from the port of Shingu. Disembarkation will be conducted by helicopter.

4.3.1.5 Core Storage

No cores will be collected during this expedition.

4.3.2. NanTroSEIZE Mega-Splay Riser Pilot (Expedition 315)

4.3.2.1 Proposed Operations

The primary engineering and scientific objectives of this expedition are to obtain geotechnical information at Site NT2-03 needed for well planning of future riser drilling down to 3500 meters below seafloor (mbsf). This site’s location is also critical for understanding the nature of the shallow portions of splay faults. The scientific targets of this expedition are deformation mechanics, fault-related fluid source and migration pathways, and correlations between fault activity and slump

deposits on the trench slope. Operations include HPCS/ESCS coring to 600 mbsf and RCB coring from 600-1000 mbsf. Following coring operations, 36inch conductor casing will be jetted-in to ~60 mbsf and 20inch casing run to ~700 mbsf in preparation for riser drilling efforts in FY2009.

4.3.2.2 Experiments: Downhole measurements (LWD, Wireline, Others)

Only a minimal wireline logging program is expected (assuming a successful LWD expedition, consisting of a single-trip run of high-resolution electric resistivity imaging, natural gamma radiation and sonic velocity, followed by a vertical seismic profile (VSP).

If Expedition 314 LWD operations are unsuccessful, one of two options will be utilized. If the failure on the LWD expedition is the result of problems not related to hole conditions (e.g., mechanical problems, weather conditions, time limitations, etc.), a full wireline logging program will be conducted. This program will include the Triple Combination (natural gamma radiation, density, neutron porosity, and electrical resistivity) in the first run, oriented electric resistivity imaging, natural gamma radiation and sonic velocities on the second run, and a VSP on the third run. If unsuccessful LWD operations are the result of bad hole conditions, wireline logging is also expected to be problematic and only a VSP will be run.

4.3.2.3 Environment and safety

The upper 180 m have been interpreted as slump deposits, which may contain loose coarse sand layers. Operations in this area are also subject to interruption by the Kuroshio current.

4.3.2.4 Logistics

This expedition will run from 12 November to 17 December, 2007. A several-day overlap with the previous expedition is planned for many technical and scientific staff. All personnel transfers will be via helicopter.

4.3.2.5 Core Storage

Cores from NanTroSEIZE Mega-Splay Riser Pilot expedition will be stored at Kochi Core Center.

4.3.3. NanTroSEIZE Thrust Faults Expedition (Expedition 316)

4.3.3.1 Proposed Operations

Expedition 316 is intended to comprehensively evaluate the deformation, inferred depth of detachment, structural partitioning, and fault zone physical characteristics at the frontal thrust (proposed Site NT1-03B) and at the shallow portion of the megasplay system (proposed Site NT2-01B). Site NT1-03B will be drilled and cored to a total depth (TD) of 950 mbsf, and Site NT2-01B will be drilled and cored to a total depth of 1000 mbsf. Hole C at Site NT2-01B will also be fitted with a re-entry cone and cased to TD in preparation for crosshole hydrologic

experiments and installation of monitoring equipment planned for future operations.

4.3.3.2 Experiments: Downhole measurements (LWD, Wireline, Others)

Formation temperature measurements (APCT-3; DVTP) will be conducted during coring operations.

The specifications of the logging runs will depend on whether LWD operations were successfully conducted during Expedition 314 at this site. If LWD operations were successful and the full planned suite of measurements were taken, there will be no wireline runs. If LWD operations were unsuccessful because of poor borehole conditions, it is unlikely that hole conditions will allow successful wireline logging. However, if LWD operations did not reach this site because of time limitations or were not successful because of mechanical issues, there will be a logging run with density, porosity, natural gamma radiation, and electrical resistivity (triple combination, i.e., triple combo) and a second wireline logging run with sonic velocity, resistivity imaging, and gamma radiation. In addition, a vertical seismic profile (VSP) will be conducted. Side-wall formation pressure and fluid sampling tools are under consideration.

4.3.3.3 Environment and safety

The local environment has been surveyed for both natural and man-made hazards, and has been found to be safe for drilling - there are no nearby cables or installations, the slopes and materials are all within engineering specifications, and the drilling will take place during the off-season for fisheries. Ship traffic will be monitored continuously. No overpressure, excessive fluid flow, hydrocarbon, or methane hydrates are expected.

4.3.3.4 Logistics

The expedition will run from 13 December 2007 through 5 February 2008 (subject to minor change). All crew and staff changes will be conducted via helicopter.

4.3.3.5 Core Storage

Cores from the NanTroSEIZE Thrust Faults Expedition will be stored at Kochi Core Center.

4.4. FY2008 ECORD Science Operator Operations

The ECORD Science Operator (ESO) plans to conduct the offshore component New Jersey Shallow Shelf Expedition in FY2008, with its Onshore Science Party in FY2009. If the New Jersey Shallow Shelf Expedition can be conducted early enough in FY2008 (discussions are ongoing at the time of writing), it may be feasible to also carry out the Great Barrier Reef expedition in the period of September–November 2008. Thus both programs presented here. Costs associated with the planning of the latter expedition are included in this Annual Program Plan.

4.4.1. New Jersey Shallow Shelf

4.4.1.1 Proposed Operations

The main objective of the New Jersey Shallow Shelf expedition is to obtain continuous cores and downhole logging measurements from a modern continental margin within crucial paleo-innershelf facies to (1) estimate amplitudes, rates and mechanisms of sea-level change, (2) date major “icehouse (Oligocene-Recent) sequences and (3) evaluate sequence stratigraphic facies models that predict depositional environments, sediment compositions, and stratal geometries in response to sea-level change.

Three holes will be drilled to depths of approximately 750 mbsf (Figure APP-10) while attempting to maximize core recovery. The platform to be used has yet to be determined and is dependent upon ongoing contractual discussions, as is the methodology for downhole logging.

4.4.1.2 Experiments

No downhole experiments other than a VSP are planned during Expedition 313. Incorporation of this experiment is dependent on environmental constraints and drilling/logging methods.

4.4.1.3 Environment and Safety

An independent gas hazard survey has concluded that there is no gas risk. A geotechnical site investigation and shallow seismic survey has also been conducted. A permit has been obtained from the National Marine Fisheries Service to allow seismic shooting for VSP work.

4.4.1.4 Logistics

It is estimated that coring and downhole logging will take between 60 and 90 days, depending on the requirement for casing. The longer duration is presented below.

4.4.1.5 Core Storage

Cores from the New Jersey Shallow Shelf Expedition will be stored at the Bremen Core Repository.

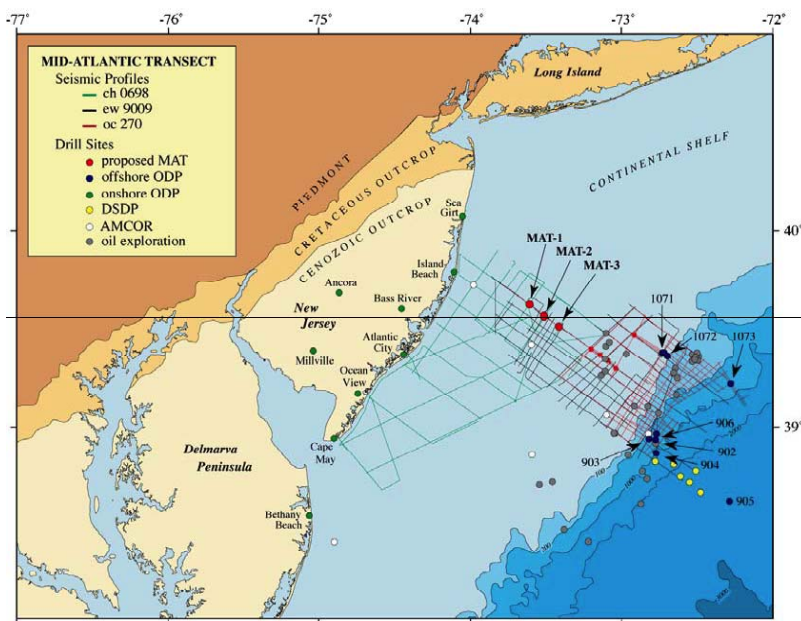


Figure APP-10
Expedition 313 Location Map. The New Jersey continental margin showing the proposed drill sites MAT-1, MAT-2, and MAT-3 plus other drill-completed boreholes both onshore and offshore. The tracks of reconnaissance seismic lines relevant to the goals of this expedition are shown.

4.4.2. Great Barrier Reef (GBR)

If the New Jersey Shallow Shelf Expedition can be conducted early enough in FY2008 (discussions are ongoing at the time of writing), it may be feasible to carry out the Great Barrier Reef expedition in the period from September to November 2008. Thus, the proposed operations are presented here. Costs associated with the planning of this expedition are included in this Annual Program Plan.

4.4.2.1 Proposed operations

Great Barrier Reef is the second half of proposal #519 that seeks to establish the course of the last deglacial sea-level rise and to identify short-term paleoclimatic and paleoceanographic changes that are thought to have punctuated the transitional period between present-day climatic conditions following the Last Glacial Maximum (Figure APP-11). The first part of the proposal has been previously drilled (Tahiti, Expedition 310).

The water depths for the proposed drilling sites range from about 40 to 120 m and require the use of a dynamically positioned (DP) vessel in order to minimize the seabed footprint of the drilling (i.e., no anchors will be used). The vessel would have a class 2 DP, and as such, would have a minimum dual redundancy in propulsion and navigation systems to meet IODP and international requirements with regard to safety and position-keeping.

ESO proposes to use an HQ mining-type wireline coring system with a conductor

to the seabed. A seabed template of around 1.8 m diameter and weighing 10 to 12 tons will be deployed at the end of the conductor pipe. This template has a 'skirt' of approximately 30 mm thickness, which extends some 500 mm into the body of the template. The template is drilled into the seabed to approximately 300 mm to provide an anchor to the seabed. By doing this, a circular area 1.8 m in diameter is 'enclosed' but only the peripheral edge and the centre where the borehole will be drilled directly impinges on the reef surface.

Before placing the template of the seabed, a video camera survey of the immediate area will be carried out to ensure both that the site is technically suitable and to avoid live corals in the shallower waters. Videos taken during the Tahiti expedition show that impact on the seabed was slight, and commonly not detectable. Seawater will be used as a drilling fluid in order to avoid any seawater or subsurface contamination.

It is proposed to use an HQ mining-type wireline coring system with a conductor to the seabed. This type of equipment has been used extensively in other coral reef situations worldwide and has a good track record, including the IODP Tahiti reef drilling in 2005 for Expedition 310. A seabed template of around 1.8m diameter and weighing 10 to 12 tons will be deployed at the end of the conductor pipe, with only the peripheral edge (1.8m diameter) and the center where the borehole will be drilled directly in contact with the seabed.

Before placing the template of the sea bed, a video camera survey of the immediate area will be carried out to ensure both that the site is technically suitable and to avoid live corals in the shallower waters. Videos taken during the Tahiti expedition show that impact on the seabed was slight, and commonly not detectable. Seawater will be used as a drilling fluid in order to avoid any seawater or subsurface contamination.

4.4.2.2 Experiments

No downhole experiments are planned.

4.4.2.3 Environment and Safety

All work will be consistent with IODP Reef Drilling Guidelines and Health, Safety and Environment policy. An Environmental Impact Statement is being prepared as part of the permitting process.

4.4.2.4 Logistics

Coring and downhole logging will last between 40 and 50 days (based on experience at Tahiti Expedition 310).

4.4.2.5 Core Storage

Cores from the Great Barrier Reef expedition will be stored at the Gulf Coast repository.

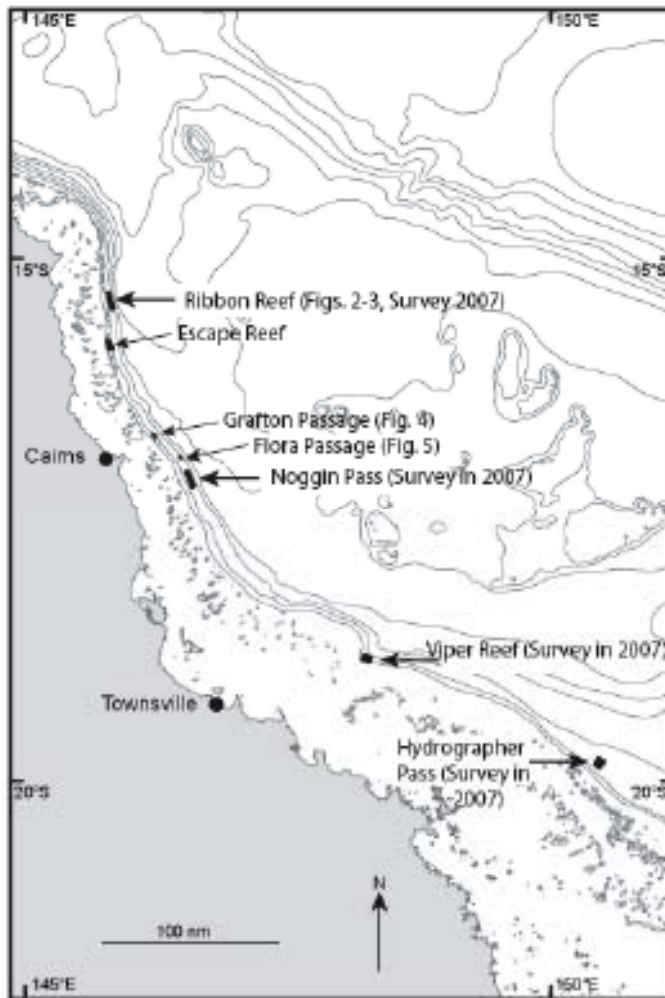


Figure APP- 11: Generalized locations of likely coring sites/transects for the Great Barrier Reef Expedition.

5. Management and Administration

5.1. Goals

The goal of Management and Administration of various IODP related entities, including IODP-MI, IOs, SAS, and Program Offices is to plan and coordinate with other IODP-related entities; oversee, review, and report on IODP activities.

5.2. Deliverables in FY2008

- **Annual Program Plan**
Annual Program Plan (APP) is the central document in IODP, which describes all the planned activities and costs in Science and Platform Operations. APP is drafted by IODP-MI in close coordination with the IOs. After being approved by SASEC and the Board of Governors, the APP is finalized by approval of the Lead Agencies. Both IODP-MI and IOs are required to assure the implementation of activities written in the APP.
- **Quarterly and Annual Reports**
IODP-MI and IOs develop quarterly and annual reports, including financial reports.
- **Reporting and Liaising (Mostly for IOs):** Report and liaise with funding agencies and with IODP-related entities (e.g., SAS meeting), Program Member Offices and other national organizations and participate in IODP-MI Task Forces, working groups, etc.
- **Coordination (for IODP-MI)**
Most of IODP-MI's work comes under Management and Administration. IODP-MI "coordinates" with IOs, SAS Panels, SPC, SASEC, Board of Governors, Program Offices, funding agencies and various subcontractors. "Coordination" is the major deliverable of Management and Administration of IODP-MI, and various task forces play a key function in this coordination.
- **Contract Services:** Provide contract services for IODP-related activities.
- **Legacy Documentation:** During FY2008 IODP-MI and the Implementing Organizations, with advice from the Science Advisory Structure, will develop a plan to insure that the appropriate documents are being preserved as part of the IODP Legacy. The plan will identify the documents, responsible parties, and appropriate resources that are required for this ongoing practice.

5.3. Budget

Expense Category	IODP-MI	USIO	CDEX	ESO	Bremen	SIO	Total
Salary and Fringes	\$ 1,765,507	\$ 1,128,799	\$ 113,900	\$ 515,600			\$ 3,523,806
Travel	\$ 663,700	\$ 58,358		\$ 132,400			\$ 854,458
Supplies	\$ 22,500	\$ 22,581	\$ 60,000	\$ 11,000			\$ 116,081
Shipping	\$ 15,000	\$ 4,550					\$ 19,550
Communication	\$ 15,000	\$ 19,413		\$ 2,000			\$ 36,413
Contractual Services	\$ 170,000	\$ 4,500	\$ 83,500				\$ 258,000
Equipment	\$ 10,000	\$ 6,750		\$ 10,000			\$ 26,750
Other Direct Costs	\$ 1,555,000	\$ 102,161					\$ 1,657,161
Total Direct Costs	\$ 4,216,707	\$ 1,347,112	\$ 257,400	\$ 671,000			\$ 6,492,219
Modified Direct Costs (If applicable)		\$ 146,505	\$ 173,900				\$ 320,405
Indirect Costs/Administrative Fee		\$ 346,480	\$ 52,170				\$ 398,650
Total	\$ 4,216,707	\$ 1,693,592	\$ 309,570	\$ 671,000	\$ -	\$ -	\$ 6,890,869

Table APP- 3: Management and Administration Budget for FY2008

5.4. Justification

5.4.1. IODP-MI

Salaries and Fringes: 12 Full Time Employees (FTEs) for the IODP-MI DC office. The salaries and fringes for IODP-MI Sapporo office, except one key personnel, are included in the Subcontract with AESTO (See **Appendix G**).

Travel includes all domestic and foreign travel for the IODP-MI staff (DC and Sapporo), AESTO staff, the SPC and SASEC chairs, multiple task forces (Outreach, Publications, Data Management, Engineering Development, Observatories, Expedition Reviews, QA/QC), Project Management Teams, an advisory group (Management Forum), Board of Governors, Executive Committee meetings, and one Industry meeting.

Supplies such as office supplies are based on full staffing during the year, computer additions and upgrades as needed.

Shipping includes costs for regular postage, overnight deliveries and bulk mailings.

Communications include costs for telecommunications, network operations and video conferencing.

Contractual Services include scientific advisors/experts, Contracts Officer position (currently a contractor), outsourced IT services (instead of a staff position), annual audit fee and legal expenses.

Equipment: There is only one anticipated cost for equipment (defined as over \$5,000 each item) for FY2008.

Other Direct Costs:

Office and equipment rental: \$336,000. This represents IODP-MI's estimate of DC office rent for the full year as well as office machine rentals including a copier.

Specialty Coordinators: \$100,000. Funds are allocated for members of the NanTroSEIZE PMT to coordinate disciplinary science over NanTroSEIZE Stage 1 expeditions. Specialty Coordinators will focus on integration and coordination of scientific results between and among all of the individual expeditions.

Mission Teams: \$30,000. Funds are allocated to support one yet-to-be-determined Mission Team meeting.

Industry Consultant: \$40,000. Continuation of a consultant contracted for a limited assignment to recommend how IODP can move forward to interact with industry managers.

SASEC Chair: \$50,000. The Chair will be partially paid by IODP-MI for his/her time and effort on the committee.

SPC Chair and assistant: \$40,000.

Insurance: \$38,000. This includes all corporate insurance for liability, property, international, etc.

Honoraria for Panel Chairpersons: \$35,000. Honoraria for SPC Panel Chairs.

Meeting expenses: \$36,000. These include the costs of meeting rooms, working lunches, audiovisual equipment, etc.

Relocation and recruiting: \$25,000.

Software: \$20,000. This covers renewal of licenses for existing software.

Bank charges: \$10,000.

Association dues and subscriptions: \$5,000. This covers organizational membership and subscriptions.

Subcontract: AESTO: \$790,000. This includes salaries and fringes for IODP-MI Sapporo Office, office supplies, shipping, communications, software etc. The details of the subcontract are described in Appendix G.

5.4.2. USIO

Salaries and Fringes: Salaries, fringes, and sea pay, including an anticipated cost-of-living allowance and estimated fringe benefits rate.

Travel—Transportation, per diem, lodging, and other associated costs. USIO travel to SAS panel meetings, task force meetings, IO meetings, USIO meetings, workshops, and national and international meetings; JOI travel to port calls, USIO-LDEO travel to subcontractor site visits and professional training courses and meetings; and USIO-TAMU travel to insurance meetings.

Supplies—General office supplies and expendables and operational supplies.

Shipping—Postage, express mail, courier services, and freight.

Communication—Telephone and fax charges and Internet services.

Contractual Services—Consultant and contract services. Printing and copying of materials. Consultant services in support of network and video conferencing equipment (JOI).

Equipment—Computers, monitors, and printers for new staff and replacement of equipment.

Other Direct Costs—Costs not covered in the other categories.

Training—\$7,960. Registration, transportation, per diem, and lodging expenses related to professional training.

Business Conferences—\$2,760. Expenses associated with meetings hosted by USIO. Expense of program-wide conferences and meetings.

Insurance—\$3,981. Annual insurance premiums.

Services—\$62742. Lease on off-premises records storage facility, student workers, corporate legal assistance, partial cost of others' services, visitor parking permits, printing services, TAMU Physical Plant services, and temporary labor.

TAMU Computing Services—\$12,285. Use of TAMU's financial and management information system (FAMIS).

Equipment Rental—\$270. Rental of equipment when it is more economical to rent than purchase.

Furniture—\$1,080. Office furniture and storage cabinets for use in office and at external storage facilities.

Recruiting—\$5,400. Employee recruitment.

Maintenance and Repair—\$4,822. Equipment service agreements on copiers, replacement parts and service for fax machines, shredders, and so on.

Library—\$861. Books, journals, and other resources.

Indirect Costs—Administrative and financial costs associated with operating the Program. The specific equations used to calculate these costs vary by institution (For details, see 5.3 of **Appendix B**).

5.4.3. CDEX

Salaries and Fringes: Salaries etc.

Supplies: Office supplies.

Contractual Services: Logistic Assistant (\$57,400), and Accounting Assistant (\$26,100).

5.4.4. ESO

Salaries and fringes: Salaries etc.

Travel: Transportation, per diem and accommodation for all tasks, including ESO internal meetings, IO meetings, ECORD Council meetings, ESSAC meetings, meetings of other IODP bodies including panels and committees, IODP-MI task forces, operational reviews and a range of appropriate scientific conferences (including conference fees) and workshops.

Supplies: General office supplies.

Communication: Phone, fax etc. for Bremen.

Equipment: Miscellaneous items, upgrades etc.

6. Technical, Engineering and Science Support

6.1. Goals

Goals for this work breakdown element (WBE) primarily relate to the Implementing Organizations and include managing, coordinating, and performing the activities and providing the services, materials, platforms, and ship- and shore-based laboratories necessary to support IODP expeditions.

6.2. Deliverables for FY2008

Generic deliverables for this Work Breakdown Element are presented below. These deliverables are applicable to the specific IO expedition operations described in Section 4 of the main text of this report, as well as in Appendices B (USIO), C (CDEX), and D (ESO).

- Expedition Planning and Implementation: Provide scientific and operational planning and execution for each scheduled expedition, including provision of a drilling platform. Conduct long-range operational planning for out-year expeditions.
- Reporting: Provide expedition-related reports and content for expedition publications (e.g., *Scientific Prospectus*, *Preliminary Report*, etc.). Act as a liaison to Science Advisory Structure (SAS) and other panels and task forces as appropriate.
- Expedition Staffing: Provide selection and support for scientific staffing and Co-Chief Scientist selection for each scheduled expedition. Provide support for shipboard and shore-based technical personnel and activities.
- Logistical Support: Provide for expedition and shore-based activities including procurement, shipping, and inventory of equipment and supplies.
- Analytical Systems: Provide and maintain shipboard and shore-based analytical facilities and associated quality control/quality assurance protocols. Ensure effective capture and transfer of expedition data to database systems.
- Logging: Provide for the delivery of logging services including back-off/severing services where needed.
- Engineering Support: Provide engineering support for maintaining and developing shipboard and shore-based drilling, coring, logging, and downhole systems including third-party developments.

6.3. Budget

Expense Category	IODP-MI	USIO	CDEX	ESO	Bremen	SIO	Total
Salary and Fringes		\$ 3,424,422	\$ 1,053,800	\$ 770,600			\$ 5,248,822
Travel		\$ 411,645		\$ 102,000			\$ 513,645
Supplies		\$ 196,665	\$ 110,000	\$ 244,000			\$ 550,665
Shipping		\$ 318,773	\$ 50,000	\$ 40,000			\$ 408,773
Communication		\$ 21,414		\$ 3,000			\$ 24,414
Contractual Services		\$ 1,491,649	\$ 6,100,833	\$ 1,050,900			\$ 8,643,382
Equipment		\$ 159,500					\$ 159,500
Other Direct Costs		\$ 273,295		\$ 20,000			\$ 293,295
Total Direct Costs		\$ 6,297,363	\$ 7,314,633	\$ 2,230,500			\$ 15,842,496
Modified Direct Costs (If applicable)		\$ 917,393	\$ 1,213,800				\$ 2,131,193
Indirect Costs/Administrative Fee		\$ 486,218	\$ 364,140				\$ 850,358
Total	\$ -	\$ 6,783,581	\$ 7,678,773	\$ 2,230,500	\$ -	\$ -	\$ 16,692,854

Table APP- 4: Technical Engineering and Science Support Budget for FY2008

6.4. Justification

6.4.1. IODP-MI

None budgeted.

6.4.2. USIO

Salaries and Fringes.

Travel—Transportation, per diem, and other associated costs.

IODP meetings and workshops; IO and USIO meetings; pre-expedition and post-expedition meetings; sampling at repositories; FY2009 planning meetings; travel costs for staff who will work at port calls; sail on the first transit and/or sail on FY2008 expeditions. Also includes USIO-Lamont Doherty Earth Observatory (LDEO) travel to professional training courses and meetings.

Supplies—Office and operational supplies.

Shipping—Postage, express mail, and freight.

Communication—Telephone and fax charges.

Contractual Services—Consultant and contract services.

Subcontract to members of the Logging Consortium (University of Montpellier, France; University of Leicester, UK and University of Aachen, Germany) to provide shipboard participation of logging Staff Scientists, liaisons to selected panels as needed, and scientific support for program planning and logging-related projects.

Subcontract to Schlumberger for provision of a standard suite of tools, engineer services, software support, and mobilization services; specialty tools for use on individual cruises as needed; a dedicated engineer on the ship for each cruise and support from the base of operations; and the services of a district engineer, staff

engineer, electronics technician, and special services engineer on an as-needed basis (part-time to nearly full-time support); and the day rate for tool insurance for the deployment of downhole logging tools.

Laboratory analytical instrument consultant service.

Equipment - Logging operations and laboratory equipment. Tools and equipment in support of logging and downhole measurement tool testing at USIO-LDEO Environmental Stress Screening Facility (ESSF). Other drilling or science supplies may be purchased in support of USIO deliverables.

Other Direct Costs—Costs not covered in the other categories.

Tuition Remission— \$16,738. Tuition remission for a graduate student at USIO-LDEO.

Relocation— \$16,680. Relocation costs for new employees.

Training— \$91,764. Registration, transportation, per diem, and lodging expenses related to professional training and attendance at professional meetings.

Business Conferences— \$7,733. Incidental expenses associated with meetings hosted by USIO.

Insurance— \$4,000. Annual insurance premiums for TAMRF.

Services— \$68,656. Expert assistance. Annual physical examinations for seagoing personnel, copier services, external copying and printing services, vehicle and warehouse equipment repair, testing and calibration of laboratory instruments, machine shop services, X-ray, CT scanning, design consulting, and weather analysis for Initial Proposal Evaluations.

Furniture— \$800. Office furniture.

Recruiting— \$7,653. Employee recruitment.

Maintenance and Repair— \$42,473. Maintenance agreements and equipment repairs. Maintenance and repair of office equipment, postage meter, vehicle fleet, equipment in warehouse, overhead cranes, other loading dock equipment, and equipment and infrastructure in the shipboard laboratories.

Library— \$16,798. Books, journals, and other resources.

Indirect Costs—Administrative and financial costs associated with operating the program.

6.4.3. CDEX

Salaries and Fringes: Salaries, etc.

Supplies:

On Board Lab Supplies

Shipping:

Core container transportation from Shingu to KCC (\$40,000)

Miscellaneous shipping (\$10,000)

Contractual Services:

On Board Technical Services (\$3,286,957) provided by Marine Works Japan. The details of the services are described in 6.3.4. of **Appendix C**.

LWD/MWD Services for Expedition 314 (\$2,433,876)

Chikyu Lab Measurement Instrument Maintenance (\$300,000)

DVTP Operation services for Expeditions 315/316 (\$80,000)

6.4.4. ESO

Salaries and fringes: Salaries etc.

Travel: Scoping, planning and preparation will require a variety of meetings among ESO staff, with co-chiefs and scientists, scoping groups, discussion with actual or potential contractors, for contractual issues and staff exchanges.

Supplies: Analytical consumables and supplies for both onshore New Jersey and Great Barrier Reef (GBR) offshore.

Shipping: Shipping of science containers for offshore operation, and shipping of previous MSP expedition cores.

Communication: Couriers.

Contractual services: Hire of MSCL for offshore New Jersey. Logging contracts for both New Jersey and GBR.

Other Direct Costs: Bremen University laboratory upkeep and certification.

7. Engineering Development

7.1. Goals

Utilize the SAS-derived IODP Technology Roadmap as the primary guide for the acquisition of existing or latent technology that is required for IODP to meet the science objectives described in the Initial Science Plan.

7.2. Deliverables

Two specific Engineering Development projects are proposed for FY2008 and include the continuation of the CDEX Long-Term Borehole Monitoring System and a Core Quality/Quantity Analysis by IODP-MI personnel.

7.2.1. CDEX – Long-Term Borehole Monitoring System

CDEX provided key LTBMS deliverables to IODP-MI in late FY2006 and early FY2007. These included the feasibility study, high level design document, and a detailed FY2007 development plan. All deliverables were reviewed by IODP-MI and the Engineering Task Force with comments and recommendations being returned to CDEX. The review process, determined that it is feasible to construct the proposed system and that CDEX is well suited to lead the development effort. IODP-MI recommended that the FY2007 LTBMS development commence in February 2007.

In FY2008, CDEX will complete the design of each downhole telemetry and subsea telemetry component. During the design of each electronic component and system, technologies will be identified that overcome issues related to high temperature circuits, sensor interface circuits, low power circuits, and component life. High temperature (>125°C) oven tests will be conducted to verify the long-term reliability of the downhole electronics. In parallel, the design and initial construction of the experimental prototype (EXP) will occur in FY2008 to prepare for a field test in FY2009.

In FY2009, construction and evaluation of the EXP will be deemed complete following assembly and the successful completion of individual component tests to ensure the proper functioning of all systems. Also a major engineering effort in FY2009 will be the EXP field test in a land well. A second identical EXP will be constructed and oven-tested to evaluate long-term system reliability for 5 years at 125°C.

LTBMS work in FY2010 and FY2011 will focus on the required alterations to the system that will be identified during the bench and field tests in FY2009. The wellhead design will be completed and the hardware purchased utilizing funds other than Science Operating Costs. The entire LTBMS system will be prepared for

deployment in NT2-03A in FY2011, which will involve detailed planning, sensor integration and complete instrument assembly to create its final deployment configuration for NT2-03A.

Task	FY2008				FY2009				FY2010				FY2011			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Start detailed system design and create lab mock-up components	X	X	X													
Lab mock-up experiments to evaluate key part design	X	X	X													
Finalize detailed system design of subsea telemetry module and downhole telemetry			X													
Provide detailed system design documents such as circuit drawings and BOM				X												
Lab mock-up integration test including firmware			X	X												
Provide manufacturing plans of the EXP and system integrated mock-up				X												
Provide environmental life test plan				X												
Provide system control software specifications				X												
Parts procurement for system integrated mock-up				X												
Provide draft document of the EXP deployment procedures				X												
System Life Testing - planning, mock-up building			X	X	X	X										
System Life Testing - testing, reporting							X	X								
EXP fabrication, part procurement, assembly and testing				X	X	X	X									
EXP field test requirements			X	X												
EXP field test plan in land hole				X												
Field test and reporting							X	X								
Update and revise design based on field test									X	X	X	X				
Develop deployment procedure											X	X	X	X		
Design and procure well head (POC)											X	X	X	X		
Integrate and assemble uphole and downhole components												X	X	X		
Prepare for deployment in NT2-03A based on drilling data														X	X	
Deploy in NT2-03A																X

Table APP-5: LTBMS Schedule FY2008-FY2011

7.2.2. IODP-MI: Core Quality and Quantity Analysis

During FY2008 IODP-MI personnel will begin an initiative to quantify coring results such as the quality of core recovered and also identify the factors controlling the quantity of collected core. This effort is in direct response to Engineering Development Panel recommendations and the higher priority technologies listed on the IODP Technology Roadmap. The outcome of this study will be a series of recommendations on how IODP can improve core quality and quantity through procedures and technology. See Section 5.2.1. of Appendix A for details of this project.

7.2.3. USIO Engineering Development

The USIO declined to include any SOC engineering development requests for FY2008.

Note 1 – A previously proposed FY2007 USIO SOC engineering development project, the Pulse Telemetry Module, was cancelled by the USIO in 2007. At this time, the USIO has not indicated if the project will be reinstated at a later date (i.e., FY 2009 or beyond).

7.2.4. ESO Engineering Development

ESO declined to include any SOC engineering development requests for FY2008.

Note 1 – IODP-MI was prepared to fund a Class A (<\$100,000) engineering development project for a through-pipe camera, based upon the feasibility study that resulted from a funded FY2007 ESO project. However, no project was proposed for FY2008. At this time ESO has not indicated if this project will be proposed at a later date (i.e., FY2009 or beyond).

7.3. Budget

Expense Category	IODP-MI	USIO	CDEX	ESO	Bremen	SIO	Total
Salary and Fringes			\$ 101,900				\$ 101,900
Travel	\$ 6,000						\$ 6,000
Supplies			\$ 30,000				\$ 30,000
Shipping							\$ -
Communication							\$ -
Contractual Services	\$ 18,000		\$ 1,910,000				\$ 1,928,000
Equipment							\$ -
Other Direct Costs	\$ 5,000						\$ 5,000
Total Direct Costs	\$ 29,000		\$ 2,041,900				\$ 2,070,900
Modified Direct Costs (If applicable)			\$ 131,900				\$ 131,900
Indirect Costs/Administrative Fee			\$ 39,570				\$ 39,570
Total	\$ 29,000	\$ -	\$ 2,081,470	\$ -	\$ -	\$ -	\$ 2,110,470

Table APP- 6: Engineering Development Budget for FY2008

7.4. Justification

7.4.1. IODP-MI

Travel includes domestic and international travel for IODP-MI staff and contractor to visit IOs and appropriate technology companies that supply coring equipment.

Contract Services (\$18,000) – It is anticipated that some coring data or specific drilling dynamics analysis expertise will not be available from IODP sources. An industry coring contractor or consultant will be hired to fill in the data or knowledge gap in these cases. The contractor will work interactively with IODP-MI by

completing deliverables to be specified prior to initiation of any contracted work.

Other Direct Costs: Software (MATLAB License) and computer/monitor.

7.4.2. USIO

None budgeted.

7.4.3. CDEX

Salary and Fringes.

Supplies: Office and Lab Supplies.

Contractual Services: Engineering Detailed Design, Development, and Testing (\$1,900,000); English translation and graphic design.

7.4.4. ESO

None budgeted.

8. Core Curation

8.1. IODP Core Curation

8.1.1. Goals

The major goal associated with this Work Breakdown Element is to provide services in support of IODP core sampling and curation of the core collection archive. IODP support operations at three primary core repositories: the Gulf Coast Repository (GCR) operated by the USIO, the Kochi Core Center Repository (KCC), operated by CDEX, and the Bremen Core Repository operated by Bremen University (Table APP-7). During FY2008, IODP will continue to fund operations at the East Coast Repository and West Coast Repository (operated by the USIO) while these two repositories distribute their DSDP/ODP collections to the three primary repositories (see Section 8.2 below).

8.1.2. Deliverables in FY2008

The primary deliverables for the repositories during FY2008 are listed below.

- **Policy and Procedures:** Work with other implementing organizations, the Science Advisory Committee (SAS), and the IODP central management office (IODP-MI) to implement a policy for IODP core curation. Work closely with staff to coordinate, standardize, and document curatorial procedures for IODP cores and samples.
- **Sample and Curation Strategies:** Plan sample and curation strategies for specific expeditions identified in Section 4 of this Annual Program Plan and review all shipboard and moratorium-related requests in coordination with the other members of the Sample Allocation Committee (SAC) for each expedition.
- **Sample Requests:** Respond to post-moratorium sample requests from the scientific community.
- **Use of Core Collection:** Promote the outreach use of the core collection in collaboration with Implementing Organization (IO) and IODP-MI education/outreach personnel by providing materials for display at meetings or museums, as well as conducting tours and supporting other program outreach activities
- **Meetings:** Host and/or participate an annual IODP curatorial staff meeting. Act as IO liaison for meetings with the other IOs, IODP-MI, and the SAS, as appropriate.
- **Prepare legacy documentation for sampling activities.**

Repository	Institution	Geographic Location
GCR	Texas A&M University	Pacific Ocean (east of western trench boundaries); Caribbean Sea and Gulf of Mexico; Southern Ocean (>60°S, except Kerguelan Plateau)
BCR	University of Bremen	Atlantic Ocean, Mediterranean Sea, Arctic Ocean (north of Bering Strait)
KCC	Kochi University	Western Pacific Ocean (west of trench boundaries); Indian Ocean, Kerguelan Plateau; Bering Sea

Table APP- 7: IODP Core Redistribution guidelines as recommended by SAS.

8.1.3. Budget

Expense Category	IODP-MI	USIO	CDEX	ESO	Bremen	SIO	Total
Salary and Fringes		\$ 504,117	\$ 182,100	\$ 51,900	\$ 161,147		\$ 899,264
Travel		\$ 24,710		\$ 6,000	\$ 12,050		\$ 42,760
Supplies		\$ 24,700	\$ 40,000	\$ 2,000	\$ 13,888		\$ 80,588
Shipping		\$ 21,500	\$ 30,000	\$ 20,000	\$ 28,657		\$ 100,157
Communication		\$ 4,692	\$ 1,000				\$ 5,692
Contractual Services			\$ 183,522				\$ 183,522
Equipment							\$ -
Other Direct Costs		\$ 206,381	\$ 5,000				\$ 211,381
Total Direct Costs		\$ 786,100	\$ 441,622	\$ 79,900	\$ 215,742		\$ 1,523,364
Modified Direct Costs (If applicable)			\$ 258,100				\$ 258,100
Indirect Costs/Administrative Fee			\$ 77,430		\$ 86,297		\$ 163,727
Subtotal Core Curation	\$ -	\$ 786,100	\$ 519,052	\$ 79,900	\$ 302,039	\$ -	\$ 1,687,091

Table APP- 8: Core Curation Budget for FY2008

8.1.4. Justification

8.1.4.1 IODP-MI

None budgeted.

8.1.4.2 USIO

Salaries and Fringes— Salaries, etc.

Travel—Transportation, per diem, and other associated costs. IODP meetings and workshops, other IO and USIO meetings, and travel costs for staff to work at port calls, sail on the first transit, and/or sail on FY2008 expeditions.

Supplies—General office supplies, printer supplies, general laboratory supplies and specialized supplies for sampling and curatorial tasks, and supplies for packing extra-large shipments or hydrate shipments and hosting sampling parties.

Shipping—Postage for regular correspondence, regular-sized sample shipments to scientists, bulk shipments of sampling supplies from the GCR to the ECR and WCR, and three extra-large sample shipments for FY08 (for frozen hydrates, u-channels, or whole core sections for scanning) at an average cost of \$2,000 each.

Communication—Telephone and fax charges.

Other Direct Costs—Costs not covered in the other categories.

Services— \$192,781. Expert assistance. Refilling liquid N₂ for frozen hydrate samples; lease and utility costs (power, refrigeration) associated with the operation of the ECR and WCR, including an anticipated 5% increase in rates; student support at WCR, including one half-time student for regular repository activities; funds to cover other services provided in support of the WCR through University of California, San Diego; and indirect costs and services associated with charges incurred in support of the ECR through LDEO, such as shipping and supplies.

Maintenance and Repair— \$13,600. Repairs and maintenance for storage buildings, refrigeration units, laboratory and office equipment, forklift, and shrink-wrap machine.

8.1.4.3 CDEX

Salary and Fringe: Salaries, etc.

Supplies: Core Distribution Kit (\$30,000); office supplies (\$10,000)

Shipping: Core Distribution

Communication: Fax and telephone

Contractual Services: Curation Technicians & Administrative Assistant (\$156,522). Reefer cleanliness (antifungal treatment) (\$5,000); Website update (\$2,000); display items for Outreach at KCC (\$20,000).

8.1.4.4 ESO

Salaries and fringes: Salaries, etc.

Travel: This category is an estimated projection for travel to meetings related to IODP curatorial topics. It may include visits to the Gulf Coast and Kochi Repositories for technical and training exchange, as well as cooperative work.

Supplies: The bulk of this category is for materials related to sampling needs. This includes plastic scoops and tubes, u-channels, Pmag cubes, Styrofoam plugs, sample bags, shipping boxes, labels and ink bands for the printers; tape for the d-tubes and for packing, etc. The amount is loosely based on past needs for MSP core sampling, but future sampling activity levels are difficult to assess. We can only assume that sampling levels will increase as the size of our collection increases.

Shipping: These costs are primarily for courier shipping of samples (inc. u-channels, and archive core halves for non-destructive measurements requests) worldwide to the requesting investigators. As with the Supplies category, the

amount depends on the amount of sampling activity, which certainly will continue to increase with the size of our collection.

8.1.4.5 Bremen

Salary and Fringes: Salaries, etc.

Travel: Travel to meetings related to IODP curatorial topics.

Supplies: Materials related to sampling needs. This includes plastic scoops and tubes, u-channels, Pmag cubes, Styrofoam plugs, sample bags, shipping boxes, labels and ink bands for the printers; tape for the d-tubes and for packing, etc.

Shipping: Courier shipping of samples worldwide to the requesting investigators.

Indirect Costs: This is a flat-rate cost for university and institute administration costs and materials of 40%, based on the high-maintenance nature of this contract and extraordinary size of the operation.

8.2. DSDP/ODP Core Curation

8.2.1. Goals

The DSDP/ODP Core Redistribution Project provides for a continuation (and completion) of the redistribution of all core from the West Coast Repository (WCR) at Scripps Institute of Oceanography and East Coast Repository (ECR) at LDEO, Columbia University to the Bremen Core Repository (BCR), Gulf Core Repository (GCR) and the Kochi Core Center (KCC), the redistribution of Western Pacific and Indian Ocean cores from the Gulf Core Repository to Kochi Core Center and the and the ultimate closure the East and West Coast Repositories.

8.2.2. Deliverables in FY2008

IODP-MI and the IOs developed a core consolidation model, which redistributes the DSDP and ODP core collections located at GCR, ECR, WCR and BCR along the same geographic distribution framework as the plan for IODP core collections. The tables below (Tables APP-9 and APP-10) show the current and proposed core redistribution patterns.

Repository	Institution	Amount of Core/Program	Geographic Location
WCR	Scripps Institution of Oceanography, University of California, San Diego	50 km DSDP	Indian and Pacific Oceans and peripheral seas
ECR	Lamont-Doherty Earth Observatory, Columbia University	75 km DSDP & ODP	Atlantic and Southern Oceans, Gulf of Mexico, Caribbean Sea, and other peripheral seas

GCR	Texas A&M University	120 km ODP	Pacific and Indian Oceans and peripheral seas
BCR	University of Bremen	80 km ODP	Atlantic and Southern Oceans (>60°S), Gulf of Mexico, Caribbean Sea, and other peripheral seas
KCC	Kochi University	0 km	None

Table APP- 9: Current distribution of DSDP and ODP cores.

Repository	Institution	Amount of Core/Program	Geographic Location
GCR	Texas A&M University	106 km DSDP & ODP	Pacific (Pacific plate east of western boundary); Caribbean Sea and Gulf of Mexico; Southern Oceans (S of 60° except Kerguelan Plateau)
BCR	University of Bremen	135 km DSDP & ODP	Atlantic and Arctic Oceans, (north of Bering Strait)
KCC	Kochi University	83 km DSDP & ODP	Pacific (west of western boundary of Pacific plate); Indian Ocean (N of 60°S), and all of Kerguelan Plateau
NJ Geological Survey	Rutgers University	0.62 km ODP Leg 150X	Land-based New Jersey and Delaware cores (to be stored with Leg 174X land cores from New Jersey)

Table APP- 10: Proposed redistribution of DSDP and ODP cores.

The following deliverables are proposed for FY2008 for the DSDP/ODP Core Redistribution Project (See also Table APP-11):

- Core redistribution to BCR: Pack and ship ECR cores to BCR.
- Core Redistribution to KCC: Pack and ship WCR, GCR, and ECR cores to KCC.
- Core Redistribution to GCR: Pack and ship WCR and ECR cores to GCR.
- Closing of Repositories: Close WCR and ECR.

8.2.3. Budget

Expense Category	IODP-MI	USIO	CDEX	ESO	Bremen	SIO	Total
Salary and Fringes		\$ 307,111					\$ 307,111
Travel							\$ -
Supplies							\$ -
Shipping		\$ 290,200			5000		\$ 295,200
Communication							\$ -
Contractual Services			10000				\$ 10,000
Equipment							\$ -
Other Direct Costs		\$ 112,371					\$ 112,371
Total Direct Costs		\$ 709,682					\$ 709,682
Modified Direct Costs (If applicable)							\$ -
Indirect Costs/Administrative Fee					1000		\$ 1,000
Subtotal Core Redistribution	\$ -	\$ 709,682	\$ 10,000	\$ -	\$ 6,000	\$ -	\$ 725,682
Total Core Curation	\$ -	\$ 1,495,782	\$ 529,052	\$ 79,900	\$ 308,039	\$ -	\$ 2,412,773

Table APP- 12: Core Redistribution Budget for FY2008

8.2.4. Justification

8.2.4.1 USIO

Salaries and Fringes – Salaries, etc.

Shipping—Postage, express mail, and freight. Shipping core containers from the ECR to the BCR, GCR and KCC; shipping core containers from the WCR and GCR to the KCC.

Other Direct Costs—Costs not covered in the other categories.

Services—Expert assistance. Funds for students to pack cores at the WCR for shipping to other repositories.

8.2.4.2 CDEX

Contractual Services – Waste treatment.

8.2.4.3 Bremen

Shipping: Costs for inland transportation of the cores.

9. Data Management

9.1. Goals

The goals of data management include: management of data supporting IODP activities, management of expedition and post-expedition data, long-term archiving, access to data, and IT support services.

9.2. Deliverables in FY2008

The IOs are responsible for capturing and storing all drilling-related data generated during shipboard operations. They use their own specific protocols and data bases for this. The system currently used by the USIO is the JANUS system generated during ODP. A new system (Laboratory Information Management System - LIMS) is being developed and is expected to be ready by December 2007. The system to be used by CDEX is the J-CORES system and is currently being modified to accommodate sample data access and metadata harvesting. For expedition use (shipboard and shorebased core description), ESO is using a modified version of the DIS developed for the International Continental Drilling Program (ICDP). ESO-generated expedition data are subsequently legacy-stored in the World Data Center (WDC) PANGAEA system. In FY2008, each IO is responsible for providing access to metadata describing data stored in their respective databases. The Scientific Drilling Information Service (SEDIS) will provide central access to the distributed IO databases (see Figure APP-11) by harvesting metadata from each IO. Sample requests and related core repository data will be handled by the Sample Materials Curation Management System (SMCS). The SMCS and the first phase of SEDIS are to be completed in FY2007.

SEDIS will continue to be the key focus of data management in FY2008. The first phase will already be online and the goal is to centralize data discovery for the scientific community via metadata describing IODP datasets. Each IO will continue to be responsible for capturing and storing all drilling-related data generated during expeditions, but they will also have to provide metadata compliant with the ISO 19115 international standard. SEDIS will harvest the metadata and provide central access to all DSDP, ODP, and IODP data.

In FY2008, SEDIS Phase II will be completed. The main goal of this phase is to have a full text search engine for all official IODP scientific publications, including DSDP and ODP. The central search system will allow text search results to link to datasets (from Phase I) and potentially to site survey data and samples information. A citation database will also be part of SEDIS Phase II. A good part of FY2008 will include discussion with the IOs and the scientific communities about strategies for creating SEDIS Phase III, when more advanced search and visualization tools are expected to be integrated into SEDIS.

The Sample Materials Curation System (SMCS) will be implemented in FY2008 and more functions will be added, such as a sample plan function (possibly with visualization tools). The SMCS will make it easier to manage sample requests from a central location and will allow curators to find out what is available at each core repository dedicated to IODP.

The proposal database will be online by the beginning of FY2008. The main goals of the new proposal database are to make the process of proposal submission more consistent, remove as much as possible error entered by proponents, and make it easier to search and extract information from proposals. Minor adjustments and maintenance of the proposal database are expected in FY2008.

The user registry and the MATRIX will also be operational in FY2008 with no further development.

Finally, another major aspect of data management is coordination of the scientific vocabularies and terminologies used in IODP. With three different operators and cultures, scientific names and concepts do not always mean the same thing. Efforts to come to consensus and create IODP-approved lists of scientific names process started in FY2007 and will be continue in FY2008.

In addition to these program-supported goals, the USIO will be working on a major revision of its prime database (JANUS) that should be online by the first quarter of FY2008. This will be funded from non-IODP program funds and is not further described in the FY2008 APP.

Further details of IO data management activities are included in **Appendices B to D**.

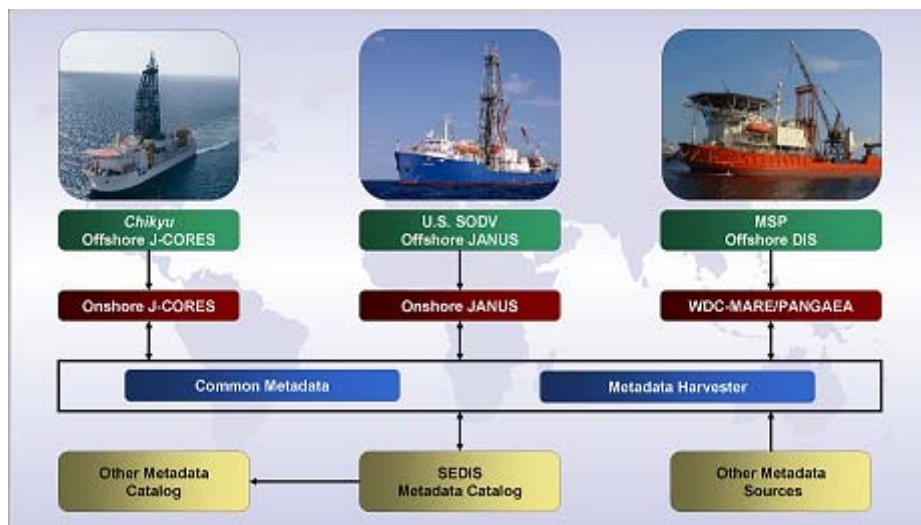


Figure APP-11: Major Aspects of IODP Data Management

9.2.1. Expedition Data

Maintain and manage databases supporting expedition-planning data. Operate and maintain data management and harvesting systems (including QA/QC) for storage and archival of expedition and post-expedition data, including core and sample tracking.

- a. *Completion of modifications to J-CORES*: CDEX is currently modifying J-CORES

database to accommodate sample information access from the core repository at Kochi and for the creation and harvesting of metadata for SEDIS Phase I. The modifications are expected to be completed by the first cruise of *Chikyu*.

- b. ***Acquisition of core and logging data:*** Each IO is responsible for capturing the scientific data that will be collected during the scheduled expeditions for FY2008 and storing the data in their databases so it is accessible to the expedition participants and scientific communities.

9.2.2. Program-wide access portal

Provide program-wide access portal including supporting metadata.

- a. ***Metadata access from each IO:*** Each IO is responsible for providing metadata describing the datasets they have in their own databases. This metadata will then be harvested by SEDIS to provide central access to the program data by the scientific community.
- b. ***SEDIS Phase II: Publication search engine linked to data discovery:*** The requirements for SEDIS Phase II have been written in FY2007; however, the development will take place in FY2008. At the moment, the contractor has not yet been decided, but it will be chosen before the start of FY2008.

The SAS recommended distributing cores on a geographical basis. IODP-MI and IOs defined the basic guidelines for this distribution (**Table APP-11**).

Final distribution is to be determined by the OTF at the time expeditions are scheduled.

- c. ***SEDIS Phase III strategies: Advanced search and visualization tools:*** Draft requirements for SEDIS Phase III have already been written. During FY2008 major discussions with the IOs and the geoscience community will need to take place in order to find a common solution for searching distributed data and providing seamless advanced visualizations tools without having to duplicate data storage.
- d. ***SMCS enhancements: Planning and visualization tools:*** The USIO developed the first phase of the SMCS in FY2007. In FY2008 the addition of a sample request planning tool and sample availability visualization and request tools will be developed by the USIO, possibly in collaboration with the other IOs.

9.2.3. Operation and maintenance

Provide operation and maintenance of computer and network systems.

- a. ***Evaluation, maintenance, and possible enhancements:*** The systems developed in FY2007 will need to be closely monitored and maintained in FY2008. This could require some minor adjustments and enhancements.
- b. ***Continuing operation of the SSDB:*** No development is expected in FY2008. The SSDB is now mature and should only require normal operation and maintenance

tasks from Scripps.

9.2.4. Common vocabularies and terminology within IODP

This is an important aspect of data management within IODP. It is a long process but for a real integrated program we need to pursue development of consistent and common vocabularies and terminologies. This will involve at least one IO meeting with invited community representations especially in relation to the taxonomy of microfossils that was initiated in FY2007.

9.3. Budget

Expense Category	IODP-MI	USIO	CDEX	ESO	Bremen	SIO	Total
Salary and Fringes		\$ 1,797,524	\$ 134,200	\$ 238,100		\$ 171,054	\$ 2,340,878
Travel		\$ 62,864		\$ 34,400			\$ 97,264
Supplies		\$ 48,092		\$ 5,000		\$ 4,500	\$ 57,592
Shipping		\$ 2,872					\$ 2,872
Communication		\$ 24,579				\$ 3,622	\$ 28,201
Contractual Services	\$ 500,000		\$ 200,000	\$ 50,000			\$ 750,000
Equipment		\$ 62,950		\$ 33,500			\$ 96,450
Other Direct Costs		\$ 378,660				\$ 15,000	\$ 393,660
Total Direct Costs	\$ 500,000	\$ 2,377,541	\$ 334,200	\$ 361,000		\$ 194,176	\$ 3,766,917
Modified Direct Costs (If applicable)		\$ 580,685	\$ 134,200				\$ 714,885
Indirect Costs/Administrative Fee		\$ 307,763	\$ 40,260			\$ 105,824	\$ 453,847
Total	\$ 500,000	\$ 2,685,304	\$ 374,460	\$ 361,000	\$ -	\$ 300,000	\$ 4,220,764

Table APP- 13: Data Management Budget for FY2008

9.4. Justification

9.4.1. IODP-MI

Contractual Services: The Data Management budget for FY2008 will be mainly used for the maintenance and continued development of SEDIS. SEDIS Phase I and II will need to be maintained, enhanced, and hosted. SEDIS Phase III requirements will be refined during FY2008 and its development is expected to start in FY2008. The proposal database, user registry, and MATRIX will also need to be maintained and hosted in FY2008. As part of the SEDIS Phase II publications index and search system, an annual fee for digital object identifier (DOI) and access to the American Geological Institute (AGI) citation database are required. We have also budgeted for new enhancements and maintenance of the Sample Material Curation System (SMCS) in FY2008. Some consultant work for a variety of data management issues is also expected in FY2008.

9.4.2. USIO

Salaries and Fringes—Salaries, etc.

Travel—IODP meetings and workshops, other IO and USIO meetings and travel costs for staff that will support port call and sailing on the first transit, and/or sailing on FY2008 expeditions. Also includes USIO-LDEO travel to professional training courses and meetings.

Supplies—Office and operational supplies.

Shipping—Postage for regular correspondence and small packages, data and photo requests, and shipping of paper prime data for microfilming and imaging.

Communication—Telephone and fax charges.

Equipment—Computer and network equipment for expanded server and network capabilities and new disk storage requirements; replacement of aged workstations, printers, laptops, plotters, and monitors; workstations, laptops, and monitors for new staff.

Other Direct Costs—Costs not covered in the other categories.

Training— \$67,863. Registration, transportation, per diem, and lodging expenses related to professional training.

Business Conference—\$864. Incidental expenses associated with meetings hosted by USIO.

Software— \$79,198. Software subscriptions, volume licensing agreements, and concurrent usage software agreements used in support of continuing activities and systems maintenance for the entire enterprise (USIO-TAMU).

Services— \$62,188. Imaging/microfilming paper prime data, rental for storage of paper prime data, subscription to micropaleontology electronic database, annual physical examinations for seagoing personnel, TAMU Physical Plant services, IT expert assistance, copier services, external copying and printing services, safe deposit box rentals, and back-up services.

Maintenance and Repair—\$165,847. Departmental copier maintenance agreements, various maintenance contracts and repairs for IT computer hardware and software, contracted maintenance on asset management software, and non-contracted maintenance on imaging equipment such as cameras.

Library— \$2,700. Books, journals, and other resources.

9.4.3. CDEX

Salary and Fringes: Salaries, etc. for SOC.

Contractual Services: J-CORES Maintenance/Optimization

9.4.4. ESO

Salaries and fringes: Salaries, etc. for SOC.

Travel: ESO database group meetings, Data Management Coordination Group meetings and data management liaison.

Supplies: Computer consumables.

Contractual services: Offshore DIS support and developments; continuous upgrading is planned in line with IODP-MI requirements, including VCD development.

Equipment: ESO computer infrastructure upgrade and maintenance, and Bremen computer infrastructure upgrade and maintenance. BSCW license for communication and data transfer.

9.4.5. Scripps Institution of Oceanography

Salary and Fringes: Salaries, etc. for SOC.

Supplies: Materials and supplies.

Communication: Communications, NGN, mailing, faxing, copying and phones.

Other Direct Costs:

INT Viewer Seismic Viewer software (\$9,000)

Maintenance and support of computer workstations (\$3,000)

Computer services at SDSC (\$3,000)

10. Publications

10.1. Goals

The goals of IODP Publications are editing, production, and distribution of IODP scientific drilling expedition results and program activities

IODP Publications fall into four categories: Reports, IODP *Proceedings*, publications in open literature, and the *Scientific Drilling* journal published jointly with ICDP (Figure APP-12):

- Documentation of IO specific technology and data (Technical Notes);
- Proper scientific documentation of all drilling expeditions (Scientific Prospectus);
- Rapid documentation and publications of major findings (Preliminary Reports);
- Wide community distribution of IODP science achievements and program activities (*Scientific Drilling*) in a journal type fashion;
- Extensive legacy documentation of all expedition results (Expedition Reports of the *Proceedings*);
- Peer-reviewed publication of post-expedition research results (open literature and data reports in *Proceedings*); and
- Improving usability and accessibility of publications through improved methods of electronic communications.

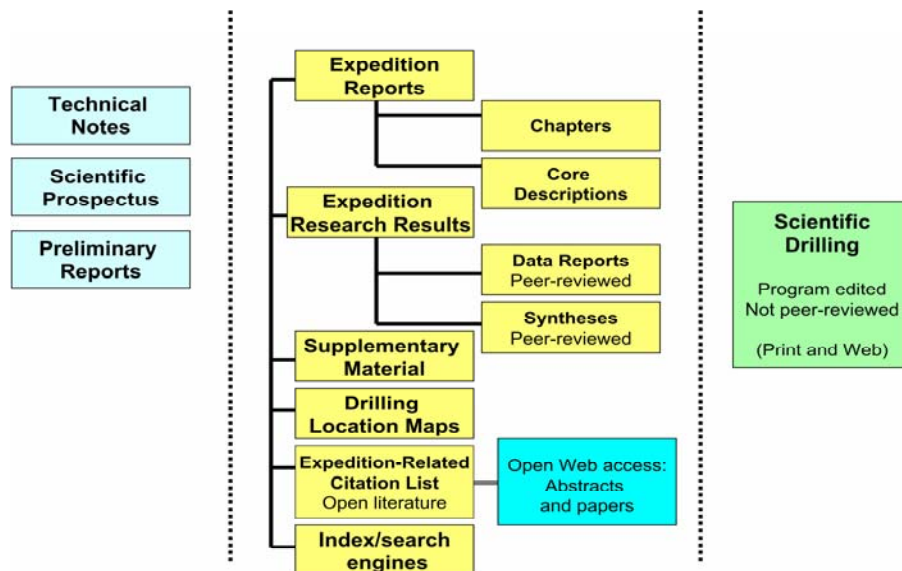


Figure APP-12: IODP Main Publications

10.2. Deliverables in FY 2008

The following major deliverables are covered by the FY2008 APP:

- Approximately 9 Scientific Prospectuses for FY 2008/2009 expeditions;
- Approximately 9 Preliminary Reports;
- 4 *Proceedings* of the IODP in production as per production schedule; and
- Two issues of the journal *Scientific Drilling*.

IODP-MI oversees all publication activities and is the program publisher. However, except for *Scientific Drilling*, actual editing, production and distribution is outsourced to the IOs. *Scientific Drilling* is produced and published by IODP-MI in cooperation with ICDP. Each IO is contractually responsible for the production of the Technical Notes, Scientific Prospectus, Preliminary Reports and the *Proceedings* on each respective expedition; thematically related expeditions conducted within a short period of time may be considered one single project for which an integrated set of *Proceedings* is produced. Scientific Prospectus is due six months pre-expedition. Preliminary Reports are due two months post-expedition and *Proceedings* 12 months post-expedition. As in FY2007, in FY2008 the final editing and production of all IODP Preliminary Reports and *Proceedings* is provided by the USIO in order to secure cross-program consistency in appearance. CDEX and ESO will deliver the edited draft material, including all necessary content and scientific editing. Tracking of IODP scientific publications in the open literature for inclusion in the *Proceedings* volume is in FY2008, provided by the USIO. *Scientific Drilling* is delivered in both print and electronic format on the Web. Printed copies (c. 6,000) are distributed by IODP-MI to funding agencies, member institutions, libraries, the PMOs, the IODP scientific community, and to ICDP (for further distribution).

Technical Notes, Scientific Prospectus, Preliminary Reports and *Proceedings* are all published electronically on the Web in html and PDF formats. Volumes of electronic *Proceedings* are also available on DVD in PDF format. The latter is supplied to funding agencies, libraries, expedition members, and also used for scientific outreach.

10.3. Budget

Expense Category	IODP-MI	USIO	CDEX	ESO	Bremen	SIO	Total
Salary and Fringes		\$ 901,668					\$ 901,668
Travel		\$ 47,222					\$ 47,222
Supplies		\$ 31,080					\$ 31,080
Shipping	\$ 13,000	\$ 8,200					\$ 21,200
Communication		\$ 6,300					\$ 6,300
Contractual Services	\$ 37,000		\$ 91,900				\$ 128,900
Equipment							\$ -
Other Direct Costs		\$ 59,342					\$ 59,342
Total Direct Costs	\$ 50,000	\$ 1,053,812	\$ 91,900				\$ 1,195,712
Modified Direct Costs (If applicable)							\$ -
Indirect Costs/Administrative Fee							\$ -
Total	\$ 50,000	\$ 1,053,812	\$ 91,900	\$ -	\$ -	\$ -	\$ 1,195,712

Table APP- 14: Publications Budget for FY2008

10.4. Justification

10.4.1. IODP-MI

Shipping: Shipping cost for *Scientific Drilling*.

Contractual Services: Services for publishing *Scientific Drilling*.

10.4.2. USIO

Salaries and Fringes— Salaries etc. for SOC.

Travel—IODP meetings and workshops, IO and USIO meetings, travel costs to bring off-site USIO staff to participate in onsite meetings, post-expedition meetings, and travel expenses for staff who will support port call activities and/or sail on FY2008 expeditions.

Supplies—General office supplies.

Shipping—Postage and shipping for regular correspondence and IODP scientific reports, and freight charges for bulk shipments from publication warehouse.

Communication—Telephone and fax charges.

Other Direct Costs—Costs not covered in the other categories.

Training— \$35,120. Registration, transportation, per diem, lodging expenses, and membership dues related to professional training.

Business Conferences— \$4,407. Expenses associated with meetings hosted by USIO-TAMU.

Services— \$6,210. Fees for Ocean Drilling Citation Database, new citations and production of the annual database update on CD-ROM prepared by the American Geological Institute (AGI); payments to IODP Editorial Review Board members; printing costs of FY2008 USIO Annual Program Plan; safety deposit box rental; and annual physical examinations for seagoing personnel.

Equipment rental- \$270 rental of water cooler.

Maintenance and Repair— \$11,612. Copier, typewriter, and forklift maintenance agreements and annual maintenance of the Ocean Drilling Citation Database (prepared by AGI).

Library— \$1,723. Books, journals, and other resources.

10.4.3. CDEX

Contractual Services: Contractual services for editing publication.

11. Outreach

11.1. Goals

- To raise visibility of IODP as a cutting-edge international Earth science research program to new and existing audiences; and
- To maximize IODP human resources by working as an integrated Outreach team, with common messages and common informational materials.

11.2. Deliverables in FY2008

- Timely news releases, fact sheets, and other print material as determined by drilling operations and drilling vessel operations.
- Communications plans for each of the following drilling expeditions: Equatorial Pacific, Bering Sea, Great Barrier Reef.
- An updated program web portal and three IO web sites linked to the portal.
- Multimedia products (i.e. video footage, core replicas) that help illustrate scientific ocean drilling and sediment cores.
- Dissemination of outreach material to the scientific community through exhibition booths at AGU, EGU, and JPGU.
- Promotion of scientific lectures, workshops, symposia, and Town Hall Meetings.
- Continued direct, ongoing contact with mass media representatives.
- Promotion of education initiatives by national and consortia teams to promote science learning worldwide.

11.3. Budget

Expense Category	IODP-MI	USIO	CDEX	ESO	Bremen	SIO	Total
Salary and Fringes		\$ 35,676	\$ 40,600	\$ 91,400			\$ 167,676
Travel		\$ 17,500		\$ 30,800			\$ 48,300
Supplies		\$ 200	\$ 10,000	\$ 10,000			\$ 20,200
Shipping		\$ 1,550	\$ 12,000				\$ 13,550
Communication							\$ -
Contractual Services	\$ 123,510	\$ 3,275	\$ 337,400				\$ 464,185
Equipment							\$ -
Other Direct Costs	\$ 309,860		\$ 5,000				\$ 314,860
Total Direct Costs	\$ 433,370	\$ 58,201	\$ 405,000	\$ 132,200			\$ 1,028,771
Modified Direct Costs (If applicable)			\$ 67,600				\$ 67,600
Indirect Costs/Administrative Fee		\$ 16,296	\$ 20,280				\$ 36,576
Total	\$ 433,370	\$ 74,497	\$ 425,280	\$ 132,200	\$ -	\$ -	\$ 1,065,347

Table APP- 15: Outreach Budget for FY2008

11.4. Justification

The annual Outreach program plan integrates the activities of the three IOs and IODP-MI to meet common goals and program-wide objectives. Overall Outreach strategies are: to tie expedition news to promotion of scientific ocean drilling; and to exploit all news-making opportunities to associate scientific ocean drilling and analysis of core samples with advances into knowledge that can help solve global challenges in climate change, heretofore unknown Earth processes and cycles, and the largely unknown deep biosphere. The deliverables are targeted to the global scientific community, the media, the general public, policy-makers and industry leaders.

11.4.1. IODP-MI

Contractual services include two services: IODP Web Support and Enhancement: A contract for Web hosting, and implementation of software updates to the content management system, technical coding, and other consulting services necessary to update the front-end design and functionality of the web portal. (\$49,500); and Video Production/Library: Update footage archives and b-roll supplies; produce video news updates (\$74,010).

Other Direct Costs:

Workshops: \$90,000 has been budgeted for two workshops; \$75,000 for “High- to Ultra-High Resolution Sedimentary Records Workshop,” and \$15,000 for “CO2 Sequestration in Sub-sea Geologic Strata Workshop.” The funds will support travel for scientists attending the workshops. By reducing workshop support, \$10,000 may be made available for the second in the series of long-term evaluation of IODP science.

IODP Drills Lecture Series: This supports three preeminent IODP scientists to visit member countries and potential member countries to promote IODP achievements and research (see 4.8 of this Appendix). (\$50,000)

Exhibition Booths: Booths exhibits at science conferences. (\$75,000)

Town Hall Meeting: Held during the Fall AGU meeting (\$20,000)

IODP E-News: Bimonthly E-News. (\$3,360)

Media Relations/ News Events: (\$31,500)

Other Services: Graphic Design, Printing, and Translation Services. (\$40,000)

11.4.2. USIO

Salaries and Fringes— Salaries, etc. for SOC.

Travel—Portions of the participation in outreach to stakeholders, press events, media training, and staffing of booths at national and international meetings.

Supplies—General office supplies and expendables and operational supplies.

Shipping—Postage, express mail, courier services, and freight.

Contractual Services—Platform enrichment activities, including preparation of public relations materials, posters, and videos; media awareness training; booth rentals and associated costs at national meetings.

11.4.3. CDEX

Salary and Fringes: Salaries for SOC.

Supplies: IODP/CDEX novelty products and other supplies.

Shipping: Shipping for JPGU, and other academic conferences.

Contractual services: Outreach Assistant, Web Designer, Web maintenance, Outreach publications, JPGU/OTO 08 Exhibition Plan/design, Secretariat for “Sand for Students,” and expedition filming.

11.4.4. ESO

Salaries and fringes: Salaries, etc. for SOC.

Travel: Attend planning meetings associated with the Great Barrier Reef Expedition, conferences (EGU, AGU, IGC) and other E&O activities.

Supplies: Printing brochures for expeditions, support of booths, materials, etc.

12. Appendices

Appendix A: IODP-MI

Appendix B: USIO

Appendix C: CDEX

Appendix D: ESO

Appendix E: University of Bremen

Appendix F: SIO

Appendix G: AESTO

Appendix H: Lead Agency SOC and POC Guidance.

Appendix I: Glossary