IODP Operations Task Force Meeting

Altis Hotel
Lisbon, Portugal
March 13th, 2005

Operations Task Force

Jack Baldauf	JOI Alliance, Texas A&M University, USA
Barbara Bekins	U.S. Geological Survey, USA
Dan Evans	ECORD Science Operator (ESO), British Geol Survey, UK
Dave Goldberg	JOI Alliance, Lamont Doherty Earth Observatory, USA
Benoit Ildefonse	Laboratoire de Tectonophysique, ISTEEM, Université Montpellier II, France
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Yoshi Kawamura	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
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Frank Rack	JOI Alliance, Joint Oceanographic Institutions, Inc., USA
Alister Skinner	ECORD Science Operator (ESO), British Geol Survey, UK

Observers

Jamie Allan	National Science Foundation, USA
Jun Fukotomi	Advanced Earth Science and Technology Organization (AESTO), Japan
Kenji Kimura	Ministry of Education, Culture, Sports, Science, and Technology (MEXT), Japan
Catherine Mevel	ECORD Management Agency (EMA), Institut de Physique du Globe de Paris, France

IODP Operations Task Force Agenda

March 13 – OSAKA ROOM – ALTIS HOTEL
13:00-17:30

Original Agenda
1) Post FY06 planning procedure

- Generic Program Plan schedule
- Optimum meeting schedule (OPCOM, SAS)
- Out-year science programs

2) Ancillary Project Letter Policy

- Current Policy
- Revisions
- Current APLs—issues to forward to SPC

3) Tahiti MSP Operations update

4) FY06 MSP Operations
Budget Guidance
Discussion of Options

NOTE: The appendix to this report contains the full agenda book for this meeting

1) Introduction
The main vessel/operations scheduling meeting of the Operations Task Force occurs during the late boreal spring/early summer time frame. The primary objectives of this abbreviated spring IODP Operations Task Force meeting were to (1) review the planning process for developing future program plans, especially with respect to increasing lead-time preparation for the Implementing Organizations, (2) update Task Force members on the status of current ship operations, and (3) address any late arising issues that the Task Force would like the Science Planning Committee (SPC) to address at it spring meeting (e.g., APLs).

2) Post FY06 planning procedures

The major objective of this agenda item was to look at the development of vessel scheduling from the viewpoint of OPCOM (i.e., implementation) and to ensure an efficient meeting process was in place for (1) receiving input from the SAS, (2) developing a schedule for vessel operations, and (3) securing approval of that schedule by SAS, the IODP-MI Board of Governors, and the Lead Agencies.

A major outcome of this agenda items was to present changes/recommendations (if any) to IODP-MI and the SAS to modify the planning process. Some of the questions that were addressed included (but are not limited

to): Can or should the scheduling process be extended beyond 18-24 months? How can IODP effectively react on shorter timescales if necessary (see APL agenda item below)? Is there a more effective meeting schedule to plan and approve operational schedules and conceptual science plans beyond 24 months? Can the program realistically plan conceptual science plans in out-years in the absence of fiscal guidance?

The Chair presented the generic Annual Program Plan Approval process developed by the Lead Agencies (See Appendix A.1 in agenda book) and a more specific plan for the development of the Annual Program Plan for FY07 (Appendix A.2 in agenda book and Table 1, below). For FY07 IODP is currently at Step 2—the Global Ranking of Proposals.

Table 1. Proposed Program Plan Development Process

Nov	2004	SSEPs forward proposals to SPC
Mar	2005	SPC global ranking of proposals
Jun	2005	OPCOM develop scheduling options
Jun-Oct	2005	Email iterations between SPC and OPCOM
Oct	2005	SPC Approval of ship scheduling option(s)
Dec	2005	SPPOC Approval of FY07 Ship Scheduling Options
Jan	2006	Lead Agency Budget Guidance for FY07
Apr	2006	IODP-MI Develop FY07 Annual Program Plan
Jun	2006	SPPOC Approval of FY07 Annual Program Plan
Aug	2006	NSF Approval of Annual Program Plan
Oct	2006	Start of FY07 Operations

The Program Plan development scenario outlined in Table 1 (above), provides the IOs with nearly 18 months advance notice of programs most likely to be drilled. Discussion ensued about the necessity to move this planning farther out. A consensus developed that significant improvements would be gained by developing several well-defined models for the upcoming Fiscal Year (as described in Table 1) and several "conceptual models" for the next out-year. The models for the upcoming Fiscal Year would have detailed operational information for SPC to consider at its Fall meeting (i.e., specific holes, target depths, logging programs, budgets, days at sea, etc). The "conceptual models" would define basic operations and operational areas but contain no specifics (e.g., Wilkes and Canterbury during Jan-Mar interval –Note these are examples only!).

In the specific case for FY07 operations, the following scenario would occur:

- March 2005: SPC Global Ranking and forwarding of select proposals to Operations Task Force
- June 2005: Operations Task Force develops detail scheduling options for FY07 and conceptual plans for FY08
- Oct 2005: SPC approves specific FY07 scheduling option and narrows down options for FY08 conceptual plans

The advantage of this model is that the Implementing Organizations have a good idea of operations for the next two fiscal years and can begin budgeting for long-lead time acquisitions, investigating environment issues, start permitting processes, etc.

Additional Program Plan issues:
The members of the Operations Task Force agreed that it would be beneficial to hold the boreal summer SPPOC meeting in July. This year the SPPOC meeting is in June and this compresses the schedule of Annual Program Plan by nearly one month from previous years. The Operations Task Force Chair will forward this request to SPPOC.

The IOs expressed the need to see a more formal protocol for insuring a timely selection of co-chiefs for expeditions. The IOs were informed by the SPC chair that the co-chief nominations will now be sought at the spring SPC ranking meeting and complete CV's of interested Co-Chief scientists will be available to the Operations Task Force for its boreal summer operations scheduling meeting

2) APL policy procedures (how should APLs be dealt with in IODP)

General Planning Issues
This Agenda Item dealt with shorter-term programs that arise in IODP, namely the Ancillary Project Letter (APL – see agenda book for full description of APLs). The current guidelines for APLs were formulated for the ODP SAS, one platform, one operator, JOI, and the ODP budget. The boundary conditions are obviously different for IODP.

The members of the Operations Task Force (particularly the IOs and SAS members) were queried as to the opportune time to receive APLs in the planning process. After an examination of the SAS meeting schedule a consensus developed that the optimum time to receive APLs is after SPC approves the next fiscal year schedule at its boreal Fall meeting but before the Program Plan is developed (late boreal spring). This scenario provides a window of 6-8 months for the community to examine the programs for the next fiscal year, write and submit APLs, have them approved by the SAS, and allow the IOs to properly budget for implementation. Ideally, it is beneficial to expand this window for APL submission to provide maximum time for the community input and IO planning. Moving the boreal fall SPC to August would help considerably. This proposed APL planning process, however, is problematic for MSP operations as vessel and thus operational capabilities are not always known in that time frame. No resolution resulted for this particular MSP issue

The Operations Task Force briefly discussed what limitations, if any, should there be to the number of APLs in the system for any Fiscal Year. No clear consensus came about other than to say that APLs should be the "exception and not the norm".

The Operations Task Force examined the number of days that should allocated for implementing APLs. The guidelines previously called for 2-3 days of operational time. A consensus developed that this time was appropriate. Additional days for APLs move beyond the spirit of the APL and could severely impact prioritized science. Additional funding from the APL proponents would be needed to move APLs beyond this 2-3 day limit, especially for MSP operations.

Discussion of Specific APLS in the IODP system
A number of APLs currently in the system were discussed by the Operations Task Force including:

- 650-APL Tahiti Reef Imaging
- 664-APL Brazos-Trinity Source-to-Sink
- 665- Mississippi Canyon Gas Hydrate
- 666-APL SCIMPI Tool
- 668-APL Ocean Core Complex Seismics

Only the 650-APL Tahiti Reef Imaging has been reviewed and forwarded to the Operations Task Force for potential implementation. The remainder were discussed by the Operations Task Force as a precursor to further discussion about implementation should they be officially forwarded by the SPC.

650-APL Tahiti Reef Imaging
Discussed in the next section of this report in conjunction with MSP operations.

664 APL Brazos Trinity Source to Sink
The USIO discussed several of the issues surrounding this APL. There is a lease block permitting issue with this APL (it is in the same lease block as some of the main expedition drill sites where permission to drill is still pending-as of meeting time). In addition, inserting this APL into the negotiation process for obtaining waivers to drill the main Expedition sites could be problematic at this late stage. This APL could be used as a contingency for Gulf of Mexico operations but since there are unresolved lease block permitting issues surrounding this APL, there would need to be a contingency for this contingency.

665- Mississippi Canyon Gas Hydrate
The APL has not been forwarded to SPC by SSEPS so it was not considered further at this meeting

666-APL –SCIMPI Tool
The Task Force members agreed that this tool offered great potential for monitoring boreholes, but a number of issues were raised, including the lack of a funding source and onshore/offshore testing. Although the Task Force was told that a proposal for funding development, construction and testing was currently residing with NSF, the project is yet to be funded. In addition, the Task Force members felt that tool needs to follow Third Party Tool procedures regarding testing (lab, shorebased, offshore) to ensure its readiness. Finally, the USIO also indicated that there could be permitting issues as this APL was not part of the current package being considered by the Monterey Bay Sanctuary. Adding this APL at this late date might jeopardize or delay the permitting process.

668 APL Ocean Core Complex Seismics – The Task Force agreed that obtaining VSP and sonic logging data at IODP Site U1309 was important to help integrate existing (and future) seismic surveys in the region with the drilling results from the Core Complex expedition. The task force understood the sense of immediacy surrounding this APL as it would need to be implement around May 19th ± 2 days.

Implementation of any of the APLs discussed by the Operations Task Force would require a reduction in already scheduled operations (approved by the SAS). Thus, before it will consider any APL implementation, the Operations Task Force will ask SPC to prioritize the science of these APLS (in particular 664, 666, and 668) with respect to currently-scheduled operations/science. This prioritization will need to occur by mid-April at the latest, after which the Operations Task Force will discuss possible implementation if any of the APLs are officially forwarded by SPC.

3) Mission Specific Platform Operations

Items 3 and 4 in the original agenda (Tahiti MSP operations update and FY06 MSP Operations) were combined into a single MSP discussion.

ACEX Operations Update

The European Science Operator (ESO) first provided the Operations Task Force with an update on the ACEX expedition. The ACEX onshore core processing and sampling party was successfully completed with 339 m of core analyzed and 7320 samples collected. An internal ESO assessment of this onshore core processing and sampling party was conducted and the results submitted to IODP-MI. Some of the major recommendations involved improving future accommodations and the handling of sampling requests (a summary of this report will be posted on the IODP-MI website). The Preliminary Report for the expedition has been finalized and should be released soon. The Expedition Results editorial meeting will be conducted in early May in College Station

Tahiti Operations Update

Budget and Contracts

The ESO provided updates about the status of planning for Tahiti MSP Operations. ESO explained the FY05 MSP Program Plan and budget were submitted in May 04 to IODP-MI (SOCs) and ECORD (POCs) and that contracts for both were nearly in place. No contracts are currently in place between ESO and the European Petrophysical Consortium, the Bremen Repository or for a vessel suitable for Tahiti operations.

Pre-cruise Planning

The Operator briefly updated the Task Force on the (1) location, details, and some logistical issues surrounding the proposed offshore transects, (2) the HSE policy utilized by ESO for the Tahiti operations, and (3) the status of pre-cruise planning including, prospectus preparation, staffing, co-chief selection etc.

Ship tenders

Ship tenders were issued in January and opened on March 5th. ESO is currently assessing tenders with a preferred operational window between June and October (2005). Drilling permits have been obtained for the areas of operations but vessel clearance obviously awaits the outcome of the vessel tender.

ESO informed the Operations Task Force that three ships were under consideration. Two were fully compliant with then tender but costs would only allow approximately 20 operational days on site. A third ship was not ideal but costs would allow approximately 40 days onsite. ESO personnel will tour the ship in April to investigate a number of capabilities/issues including:

- Accommodations
- Deck space
- DP capability
- Drilling capability
- Endurance
- Overall suitability for coral reef environment

After this investigation ESO will be in a better position to judge the suitability of the Ship #3 for Tahiti operations.

Options for Tahiti Operations
ESO and EMA then presented a number of options for Tahiti operations including:

1) If Ship 3 is acceptable, carry out Tahiti operation in FY05 as planned.
2) If Ship 3 is not acceptable, then several options:
   - No operation in FY 05
   - Carry out Tahiti in 05/06 using FY05 and FY06 funds
   - Combine Tahiti back-to-back with an FY06 expedition using same ship (to reduce mob/demob costs)

ESO then discussed the cost of various MSP operations currently residing with the Operations Task Force The costs for the most likely FY06 targets are significantly more expensive than the available budget. In April, ESO, EMA, ECORD will be discussing a number of way to conduct FY05 and FY06 operations and will report back to the Operations Task Force following this meeting.

650-APL Tahitit imaging issues
ESO presented an update on planning for the 650-APL Tahiti Reef Imaging. Meetings were held with the proponents and the APL was found to be technically feasible (but with a risky re-entry system). The APL will take considerably more time to conduct than a "standard 2-3 day APL". Thus additional funding for ship time and consumables will need to be found by the proponents. Currently they are awaiting a decision from potential funding agencies to determine if the project can be conducted. [NOTE: as of 3/30/05, the APL proponents indicated they did not receive funding for this APL]

4) USIO issues and updates

This extra agenda item was added to the meeting. The USIO provided a number updates and discussed various issues surrounding the expeditions currently on the schedule.

Expedition 303/306 North Atlantic Climate I and II
The USIO explained that an addendum to the 303/306 Prospectus was completed and published (http://www.iodp.org/publications/prospectus.html). A new logging strategy, based upon results from Expedition 303, was incorporated in the addendum and includes (at a minimum) logging at Site IRD3A, and one of the LAB sites. A weather observer has been contracted to sail on the expedition.

Expedition 307 Porcupine Carbonate Mounds
A significant microbiology component is anticipated for this expedition and preparations are being made to accommodate this program. Two observers/scientists will sail from Ireland but clearances are still pending (at time of meeting). There has been some "trading" of allocated berths between the members/consortia. The protocols for these types of "berthing trades" are currently being formalized by the national offices and IODP-MI.

Expedition 308 Gulf of Mexico Hydrogeology
The USIO indicate that it still trying to obtain lease block waivers from several oil companies. A set of contingencies (see below) will need to be developed in case waivers are not forthcoming. April 1 was a suggested date to obtain the waivers.

If liability waivers are not received by a set date then planning must begin for alternate prioritized science.

In addition contingencies must be developed for operational issues that may arise during the expedition and force a change in the program. For example, mud use may be larger than expected and the availability of a barge to bring additional mud may impact the ability to obtain the deep objectives at the URSA sites.

Alternate strategies could include (1) conducting APL operations (Gulf of Mexico and others), (2) adding time to other expeditions (including Cascadia Gas Hydrates, Superfast Spreading and Monterey), and (3) expanding portions of the Gulf of Mexico expedition (e.g., increase logging, drilling dedicated geotechnical holes, drilling alternate sites). The Operations Task Force will ask SPC to prioritize science alternatives in the event that two primary URSA Basin sites are unavailable for drilling operations and/or operations are severely constrained or need to be altered during the expedition.

Expeditions 309 and 313 Superfast Spreading

Two main issues were discussed with respect to the Superfast Spreading expeditions. First, the USIO indicated that the port call before Expedition 313 (Superfast Spreading 2) straddled the US Thanksgiving holiday. The UISO indicated it will investigate a minor change in the schedule to accommodate the holiday.

Of greater importance is the need to begin developing contingency plans for these two expeditions in the event that a significant problem or catastrophic hole failure occurs. The Operations Task Force will request SPC input on this issue.

Expedition 311 Cascadia Margin Gas Hydrates

The USIO indicated that clearance requests are still pending for drill sites on this Expedition. Operationally, the proponents have agreed that the proposed CORK installations should be postponed to a future expedition. The current operational plans include use of the Pressure Core System and HYACINTH tools, an extensive microbiology program, and MWD operations. DOE has expressed interest in the Expedition and the USIO is investigating additional funding from this source.

Expedition 312 Monterey Bay Observatory

Operationally, this program has been reduced to two holes (from three) to fit into time allocated for expedition. The USIO indicated that it is discussing permitting issues with Marine Sanctuary. Additionally, borehole liability issues (e.g., fishing gear snagging on borehole structures) need to be worked out amongst several parties (USIO, NSF, MBARI, etc).

5) Issue to Forward to the Science Advisory Structure

Several issues arose during this Operations Task Force meeting that were subsequently forwarded to SPC and/or SPPOC for their input and consideration:

1) Prioritizing Ancillary Program Letters (APLs) recently received into IODP. In particular, SPC will need to prioritize the science in these APLs with respect to the currently scheduled program before the Operations Task Force can discuss potential implementation.

2) Development of prioritized science alternatives (by SPC) in the event of catastrophic hole failure during Superfast Spreading Crust operations.

3) Development of prioritized science alternatives (by SPC) in the event that lease block waivers are not obtained for Gulf of Mexico sites or operational issues necessitate a significant departure from scheduled plans.

4) Keeping the boreal summer SPPOC meeting in July to allow sufficient time for development and review of Annual Program Plan.

APPENDIX TO MARCH 2005 OPERATIONS TASK FORCE MEETING:

AGENDA BOOK

IODP Operations Committee

Altis Hotel-Osaka Room
Lisbon, Portugal
March 13th, 2005

Operations Committee

Jack Baldauf	JOI Alliance, Texas A&M University, USA
Barbara Bekins	U.S. Geological Survey, USA
Dan Evans	ECORD Science Operator (ESO), British Geol Survey, UK
Dave Goldberg	JOI Alliance, Lamont Doherty Earth Observatory, USA
Benoit Ildefonse	Laboratoire de Tectonophysique, ISTEEM, Université Montpellier II, France
Hisao Ito	Geological Survey of Japan, Japan
Thomas Janecek	IODP Management International, Inc., Washington, D.C., USA
Yoshi Kawamura	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Barry Katz	Energy Technology Company, ChevronTexaco, USA
Shin'ichi Kuramoto	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Hans Christian Larsen	IODP Management International, Inc., Sapporo, Japan
Frank Rack	JOI Alliance, Joint Oceanographic Institutions, Inc., USA
Alister Skinner	ECORD Science Operator (ESO), British Geol Survey, UK

Observers

Jamie Allan	National Science Foundation, USA
Jun Fukotomi	Advanced Earth Science and Technology Organization (AESTO), Japan
Kenji Kimura	Ministry of Education, Culture, Sports, Science, and Technology (MEXT), Japan
Catherine Mevel	ECORD Management Agency (EMA), Institut de Physique du Globe de Paris, France

OPCOM AGENDA

March 13 – OSAKA ROOM – ALTIS HOTEL

13;00-17:30

1) Post FY06 planning procedures

For FY07 and beyond it is imperative that the process utilized by IODP-MI (OPCOM), the Science Advisory Structure (SAS), and the Lead Agencies for ship scheduling and Annual Program Plan (APP) development be more rigorously defined in order to provide the longer lead-times needed for expedition preparation by the Implementing Organizations (IOs). The development of the FY04 and FY05 Annual Program Plans was often ad hoc in nature due to the evolving status of the new program. Procedures for FY06 are somewhat better defined. But for FY07 and beyond, with riser, riserless, and MSP operations running simultaneously, we must be better organized. With the recent restructuring of the SAS (see SPC agenda book TAB 7), the opportunity presents itself for evaluating both the timing and input of the various entities (OPCOM, SAS, IODP-MI, Lead Agencies) involved in developing the Annual Program Plan.

The major objective of this agenda item is to look at the development of vessel scheduling from the viewpoint of OPCOM (i.e., implementation) and work toward developing a more efficient meeting process for (1) receiving input from the SAS, (2) developing a schedule for vessel operations, and (3) securing approval of that schedule by SAS, the IODP-MI Board of Governors, and the Lead Agencies.

For some background information, the first table in **Appendix A** contains information about the generic process for the development of the Annual Program Plan from the viewpoint of Lead Agency interaction with IODP-MI. The second table is a more specific (proposed) timetable of SAS, IODP-MI, and Lead Agency meetings/events for the development of the FY07 Annual Program Plan. The development of this FY07 APP has already begun (with the forwarding of proposals to SPC by the SSEPS in November of 2004).

These first two tables deal only with the development of a Program Plan for a specific fiscal year. However, in order to provide the IOs with the necessary lead-time for engineering development, procurement of long-lead time items, and the ability to more properly plan for out-year budgets we must move into a planning process where we can plan science operations 2, or 3, or even more years in advance. To assist us in thinking about moving toward longer lead-time planning, the third table is worksheet for the planning of meetings and events that are necessary for the development of science plans beyond the current fiscal year in consideration. One can see how planning will overlap multiple fiscal years. In this table we can see the planning for each fiscal year on a 24-month cycle (beginning with the forwarding of proposals by the SSEPs to SPC). Twenty four months is about the most we have been able to stretch this planning cycle up to now. Some of the major constraints are already filled in on the table (e.g., yearly Lead Agency Budget guidance, Start of Fiscal year). Some of the other required functions are noted in the small inset table. Clearly, there are more functions/inputs than listed in the inset table. But these suggestions provide a good starting point to help us determine how we can effectively provide the IOs with information as to what will be the likely out-year (i.e., 2-4 year) science operations even though we can only get specific budget guidance 9 months in advance of a fiscal year.

A major outcome of our discussion will be to present some proposed changes/recommendations to IODP-MI and the SAS (hopefully at its Lisbon meeting) to reform the planning process. Some of the questions we will need to answer include (but are not limited to): Can we effectively move the planning process out to more than 24 months? If so, how can we also react on shorter timescales if necessary (see Agenda Item B)? Is there a more effective meeting schedule to plan and approve schedules and conceptual science plans beyond 24 months? Can we realistically plan conceptual science plans in out-years in the absence of fiscal guidance?

2) APL policy procedures (how should APLs be dealt with in IODP)

While Agenda Item A strives to improve our planning process for the long term, Agenda Item B deals with shorter-term issues that have arisen during ODP and now IODP, namely the Ancillary Project Letter. **Appendix B**.1 contains the IODP policy regarding APLs. In sum, an individual scientist or group of scientists may propose an ancillary project that involves collecting platform data or making non-routine measurements but does not necessarily address the scientific objectives of a proposed drilling expedition. Ancillary projects can require an investment of drilling, logging, and technician time, as well as a platform berth. The IODP will not consider ancillary projects that require more than 2-3 days of dedicated platform time, including transit.

The essentials of the current guidelines were formulated for the old ODP SAS, one platform, one operator, JOI, and the ODP budget, and the boundary conditions are obviously different for IODP. SPC will discuss the APL issue from the SAS viewpoint but beforehand it would be useful to develop some consensus on time lines for handling of APLs from the OPCOM/IO point of view. Specifically, is the current plan for evaluation and implementation of APLs working? If not, what are the major impediments or issues that are arising with submission and implementation of APLs. How can we encourage these additions to planned expeditions but ensure that the IO is able to properly plan and execute the APL? (See **Appendix B.2** for some specific discussion on issues regarding APLs)

The second objective of this Agenda Item is to discuss the feasibility of two specific APLs: 650 APL-Tahiti reef imaging and 664 APL for the Gulf of Mexico (**Appendix B.3**). The Tahiti APL was discussed previously at SPC (Corvallis meeting, Oct 2004) and the following consensus was developed:

> **SPC Consensus 0410-33:** The SPC reaffirms SPC Consensus 0406-9. The committee applauds the initiative represented by Proposal 650-APL and in particular the potential for a productive interaction among the proponents, the scientific party of the Tahiti component of Proposal 519-Full2 (the FY2005 MSP project), and industry. However, the committee cannot yet fully assess the operational, environmental, and fiscal impacts of operations associated with the proposed imaging experiments, and in particular the need to install and remove PVC liners from a subset of the holes proposed for the TAH-02A transect. The SPC therefore requests that OPCOM consider Proposal 650-APL at its earliest convenience, with input from the proponents and the ECORD Science Operator as appropriate.

We will hear from ESO representatives on the feasibility of these operations and then make a recommendation on how to proceed.

The second APL (664 APL- Gulf of Mexico) is slated for review by SPC at its meeting directly following OPCOM. To assist SPC with its deliberations the USIO will provide an update to OPCOM on its preliminary assessment on the viability of this APL considering the current schedule and budget.

3) Tahiti operations update (OPCOM evaluation of Tahiti planning)

This agenda item will consist of an update by ESO representatives on the status of planning for the Tahiti process. The status of the tendering process, site evaluation, prospectus development, staffing, and core processing will be provided to OPCOM.

4) FY06 MSP operations

The final agenda item scheduled for discussion is the potential scheduling of an FY06 MSP operation. There are several viable MSP operations for FY06: Proposal 564-Full New Jersey Shallow Shelf, Great Barrier Reef component of Proposal 519-Full2 and portions of Proposal 581-Full2 (Coralgal Reefs).

To prepare for this discussion please read **Appendices C.1 to C.3**, which contain pertinent excerpts regarding MSP operations from the March, June, and October 2004 SPC meetings. In addition, **Appendix C.4** contains a short email discussing the state of funding for the proposed site survey of the Great Barrier Reef, which is very pertinent to this scheduling discussion.

OPCOM will ask Catherine Mevel (EMA) to provide an update on the funding status for FY06 MSP operations.

APPENDIX A:

DEVELOPMENT OF ANNUAL PROGRAM PLAN

APPENDIX A.1

IODP Council: July 10, 2004 Paris France

Process of Annual Program Plan Approval

This process is in conformity with the MOU between NSF and MEXT signed April 22, 2003

Principal Officials provide IODP-MI with budget guidance in developing Annual Program Plan (APP)	January
IODP-MI sends draft APP to NSF for NSF and MEXT Principal Officials' information	June
NSF sends draft APP to MEXT	Upon Receipt
Draft APP presented by IODP-MI to SPPOC for approval	June/July
Draft APP submitted by IODP-MI to NSF for approval by Principal Officials	August
NSF sends draft APP to MEXT	Upon Receipt
Principal Officials reach agreement to approve the draft APP (at NSF-MEXT meeting if necessary	August
Modify the draft APP by IODP-MI if changes requested by NSF based on concurrence of Principal Officials	August
Lead Agencies approval letter signed by Principal Officials	September
Technical representative recommends approval of APP to NSF Contracting Officer	September
NSF Contracting Officer sends letter formally approving APP (with Principal Officials' letter) to IODP-MI	September
Funding Starts	October

(MEXT Liaison acts on behalf of MEXT in APP approval process)

APPENDIX A.2

Proposed Schedule for Developing FY07 Annual Program Plan

Nov	2004	SSEPs forward proposals to SPC
Mar	2005	SPC global ranking of proposals
Jun	2005	OPCOM develop scheduling options
Jun-Oct	2005	Email iterations between SPC and OPCOM
Oct	2005	SPC Approval of ship scheduling option(s)
Dec	2005	SPPOC Approval of FY07 Ship Scheduling Options
Jan	2006	Lead Agency Budget Guidance for FY07
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Aug	2006	NSF Approval of Annual Program Plan
Oct	2006	Start of FY07 Operations

		Fiscal Year 1					Fiscal Year 1					Fiscal Year 1	
Month	**MBFY***	**Function**	**Panel/Entity**										
Oct	24												
Nov	23	**Proposals Forwarded for Ranking**	SSEPs										
Dec	22												
Jan	21												
Feb	20												
Mar	19												
April	18												
May	17												
Jun	16												
July	15												
Aug	14												
Sept	13				**Month**	**MBFY***	**Function**	**Panel/Entity**					
Oct	12				Oct	24							
Nov	11				Nov	23	**Proposals Forwarded for Ranking**	SSEPs					
Dec	10				Dec	22							
Jan	9	**Budget Guidance**	Lead Agencies		Jan	21							
Feb	8				Feb	20							
Mar	7				Mar	19							
April	6				April	18							
May	5				May	17							
Jun	4				Jun	16							
July	3				July	15							
Aug	2				Aug	14							
Sept	1				Sept	13				**Month**	**MBFY***	**Function**	**Panel/Entity**
Oct		**Fiscal Year Begins**			Oct	12				Oct	24		
					Nov	11				Nov	23	**Proposals Forwarded for Ranking**	SSEPs
	*Months Before Fiscal Year				Dec	10				Dec	22		
					Jan	9	**Budget Guidance**	Lead Agencies		Jan	21		
					Feb	8				Feb	20		
					Mar	7				Mar	19		
					April	6				April	18		
					May	5				May	17		
		Additional Functions			Jun	4				Jun	16		
		Proposal evaluations/reviews			July	3				July	15		
		Proposal ranking			Aug	2				Aug	14		
		Initial Scheduling			Sept	1				Sept	13		
		Scheduling Review by SAS			Oct		**Fiscal Year Begins**			Oct	12		
		Safety Evaluation								Nov	11		
		Site Survey Evaluation								Dec	10		
		Draft Annual Program Developed								Jan	9	**Budget Guidance**	Lead Agencies
		SAS review of Draft Annual PP								Feb	8		
		Annual Program Plan Finalized								Mar	7		
		Approval of APP by SPPOC/BoG								April	6		
		Lead Agency Approval of APP								May	5		
										Jun	4		
										July	3		
										Aug	2		
										Sept	1		
										Oct		**Fiscal Year Begins**	

APPENDIX B: ANCILLARY PROJECT LETTERS

Appendix B.1

Ancillary Project Letters

An individual scientist or group of scientists may propose an ancillary project that involves collecting platform data or making non-routine measurements but does not necessarily address the scientific objectives of a proposed drilling expedition. Ancillary projects can require an investment of drilling, logging, and technician time, as well as a platform berth; therefore, the IODP will strive to integrate such projects with an appropriate drilling proposal as early as possible in the normal planning process, preferably at the preliminary proposal stage. In general, the IODP will not consider ancillary projects that require more than 2-3 days of dedicated platform time, including transit.

Investigators must submit ancillary project letters to the IODP science coordinators in accordance with the normal proposal deadlines. **An ancillary project letter must not exceed 5 pages in length**, including text, tables, and figures, but excluding references, and it must include the following items that will not count against the page limit:

- an official proposal cover sheet, complete with an abstract of 400 words or less,
- the appropriate set of site summary forms for each newly proposed drill site, if any, with designated site names conforming to established policy (see below).

A well-prepared ancillary project letter should also:

- describe the project and its overall scientific goals,
- identify the geographic areas of interest,
- explain the proposed types of shipboard measurements and data collection,
- define the requirements for ship time and shipboard personnel.

Shortly after each proposal deadline, all new ancillary project letters go to the Science Steering and Evaluation Panels (SSEPs) for review. The SSEPs may advise the investigators to develop their ideas into a preliminary proposal or collaborate with the proponents of an existing proposal. If the latter, the IODP science coordinators can initiate contact between the two groups of investigators. The SSEPs may also decide to forward an ancillary project letter directly to the Science Planning Committee (SPC), particularly if it relates to a drilling proposal that has already undergone external review. The SPC will assess the merits of ancillary project letters on a case-by-case basis.

APPENDIX B.2

Below is some correspondence (read from top to bottom) that provides some background material for the general APL discussion and that for Tahiti in particular.

-----Original Message-----
From: Mike Coffin [mailto:mail1@kairei.jamstec.go.jp]
Sent: 18 January 2005 22:38
To: Tom Janecek; Hans Christian Larsen; Baldauf@iodp.tamu.edu; Shin'ichi Kuramoto; Yoshi Kawamura; Evans, Dan; Skinner, Alister C; IODP Management International - Sapporo
Cc: Keir Becker; Seiko Asaka
Subject: APLs

Dear Tom, Hans Christian, et al.,

Keir and I are concerned about the decreasing time interval between submission of APLs and the expeditions to which they'd be ancillary projects, most recently exemplified by 664-APL. We would like to discuss the topic at the next OPCOM and SPC meetings, and attempt to reach consensus on guidelines for their handling, especially timing, among SAS, IMI, and IOs. Keir has pointed out that when the category of APLs was initiated by JOIDES, it was intended that they be submitted early, i.e., before scheduling decisions. During the IODP, proponents have been waiting until after scheduling decisions to submit APLs, the result of which to date has been expedited and less-than-full consideration by SAS. I welcome comments and discussion from IMI and IO perspectives.

Please note that this shipboard email address is valid only through 24 January JST; after that, I'll resume accessing email sent to my normal u-tokyo address. Any email sent to this shipboard address after that date will not be forwarded to me, but will only baffle, amuse, or otherwise entertain the next chief scientist on R/V Kairei.

Best regards,
Mike
--

At 9:13 AM +0000 1/19/05, Evans, Dan wrote:
Dear Tom

Mike's email is timely as ESO has some questions regarding APLs.

What is the definition of an APL? Is it indeed up to 3 days ship time as seems to be the unwritten carry over from ODP, or is there no time limit? How many days is the operator expected to pay for?

What happens if the estimated time for APL work is greater than the 3 days? Does this make it a non-starter unless the proponents can provide independent funds? Who decides?

If the work takes longer than anticipated, or longer than the defined time limit of an APL, who decides whether APL work should continue at the expense of the main science? Is this down to the co-chiefs?

The Tahiti APL planning is proceding and we are awaiting the outcome of the proponents funding request. Allied to contract discussions in early March (Ali will update you about progress) we will be able to estimate the full financial implications of the APL. Another factor is the significant risk involved in leaving markers (eg rope or similar buoyed below the surface and retrievable by divers) in the boreholes for subsequent emplacement of hydrophones.

We have another meeting with the proponents arranged for 1st March (assuming they get funding meantime), and I believe it would be advisable for OPCOM at Lisbon to consider the proposed APL operation as well as discussing APLs in general. ESO would certainly support the suggestion of their early consideration by SAS and OPCOM.

Best regards

Dan

Date: Wed, 19 Jan 2005 09:45:31 -0500
To: "Evans, Dan" <devans@bgs.ac.uk>
From: Thomas Janecek <tjanecek@iodp.org>
Subject: RE: APLs
Cc: mcoffin@ori.u-tokyo.ac.jp, kbecker@rsmas.miami.edu, hclarsen@iodp-mi-sapporo.org
Bcc:
X-Attachments:

Dear Dan,

I think we all agree that the handling of APLs seems to be too much of an ad hoc affair in IODP. In addition, to the issues you outline below, Mike also points out in his email (copied below) that the time interval between submission and the expedition seems to be decreasing dramatically. This shortened scheduling process does not allow for the proper SPC-OPCOM-IO (and funding agency) interaction that should occur with APLs (and all expeditions).

I will schedule time at the next OPCOM meeting (currently scheduled for the evening of March 13) to discuss this issue. From Mike's email it appears that this topic will also be put on the SPC agenda, too. With some pre-meeting email discussion over the next two months, I think it might be possible to bring forward a draft of revised guidelines (incorporating many of the issues outlined in Dan's email) for discussion at both OPCOM and SPC.

With respect to the Tahiti APL (and a lack of vetted guidelines) here are my views on how to proceed with this particular case.

>>>*What is the definition of an APL?*

See SAS guidelines sent by Mike,

>>> *Is it indeed up to 3 days ship time as seems to be the unwritten carry over from ODP, or is there*
>>>*no time limit? How many days is the operator expected to pay for?*
>>>*What happens if the estimated time for APL work is greater than the 3 days? Does this make it a non-*
>>>*starter unless the proponents can provide independent funds? Who decides?*

For this case, the 3 days should be treated as a guideline.... not a hard and fast rule. However, anything substantially over three days (e.g., 2 additional days) is not in spirit with the intent of the APL and we should not expect the operator to bear the full cost. Extending an APL past 3 days could have significant ramifications for an expedition already at a "normal" 56 day length where schedules are less flexible.

For Tahiti, if the APL goes past 3 -days we will have to have an OPCOM discussion that incorporates the science needs (approved by SAS), funding availability (both operator and independent), and progress on the implementation timetable for the expedition. Assuming that the science is fully approved, then implementation issue is clearly one that OPCOM should address and make a recommendation to the operator on how to proceed.

>>>*If the work takes longer than anticipated, or longer than the defined time limit of an APL, who decides*
>>>*whether APL work should continue at the expense of the main science? Is this down to the co-chiefs?*

Like many drilling decisions, the co-chiefs will ultimately have to make the call at sea if operations proceed past the allotted time. Usually, such decisions are made in consultation with the science party, the operator (and sometimes shorebased management). It is very important to have the process by which APL drilling decisions are made clearly spelled out in the prospectus.

I welcome Mike, Keir's and Hans Christian's input on (1) the development of new APL guidelines and (2) how to treat the Tahiti APL in absence of these guidelines.

Best Regards,

Tom

Date: Thu, 20 Jan 2005 18:44:37 +0900
To: Tom Janecek <tjanecek@iodp.org>
From: Mike Coffin <mail1@kairei.jamstec.go.jp>
Subject: Fwd: RE: APLs
Cc: devans@bgs.ac.uk, Keir Becker <kbecker@rsmas.miami.edu>,
Hans Christian Larsen <hclarsen@iodp-mi-sapporo.org>,
Seiko Asaka <asaka@ori.u-tokyo.ac.jp>

Dear Tom,
Thanks for your thoughts.

I believe that guidelines for APLs warrant consideration by the full SPC. The essentials of the current guidelines were formulated for the ODP SAS, one platform, one operator, JOI, and the ODP budget, and boundary conditions are obviously different for the IODP. We'll be able to insert a general APL Guidelines agenda item into the Lisbon SPC meeting, but beforehand it would be useful to develop some consensus on time lines for SPC, OPCOM/IMI, and IO handling of APLs.

Re Tahiti, the Lisbon SPC meeting agenda already includes an item for 650-APL, for which the SPC anticipates input from OPCOM:

SPC Consensus 0410-33: The SPC reaffirms SPC Consensus 0406-9. The committee applauds the initiative represented by Proposal 650-APL and in particular the potential for a productive interaction among the proponents, the scientific party of the Tahiti component of Proposal 519-Full2 (the FY2005 MSP project), and industry. However, the committee cannot yet fully assess the operational, environmental, and fiscal impacts of operations associated with the proposed imaging experiments, and in particular the need to install and remove PVC liners from a subset of the holes proposed for the TAH-02A transect. The SPC therefore requests that OPCOM consider Proposal 650-APL at its earliest convenience, with input from the proponents and the ECORD Science Operator as appropriate.

My personal opinions on Tahiti coincide with Tom's below, i.e., follow the existing APL guidelines as closely as possible, and, should deviations or undefined situations occur, reach consensus among the relevant parties on decisions.

Best regards,
Mike

At 11:03 AM -0500 1/20/05, Thomas Janecek wrote:
Hello Mike,

Thanks for the input and for putting the APL discussion on the already-full SPC agenda. How would you like to proceed in developing some timelines and guidelines for SPC and OPCOM to consider at their respective meetings. Perhaps it would be best for one of us to generate a "strawman" set of guidelines to use as a basis for discussion and revision. I am willing to do this but I have to admit, I don't know the intricacies of the proposal process as well as you, Keir, and Hans Christian and thus it might be better one you to begin the process. Either way is OK with me.

Cheers,
Tom

Date: Fri, 21 Jan 2005 12:57:17 +0900
To: Thomas Janecek <tjanecek@iodp.org>
From: Mike Coffin <mail1@kairei.jamstec.go.jp>
Subject: Re: Fwd: RE: APLs
Cc: Keir Becker <kbecker@rsmas.miami.edu>,
Hans Christian Larsen <hclarsen@iodp-mi-sapporo.org>,
IODP Management International - Sapporo <science@iodp-mi-sapporo.org>,
Seiko Asaka <asaka@ori.u-tokyo.ac.jp>

hi tom,

What I suggest is that you develop a time line backward from an expedition to OPCOM/SPC scheduling, if you think that APLs warrant a time line different from that of normal IODP proposals. Below are minimum (without special panel/committee meetings) 'normal' time lines from the current IODP proposal submission deadlines through the current SSEP, SSP, EPSP, OPCOM, and SPC meetings.

1 October Proposal Deadline -> November SSEP -> February SSP -> March SPC -> June EPSP -> summer OPCOM -> August-September SPC

1 April Proposal Deadline -> May SSEP -> July SSP -> August-September SPC -> December EPSP -> winter(?) OPCOM -> March SPC

Once your time line is completed, we can see how to optimally mesh the two. As the guidelines will depend in part on the time lines, I suggest that we complete the time line exercise as a start, and then work on the guidelines. For example, the time lines might differ for the different IOs, which could suggest developing different guidelines for different platforms, if indeed Chikyu will consider APLs at all (see today's message from Kawamura-san); three days (if that remains the APL timeframe) of Chikyu vs. JR/SODV vs. MSP time will likely have significantly different costs and other resource requirements, which could also suggest developing different guidelines for different platforms; etc. That said, however, I'd prefer a single set of APL guidelines for the IODP (with emphasis on the 'integrated'). And I'd prefer that APL proponents submit for the regular biannual IODP proposal deadlines, although we should identify and institute more effective means of communication to prospective APL proponents than maintaining a list of abstracts of active proposals on the IODP web site . . . the annual Eos article (which I'm writing now for the FY05 addendum and FY06), for example, is simply too late.

Does the above plan work for you?

cheers,

mike

Appendix B.3

650 APL (Tahiti Imaging)
664 APL (Gulf of Mexico)

Received 8 June 2004

IODP Proposal Cover Sheet

650-APL

☑ New ☐ Revised ☐ Addendum

Please fill out information in all gray boxes

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Title:	3D High Resolution Seismic Transmission and Reflection Imaging of a Tahiti Pleistocene-Holocene Reef Margin (IODP Proposal 519)		
Proponent(s):	Dr. J. A.M. Kenter (PI), Dr. G. Drijkoningen, Drs. H. Braaksma, Drs. K. Verwer, Prof. W. Spakman, Dr. G. Camoin, Dr. P. Pezard, Dr. J.P. Henriet, G. Lericolais		
Keywords: *(5 or less)*	Reef imaging, tomography, transmission, sea level	Area:	South Pacific

Contact Information:

Contact Person:	Dr. Jeroen A.M. Kenter		
Department:	Sedimentology, Faculty of Earth&Life Sciences		
Organization:	Vrije Universiteit		
Address	De Boelelaan 1085, 1081 HV Amsterdam, The Netherlands		
Tel.:	+31 20 4447360	Fax:	+31 20 4449941
E-mail:	jeroen.kenter@falw.vu.nl		

Permission to post abstract on iSAS Web site: ☒ Yes ☐ No

Abstract: (*400 words or less)*

Coralgal reefs have traditionally been very difficult objects for geophysical imaging but contain valuable records of climate change (sea level, temperature and salinity, ecological assemblages), contain important hydrocarbon reservoirs and hold strategic water reserves. Reflection seismic imaging, however, is mostly obscured due to their spatially highly variable acoustic properties as a result of their intrinsic pore systems during evolution and diagenetic overprint. We propose a high-resolution 3D seismic tomography-reflection experiment as “add on” (APL) to the existing IODP proposal 519 that is scheduled for drilling in FY05. The primary scientific goal is the physical interpretation of multi-component transmission and reflection seismic data in a highly porous Pleistocene-Holocene coralgal reef system, and to provide fundamental information on the geometric evolution of the reef system and its effect on sea-level reconstruction.

The proposed experiment consists of exploiting both transmission and reflection techniques as well as using two different types of acoustic body waves, S-waves as well as P-waves at one of the transects in various combinations in boreholes, at the seafloor and at the surface. This provides the unique opportunity to directly compare the reflection and transmission experiments on one and the same object and, in addition, test the resolving capability of S-waves as well as P-waves in such porosity (shape, type and distribution) dominated coralgal reef system.

We intend to use boreholes TAH02A-#1-5 following the drilling, coring and wire line logging by the IO. Therefore, we request from IODP assistance to set up the experiment: 1) minor additions to the wire line logging program, 2) the installation of PVC liners in boreholes, 3) installation of instrumentation strings following end of operations at those boreholes, 4) installation of re-entry cones and, 5) removal of the PVC liners. We expect that the operational time will be less than 3 days.

A full proposal for this project will be submitted to NWO/ALW (Dutch National Science Foundation) and the CRNS (French Science Foundation) early summer 2004. In addition, a matching funding proposal will be submitted to a consortium of companies in the energy sector where a clear interest has been expressed in the science objectives.

Scientific Objectives: (*250 words or less*)

The primary scientific goal is the physical interpretation of multi-component transmission and reflection seismic data in a highly porous Pleistocene-Holocene coralgal reef system. This will provide: 1) fundamental information on the geometric evolution of the reef system and its effect on sea-level reconstruction, 2) insights in the methodological approach of imaging such complex structures and, 3) valuable data on the physical and geological heterogeneity of reefs. These goals are entirely complimentary to at least two of the three for proposal #519: to reconstruct the deglaciation curve for the period 20,000 to 10,000 yrs BP and to analyze the impact of sea-level changes on reef growth, geometry and biological makeup.

Please describe below any non-standard measurements technology needed to achieve the proposed scientific objectives.

See attached expanded proposal; same for information requested below.

Proposed Sites:

Site Name	Position	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	

3D High Resolution Seismic Transmission and Reflection Imaging of a Tahiti Pleistocene-Holocene Reef Margin (IODP Proposal 519)

Scientific Rationale

Coral reefs present special challenges for geological and geophysical studies. Reef growth is highly variable over small spatial scales, and widely spaced cores may not accurately resolve patterns of coral accumulation (Jordan and Wilson, 1998). Generally, carbonate systems are difficult to image using reflection seismic technologies due to their spatially highly variable acoustic properties as a result of their intrinsic pore systems during evolution and diagenetic overprint. Only the facies transitions of reefs to surrounding depositional environments are usually visible on high quality seismic imagery. As a result, internal reflections of reef bodies are mostly incoherent and lack information on internal anatomy and evolution, and spatial distribution of physical properties. To advance the understanding of the acoustic behavior of such complex systems, a strong need exists to develop dedicated observatories that can be used for integrated studies combining geology, petrophysics and geophysics.

This proposal aims to advance the understanding of such acoustically complex coralgal reef systems given the opportunity provided by the upcoming expedition to the Tahiti Reef Tract (IODP proposal #519 by Camoin et al.). It is the unique combination of shallow water transects and closely spaced and completely cored boreholes that make this study site an excellent acoustic observatory. Geophysical experiments will provide a 3D high resolution acoustic model of the reef system aiming to reveal internal geometries as a function of its spatial evolution. The seismic experiment will enhance insight in key parameters, such as pore type size and distribution, provide the geometric evolution of the reef system in time and space to validate and anchor the sea level reconstruction, improve the methodology of seismic imaging of coralgal reefs and, finally, advance the understanding of the heterogeneity of the pore system and its associated acoustic properties.

From experience with imaging different (terrestrial and submerged) coralgal reef systems, a combination of seismic tomography and reflection seismics is the most promising approach to extract physical geometry. The Tahiti set up will consist of both reflection and transmission experiments. We will use high frequency sources at the sea-surface and multi-component receivers in boreholes and on the sea floor

(Ocean Bottom Cable) for transmission and reflection data acquisition. As a result, the recordings will include both transmission and reflection events that can be converted into a high-resolution 3D physical model. Continuous whole core measurements of gamma density (proxy for porosity) and acoustic velocities (as well as magnetic susceptibility and core imaging), borehole imaging logs (optical and acoustic televiewer), and laboratory measurements on plug samples, will provide the relationship between the seismic data, intrinsic pore character and sedimentological properties. This relationship will be used to validate and convert the 3D seismic transmission and reflection data set into a spatial porosity model.

Expertise in imaging and petrophysical modeling of comparable systems within the proponent group is evident from various projects (Braaksma et al., 2003; Kenter et al., 2003; Pezard et al., 2004; Verwer et al., 2004). Several members of the group have extensive contacts and shared academic (untied) projects with both geophysicists and geologists in the energy sector.

Proposed Sites:

The existing and recently recorded sparker survey (SISMITA, 2003) indicates that transect TAH02A is the best choice for this geophysical experiment. We will use the boreholes as planned in proposal #519 (Figure 1A).

Methodology

The survey exists of exploiting both transmission and reflection techniques as well as using two different types of acoustic body waves, S-waves as well as P-waves. This provides the unique opportunity to directly compare the reflection and transmission experiments on one and the same object and, in addition, test the resolving capability of S-waves as well as P-waves in such porosity dominated system. The acquisition approach is rather complicated but summarized shortly in the following steps (Figure 1B):

1) P-wave transmission tomography: instrumented boreholes with hydrophones (1 m spacing) and moving the source along lines parallel to the transect, spaced 10 m apart and a total offset distance of 500 m on each side. From the transmission events of this 3D VSP, a cellular P-wave velocity model will be generated.

2) P-wave reflection imaging synchronously with the transmission acquisition; a streamer will be towed behind the source boat and the data set will be migrated using

the velocity model derived from step 1. From reflection events of the 3D VSP, the surface-reflection image will be validated around the borehole.

This will be repeated twice for combinations of instrumented boreholes TAH02A-#1-3 and TAH02A-#3-5. Hydrophone instrumentation strings will be moved from one set of boreholes to the other.

3) S-wave transmission tomography: one instrumented borehole (TAH02A-#3) 1 m spacing 32-level 3-component instrument string and moving the source along lines parallel to the transect, spaced 10 m apart and a total offset distance of 250 m on each side (creating a box 250*250 m). It is assumed that conversion from the P-wave to an S-wave will occur at the seafloor. From the transmission events of the 3D VSP, a cellular S-wave velocity model will be generated.

4) S-wave reflection imaging synchronously with the transmission acquisition; one or two Ocean Bottom Cables (OBC with 12 4-component take-outs) will be deployed at the seafloor and the data set will be migrated using the velocity model derived from step 3. From reflection events of the 3D VSP, the surface-reflection image will be validated around the borehole.

5) Cross-well and synchronous OBC P-wave and S-wave (where direct S-wave arrivals will be picked) tomography: dynamic sparker source in borehole TAH02A-#2, instrumented borehole TAH02A-#3 with hydrophones (1 m spacing), and OBC at seafloor covering distance between boreholes TAH02A-#1 and -#3. This generates a typical P-wave (and possibly a S-wave) cross-well 2D tomography data set with the addition of the OBC at the seafloor capturing nearly all the energy transmitted by the source.

6) Densely spaced regional single channel sparker survey; the results of step 1-5 will be used to enhance the data set and extract maximum geological and petrophysical information.

These acquisition steps results in the following data sets. First, in the P-wave domain, a 3D cellular P-wave velocity model along the entire transect, 1500 m, a width a width of ~600 m and depth of ~100-120 m (estimate) detailing the internal velocity field and anomalies in Pleistocene-Holocene reef build-up and a migrated 3D P-wave reflection data set with more or less similar dimensions (steps 1-2). Second, in the S-wave domain, a 3D cellular S-wave velocity model around borehole TAH02A-#3 with a box shape and sides of 250 m by 250 m and depth of ~100-120 m (estimate) and a migrated 3D S-wave reflection data set with more or less similar

dimensions (steps 3-4). Third, in both P- and S-wave domains a high resolution 2D cellular velocity model spanning the distance between boreholes TAH02A-#2 and-3.

Borehole TAH02A-#3 was selected as the center of the OBC experiment for environmental reasons since here the coral coverage is minimal.

Non-standard measurements technology needed to achieve the proposed scientific objectives:

Non-standard measurements required to achieve the science objectives are low and high frequency monopole-dipole sonic logs in all boreholes (TAH02A-#1-5) with highest priority for TAH02A-#2-4.

Non-standard technologies required are: 1) the installation of PVC liners in boreholes, 2) installation of instrumentation strings following end of operations at those boreholes, 3) installation of re-entry cones and, 4) removal of the PVC liners. We expect that once standard operations (related to #519) at boreholes TAH02A-#1-3 are finished, the re-entry cones and hydrophone and 3C geophone instrumentation strings are installed (~ 11 days from the start of the #519 program) and the geophysical experiment can commence at this end of the transect. Once operations are finished at the last transect, ~ 26 days later (estimate), the geotechnical vessel returns to TAH02A in order to remove the PVC liners. Total time for these additional IO operations is estimated at less than 3 days.

Conditions

Coupling this project to the already approved drilling of proposal #519 has implications in three areas: 1) SPC and OPCOM approval, 2) logistical and technological and, 3) cost. At this particular moment we would like to ask SPC for approval on the condition of funding of the experiment and once endorsed we plan to contact TAP for immediate assistance to address issues related to item 1. In addition, we are ready to follow EPSP requirements for safe and environmental acceptable acquisition procedures.

To acquire the conditional funding for this project a proposal will be submitted to NWO/ALW (Dutch National Science Foundation) and the CRNS (French Science Foundation) early summer 2004. In addition, a matching funding proposal will be submitted to a consortium of companies in the energy sector where a clear interest has been expressed in the science objectives.

References

Braaksma, H., Kenter, J., Proust, J.N., Dijkmans, V., van Hoek, T., Mahieux, G. and Drijkoningen, G., 2003, Controls on acoustic properties of Upper Jurassic siliciclastic rocks (Boulonnais, northern France), Geophysics, Vol. 68, No. 1, p. 58-69.

Jordan, C and Wilson, J.L., 1998 Reefs: Geologic considerations for geophysicists, The Leading Edge, no. 3 p. 325-328

Kenter, J., Drijkoningen, G., Braaksma, H., Verwer, K. and Filippidou, A, 2003, Geology and Geophysics: Groundtruthing Through Natural Seismic Observatories – Part I, AAPG International Conference, Sept 21-24, Barcelona

Pezard, P., Maria-Sube, Y., Lods, G., Gouze, P., Einaudi, F., Loggia, D., Leprovost, R., van Meir, N.,Jaeggi, D. and Camoin, G., 2004, Detailed structure and transmissivity of a miocene reef: Case study from Mallorca (Spain), Geophysical Research Abstracts, Vol. 6, 07389, EGU Conference, 25-30 April, Nice.

Verwer, K., Kenter, J., Drijkoningen, G., Braaksma, H. and Filippidou, A., 2004, Geology and geophysics: Groundthruthing through natural seismic observatories, Geophysical Research Abstracts, Vol. 6, 06548, EGU Conference, 25-30 April, Nice.

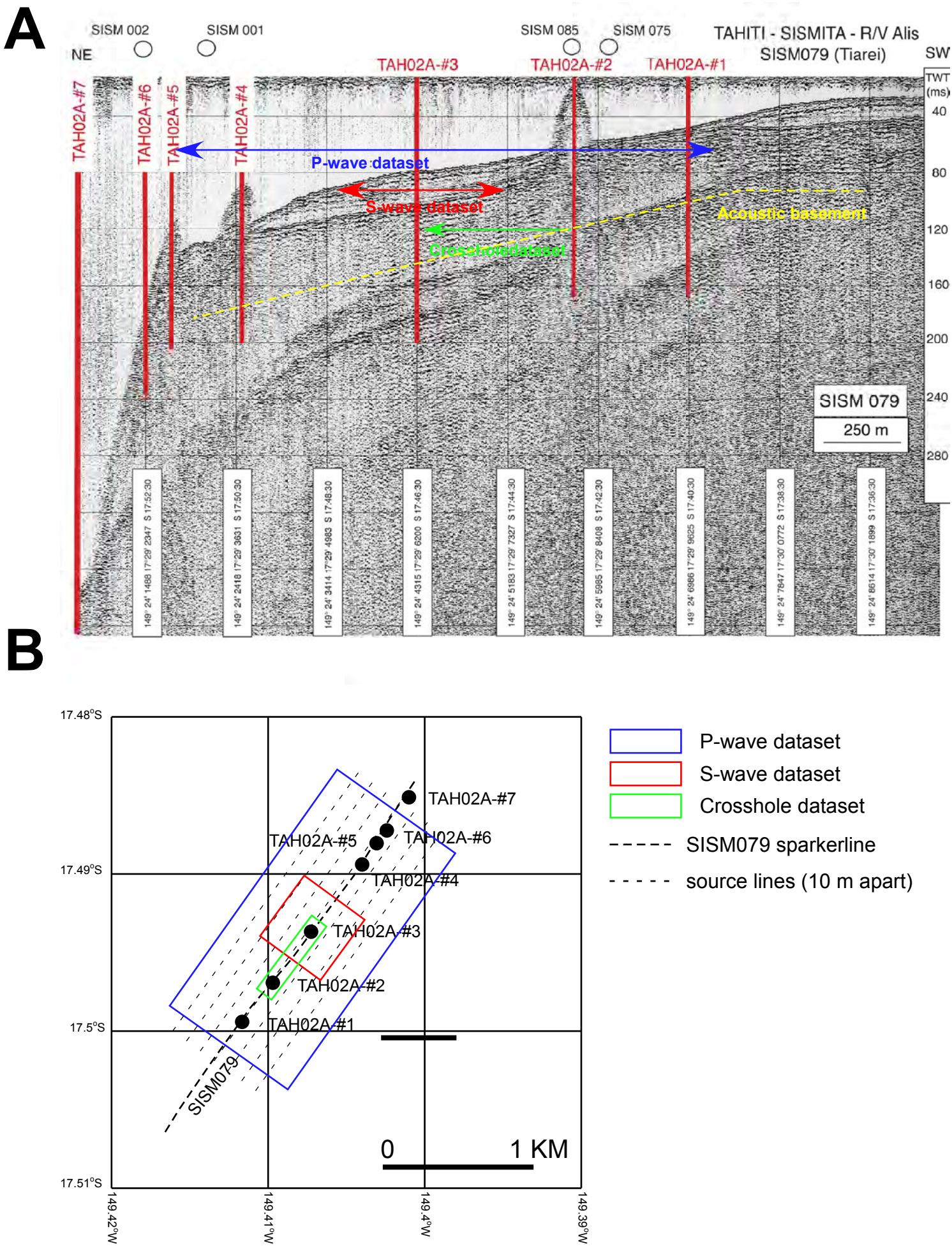

Figure 1. A) Sparker line SISM079 with borehole locations and seismic data sets covering the full Pleistocene-Holocene reef. B) Map view of borehole localities with different projected seismic datasets,

Received 15 December 2004

IODP Proposal Cover Sheet

664-APL

■ New ☐ Revised ☐ Addendum

Please fill out information in all gray boxes

Above For Official Use Only

Title:	Brazos-Trinity Source-To-Sink: Testing the Fill & Spill Model		
Proponent(s):	**André Droxler** & **Gianni Mallarino** (Rice University, Houston), **Charles Winker**, **Carlos Pirmez,** & **Mark Deptuck** (Shell International E&P, Houston), **Rick Beaubouef** & **Vitor Abreu** (ExxonMobil Exploration Co, Houston), **Laurent Labeyrie** (Centre des Faibles Radioactivites Laboratoire mixte CNRS CEA, Gif/Yvette France)		
Keywords: *(5 or less)*	Late Quaternary sealevel, Turbidite deposition, Hemipelagic deposition, Glacial-Interglacial cycles, control on turbidite deposition	Area:	Western Gulf of Mexico

Contact Information:

Contact Person:	André Droxler		
Department:	Department of Earth Science		
Organization:	Rice University		
Address	MS-126, 6100 Main Street, Houston, TX 77005-1892		
Tel.:	(713) 348 4885	Fax:	(713) 348 5214
E-mail:	andre@rice.edu		

Permission to post abstract on IODP-MI Sapporo Web site: ■ Yes ☐ No

Abstract: (*400 words or less)*

The Brazos-Trinity (BT) depositional system is an ideal locale to study the dynamics of sediment transport from the continental shelf to the slope, because: A) The system has been extensively studied over the last two decades; B) it has been surveyed extensively with conventional 3d seismic (complete coverage), a grid of 2d seismic (~250 Hz, spacing of 0.6-1.2 km), and geotechnical wells (spot-cored), C) it has well defined source (the Brazos-Trinity-Sabine paleo-drainage on the shelf and associated deltas) and sink (a series of four minibasins linked by submarine channels, Basins 1,2,3 and 4), D) it is a closed system since sediment gravity flows could not by-pass the high sill (~500 m) surrounding the terminal Basin 4, and E) the system appears to be representative of a large class of continental slopes that have irregular depth profiles caused by the presence of a mobile substrate (salt or shale). While the BT system is well understood with respect to sedimentary architecture, the timing, rates and processes of sediment transfer from the shelf to the slope are poorly known. Age dating of the infill sequences in Basin 4 has been made possible by recently acquired long piston cores (CALYPSO) on the flanks of the basin. In this APL we propose to core two sites on the flanks of the updip Basins 1 and 2. Complemented by proposed coring of Basin 4 (GOM Overpressure, Prop. #589), these cores will provide for a comprehensive understanding of the sedimentary dynamics of the BT system as a whole.

Studies to date in the BT system resulted in two conflicting models of sediment transfer. In the fill & spill model the basins are infilled sequentially, from updip to downdip. In the alternative model, the basin fills are largely coeval, but the coarse and fine fraction of the turbidity currents' load are fractionated between the basins. In this model, the fill patterns are thought to be more complex, highlighting the dynamic interaction between flow and topography. Testing which model is correct requires dating of the fill in each basin and correlating the sedimentary sequences across the system. Age dating of the various sequences will allow for a detailed understanding of the flux of sediment through time and space, from the shelf to the slope. This will provide a unique opportunity to correlate the dynamics of sediment transfer across this system with the late Pleistocene sealevel and climatic records.

664-APL

Scientific Objectives: (*250 words or less*)

This project aims at complementing proposal #589 by acquiring two additional APC cores, BT1-1A and BT2-1A on the margins of a linked set of intra-slope basins in the western Gulf of Mexico. The two APC sites will target the margin of the intra-slope basins, which can be physically correlated with the sedimentary fill in the basin center, and will provide a high-resolution record of the hemipelagic and turbiditic cycles associated with basin filling. Existing cores in Basin 4 demonstrate that the record can be dated at very high resolution using biostratigraphic zonation combined with ash layer and oxygen isotope stratigraphy. Together with proposed holes BT4-3A (Basin 4 margin) and BT4-4A (Basin 4 center) we will address the following scientific objectives, in order of priority:

1. Test whether the filling of the basins is sequential as proposed by the fill & spill model, or whether the basin filling is coeval across the slope (Figure 1)
2. Determine the relationship between sealevel/climatic changes and slope depositional history by comparing the timing of basin infill with independent records of sealevel and climatic variations.
3. Evaluate the dynamics of turbidity currents and their interaction with topography on the basin margins. Are turbidity currents ever fully ponded in the basin?, and what is the role, if any, of overspill of the higher portions of the flows?
4. Calibrate the seismic facies at the borehole site and extend the information laterally using hi-resolution 2d and 3d seismic data. Combined with the dating of the sequences this will enable computation of sediment flux for the various grain-size fractions across the slope through time.

Please describe below any non-standard measurements technology needed to achieve the proposed scientific objectives.

Logging-While-Drilling would be ideal to obtain detailed in-situ geophysical properties for accurate time-depth conversion & linking core data to seismic profiles given that wireline logs may not be as effective in such short holes. We propose to use one of the following options for tying core measurements to seismic sections:

1) use the results of logging in Basin 4 (T-Z curves), combined with well logs obtained in Basin 2 (Shell wells) and core physical property measurements in sites BT1-1A and BT2-1A.
2) Log sites BT1-1A and BT2-1A with wireline sonic and density. While this would be ideal, the time investment in such short boreholes has a risk of producing poor quality results. The upper 70-100 m and the lower ~20 m, of each borehole would not have sonic logs.
3) Log sites BT1-1A and BT2-1A with a Well Seismic Tool (check shots). This would probably provide the best Time-Depth conversion, but may face operational difficulties (light weight tool).
4) Log sites BT1-1A and BT2-1A with LWD density, resistivity and gamma-ray. This would provide logs from the seafloor, that can be used (with appropriate transforms) to estimate velocity and density for synthetic seismic generation. This solution, combined with physical property measurements in the cores, would be ideal. Given that LWD will be available for Proposal #589, the additional time (a few hours per well) would enable a more accurate seismic/core tie, despite the lack of sonic logs.

Either of those strategies should provide for a sufficiently accurate seismic to core tie in order to achieve our scientific goals. Option 1 is clearly the most cost-effective in terms of ship time, and could be achieved in approximately 2 days of coring (1 day per site). We expect that the IODP operators would provide recommendations as to what would be the best solution to achieve our objectives.

Proposed Sites:

Site Name	Position	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	
BT1-1A	GoM Block EB-296 LON: 094 deg 21.6' W LAT: 27 deg 42.0' N	465	150	0	150	Objectives 1-7 in Basin I (EB165 Basin)
BT2-1A	GoM Block EB-470 LON: 094 deg 27.3' W Lon: 27 deg 31.55' N	885	150	0	150	Objectives 1-7 in Basin I (Rudder Basin)

BRAZOS-TRINITY SOURCE-TO-SINK: TESTING THE FILL & SPILL MODEL

Introduction: What are the key controls on sediment delivery from source areas to the ultimate sinks in the deep sea? How do sea level changes and climatic fluctuations affect this delivery and the ultimate sediment accumulation in the sink areas? Once the timing of sea level and climate fluctuations are independently established in the source areas, those two questions can be effectively addressed by focusing research in the sink areas, by determining: first, the nature of the sediments (*e.g.*, hemipelagic vs. gravity-induced flows), second, the timing of their accumulation, and, finally, their estimated volumes.

This Ancillary Program Letter (APL) aims to obtain detailed chrono- and litho-stratigraphy along the continental slope, by adding two sites to the already planned sites of the Gulf of Mexico (GOM) Overpressure expedition (Prop. #589) scheduled for June 2005 (Figure 1). Integrating the currently planned sites with the two sites proposed here plus existing datasets provides a unique opportunity to study the transfer of clastic sediments across a closed depositional system, with well defined source and sink areas. The geologic setting of the Brazos-Trinity (BT) system during the late Pleistocene is thought to be representative of many other areas of the world's continental margins that are underlain by mobile substrates. Therefore, this proposal addresses, for a time of very well established eustatic sealevel record, crucial questions on sedimentary processes and responses, causes and effects, in the context of a siliciclastic continental margin. These objectives are listed as high priority in the IODP Initial Science Plan (pages 43-47).

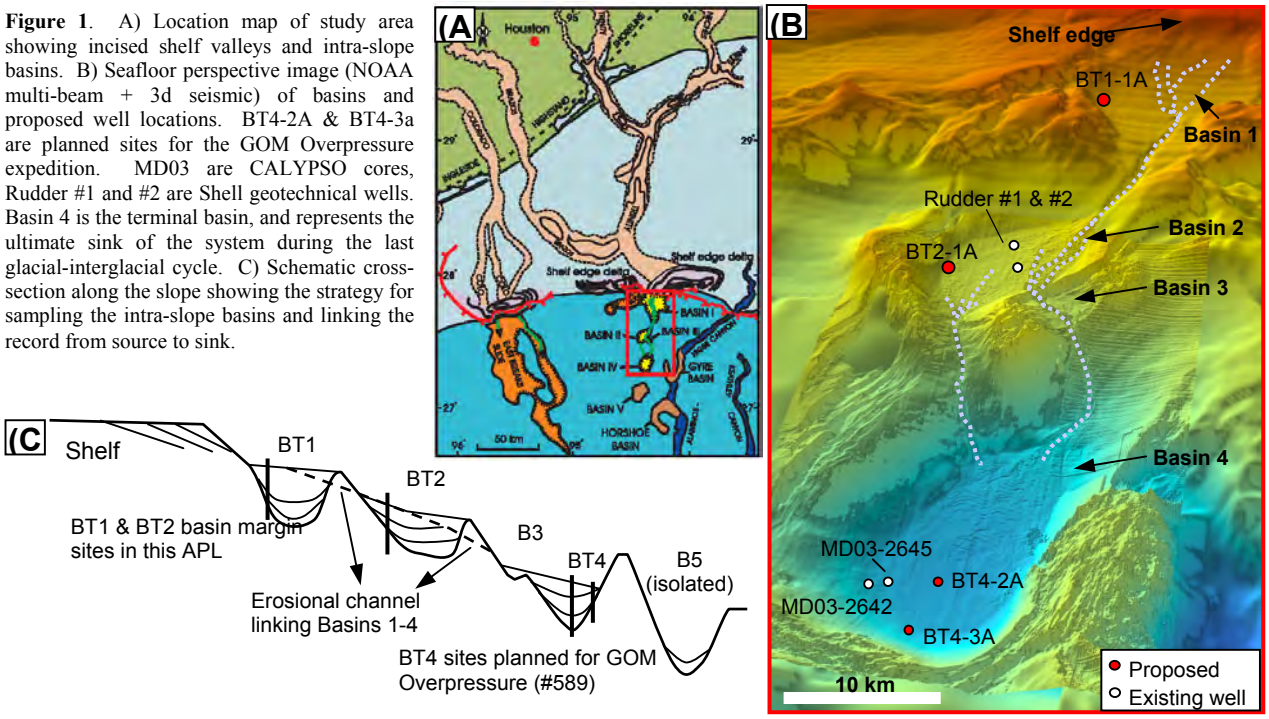

Figure 1. A) Location map of study area showing incised shelf valleys and intra-slope basins. B) Seafloor perspective image (NOAA multi-beam + 3d seismic) of basins and proposed well locations. BT4-2A & BT4-3a are planned sites for the GOM Overpressure expedition. MD03 are CALYPSO cores, Rudder #1 and #2 are Shell geotechnical wells. Basin 4 is the terminal basin, and represents the ultimate sink of the system during the last glacial-interglacial cycle. C) Schematic cross-section along the slope showing the strategy for sampling the intra-slope basins and linking the record from source to sink.

Testing the fill and spill model in the closed source-to-sink BT system:

The Brazos-Trinity system is composed of four intra-slope basins linked by a series of submarine channels that served as conduits of turbidity currents and debris flows derived from late Pleistocene shelf-margin deltas of offshore Texas (Figure 1). The evolution of the BT system has been studied in great detail for the past two decades both by industry and academia in a series of parallel and collaborative projects.

Stratigraphic evolution of the shelf and Brazos-Trinity delta system have been characterized with high-resolution seismic profiles calibrated by numerous cores and shallow boreholes. These studies have been recently summarized in several papers (e.g., Morton & Suter, 1996; Fraticelli, 2003; Anderson & Fillon, 2004 and references therein).

The intra-slope basin areas of the BT system are characterized by a series of salt-withdrawal mini-basins separated by sills connected by submarine channels breaching low points in the sills (Suter and Berryhill, 1985; Berryhill et al., 1986; Satterfield and Behrens, 1990; Winker, 1996; Badalini et al., 2000; Beaubouef et al., 2000; Pirmez et al., 2000; Figure 1). The BT system represents a type-location for the fill & spill model of sediment transfer across the slope, which infers that the mini-basins were infilled sequentially from updip to downdip basins (Satterfield and Behrens, 1990; Winker, 1996; Beaubouef and Friedmann, 2000). Two independent studies conducted in the same area proposed very different models of how the sequence of basins were infilled through time. In the study by Beaubouef and Friedmann (2000), the basins are filled sequentially, as in the classic fill & spill model. In contrast, Badalini et al. (2000) highlight the role of climate in affecting the turbidity current sediment load and of the interaction between flow and sill topography in partitioning the coarse and fine fraction of the sediment load among the various basins. In the Badalini et al. (2000) model, the various basins are filled coevally, but the coarse fraction (sand) is typically retained preferentially in the up-dip basins while the fine fraction (mud) spills over the basin sill and is deposited in the down-dip basins. The Badalini et al. (2000) model is supported in part by recent experimental and numerical analyses of turbidity currents in model linked mini-basin systems (Toniolo, 2002; Toniolo and Parker, 2003). These experiments show that the upper part of turbidity currents containing the finer fraction of the sediment load can spill over the mini-basin sill under specific circumstances, depending on flow discharge, sill height and basin area. Once the basins are linked by channels, the sand fraction by-passes the updip basins and is transferred to the terminal basin, while mud may be deposited laterally on levees (Winker, 1996; Beaubouef and Friedmann, 2000; Badalini et al., 2000).

While these studies provided great detail about the architecture of the basin fill, the absolute age of the deposits and the relative timing between the fill in each basin remain speculative.

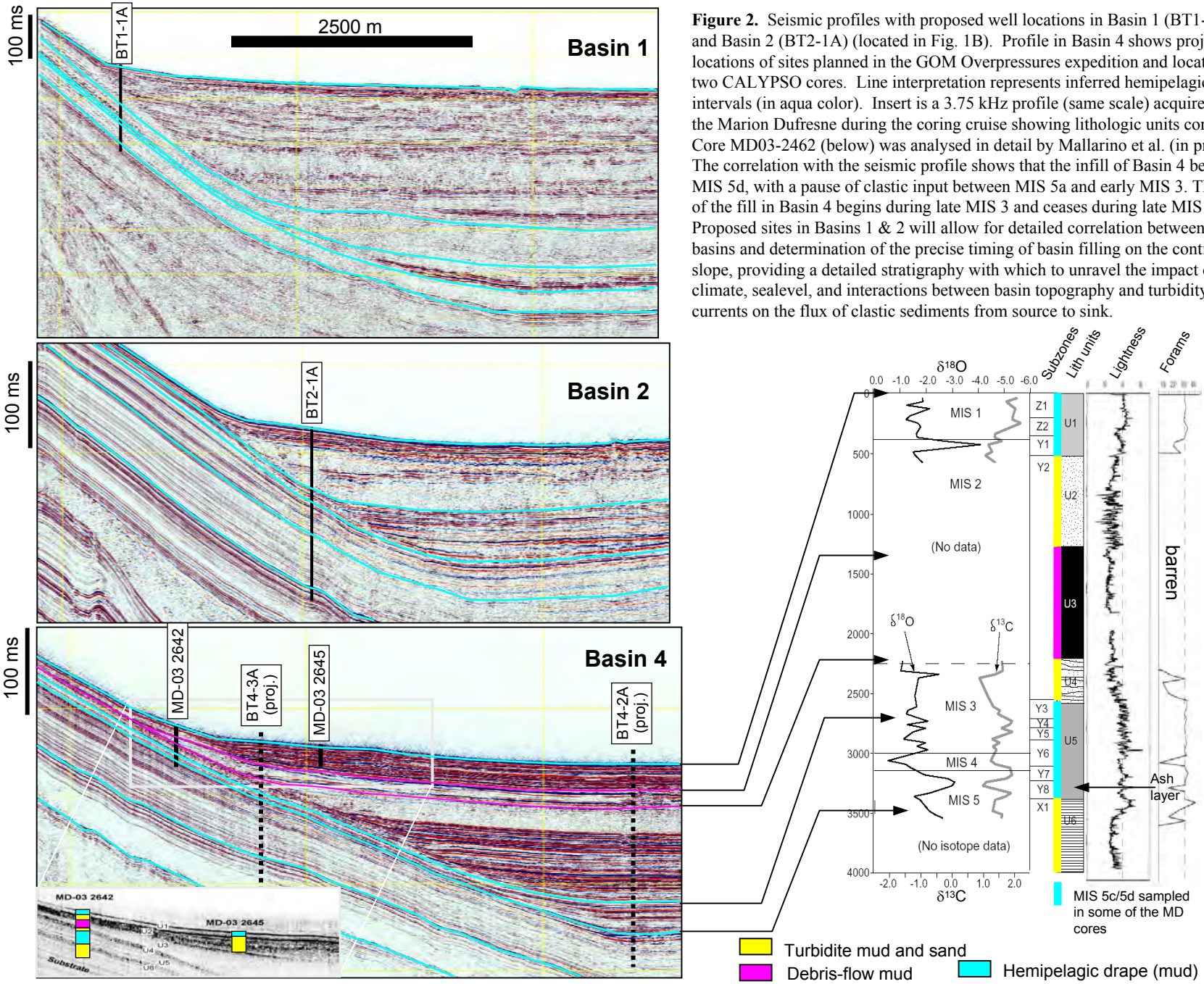

Figure 2. Seismic profiles with proposed well locations in Basin 1 (BT1-1A) and Basin 2 (BT2-1A) (located in Fig. 1B). Profile in Basin 4 shows projected locations of sites planned in the GOM Overpressures expedition and locations of two CALYPSO cores. Line interpretation represents inferred hemipelagic drape intervals (in aqua color). Insert is a 3.75 kHz profile (same scale) acquired on the Marion Dufresne during the coring cruise showing lithologic units cored. Core MD03-2462 (below) was analysed in detail by Mallarino et al. (in prep.). The correlation with the seismic profile shows that the infill of Basin 4 begun in MIS 5d, with a pause of clastic input between MIS 5a and early MIS 3. The bulk of the fill in Basin 4 begins during late MIS 3 and ceases during late MIS 2. Proposed sites in Basins 1 & 2 will allow for detailed correlation between all basins and determination of the precise timing of basin filling on the continental slope, providing a detailed stratigraphy with which to unravel the impact of climate, sealevel, and interactions between basin topography and turbidity currents on the flux of clastic sediments from source to sink.

Calibrating the basin fill history

The results of a recent study at Rice Univ. by Mallarino et al. (2004; and in prep.), that analyzed in detail a series of 15 CALYPSO cores in the terminal Basin 4 of the BT system, demonstrate, for the first time, that: (1) high-resolution litho- and chrono-stratigraphy can be established by coring the basin margins, (2) hemipelagic muds can be distinguished from gravity-deposited muds, (3) these cores can be tied to seismic units mapped on a very high-resolution 2D seismic grid in the basin, and (4) the timing of gravity-induced versus hemipelagic sediment accumulation can be linked to an independently established sea level curve (Lambeck & Chappell, 2001) for the last glacial-interglacial cycle. The cores from Basin 4 (example in Figure 2) show that the entire basin fill (except for the thin onlapping unit at depth) is younger than MIS 5d. Stage 5e was not retrieved, and must occur deeper than 40 mbsf, the longest core obtained. A hemipelagic interval spanned MIS 5a to mid MIS 3, indicating a break in the influx of clastic sediments into the basin. Whether turbidite deposition ceased during this period or turbidites were trapped in the basins updip is unclear, since no continuous cores are available to date the fill of updip basins 1 and 2.

The methodology employed in the CALYPSO cores study included (Figure 2): (1) biostratigraphic zonation following Ericsson and Wollin (1956), Kennett and Huddlestun (1972) and Kennett et al. (1985); (2) Oxygen isotope stratigraphy and correlation to sealevel curves (Lambeck and Chappell, 2001); (3) identification of well-dated ash layers in the GOM (Ledbetter, 1984); (4) Sediment color reflectance core logs (lightness) used as a proxy for correlation purposes. The proposed studies would be augmented by paleomagnetic measurements (for possible intensity cycles), core physical properties such as magnetic susceptibility for proxy correlations, and carbon-14 dating. Downhole logs (LWD or wireline), would be highly beneficial to provide a more accurate core-to-seismic tie, beyond that inferred from the standard Vp and density measurements in core.

The sites planned for the GOM Overpressure expedition in Basin 4 (Figure 2) will augment the data obtained in the CALYPSO cores by sampling older sequences, and also will provide a full lithologic sequence in the center of Basin 4. Cores as long as 150 m, such as sites BT1-1A and BT2-1A proposed in this APL, can be obtained in less than 15 hours each (20-30 min per core) using the IODP-APC system. Giant piston cores, such as the CALYPSO worked well in Basin 4, although the longest cores (40 m) were not long enough to recover MIS Stage 5e. The seismic profiles indicate that about 150 m are needed in order to recover the full basin fill record on the margins of the updip Basins 1 and 2 (see proposed sites in Figure 2).

Scientific Objectives:

Continuously coring the three main sedimentary fills of Basins 1, 2, and 4 is the last piece of the puzzle needed in order to fully understand the BT system as a whole. These data will provide for detailed litho- and chrono-stratigraphies in the BT system, therefore dating the exact timing of emplacement of clastic sediments from the shelf to the deep-sea. When integrated with: (1) available tight grids of high-quality, high-resolution 2d (e.g. Badalini et al., 2000; Beaubouef et al., 2000; Figure 2), (2) high-resolution 3d datasets (e.g., Beaubouef et al., 2003), (3) complete coverage of the BT system by conventional 3d seismic data (e.g., Pirmez et al., 2000; and Figure 1B), and (4) geotechnical boreholes in Basin 2 (spot cored and continuously wireline-logged, location in Figure 1B), will enable detailed quantification of sediment volumes and fluxes through time. The specific objectives to be addressed are:

1) Test whether the filling of the basins is sequential as proposed by the fill & spill model, or whether the basin filling is coeval across the slope (Figure 1C)

2) Determine the relationship between sealevel/climatic changes and slope depositional history by comparing the timing of basin infill with independent records of sealevel and climatic variations.

3) Evaluate the dynamics of turbidity currents and their interaction with topography on the basin margins. Are turbidity currents ever fully ponded in the basin? What is the role, if any, of overspill of the higher portions of the flows?

4) Calibrate the seismic facies at the borehole site and extend the information laterally using hi-resolution 2d and 3d seismic data. Combined with the dating of the sequences, this will enable computation of sediment flux for the various grain-size fractions across the slope through time.

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664-APL

IODP Site Summary Forms:

Form 1 - General Site Information

Please fill out information in all gray boxes
Revised 7 March 2002

New X **Revised**

Section A: Proposal Information

Title of Proposal:	Brazos-Trinity Source-To-Sink: Testing the Fill & Spill Model
Date Form Submitted:	Dec 15, 2004
Site Specific Objectives with Priority (Must include general objectives in proposal)	Sample the margin of Basin 1, same as general objectives: 1. Test whether the filling of the basins is sequential as proposed by the fill & spill model, or whether the basin filling is coeval across the slope 2. Determine the relationship between sealevel/climatic changes and slope depositional history by comparing the timing of basin infill with independent records of sealevel and climatic variations. 3. Evaluate the dynamics of turbidity currents and their interaction with topography on the basin margins. 4. Calibrate the seismic facies at the borehole site and extend the information laterally using hi-resolution 2d and 3d seismic data.
List Previous Drilling in Area:	Location of Site BT1-1A has geological configuration similar to sites in adjacent basins (Basin 2 and Basin 4). Basin 2: Shell Geotechnical boreholes (Rudder #1 and Rudder #2) Basin 4: Marion Dufresne giant piston coring Other industry wells in the vicinity (Block EB165)

Section B: General Site Information

Site Name: (e.g. SWPAC-01A)	BT1-1A	If site is a reoccupation of an old DSDP/ODP Site, Please include former Site #	Area or Location:	Western Gulf of Mexico Protraction Area: East Breaks Block: EB 296
Latitude:	Deg: 27	Min: 42.0	Jurisdiction:	USA
Longitude:	Deg: -94	Min: 21.6	Distance to Land:	~150 km
Coordinates System:	WGS 84, Other ( )			
Priority of Site:	Primary: 1	Alt:	Water Depth:	465 m

Section C: Operational Information

	Sediments	Basement
Proposed Penetration: (m)	150	
	What is the total sed. thickness? >10000 m	

Total Penetration: 150 m

General Lithologies: Mostly mud, some thin sand intervals

Coring Plan: *(Specify or check)*

Double or triple APC to ~150 m

1-2-3-APC ■ VPC* ☐ CB ☐ MDCB* ☐ CS ☐ B ☐ ntry ☐ B ☐

** Systems Currently Under Development*

Wireline Logging Plan:

Standard Tools		Special Tools				LWD	
Neutron-Porosity	☐	Borehole Televiewer	☐	Formation Fluid Sampling	☐	Density-Neutron	■
Litho-Density	☐	Nuclear Magnetic Resonance	☐	Borehole Temperature & Pressure	☐	Resistivity-Gamma Ray	■
Gamma Ray	☐	Geochemical	☐	Borehole Seismic	☐	Acoustic	☐
Resistivity	☐	Side-Wall Core Sampling	☐				
Acoustic	☐						
Formation Image	☐			Others ( )		Others ( )	

Max.Borehole Temp. : *Expected value (For Riser Drilling)*

10 C _____°C

Mud Logging: *(Riser Holes Only)*

Cuttings Sampling Intervals

from _____ m to _____ m, _____ m intervals

from _____ m to _____ m, _____ m intervals

Basic Sampling Intervals: 5m

Estimated days:

Drilling/Coring: 0.75	Logging: 0.25	Total On-Site: 1

Future Plan: *Longterm Borehole Observation Plan/Re-entry Plan*

Hazards/ Weather:

Please check following List of Potential Hazards

Shallow Gas	☐	Complicated Seabed Condition	☐	Hydrothermal Activity	☐
Hydrocarbon	☐	Soft Seabed	☐	Landslide and Turbidity Current	☐
Shallow Water Flow	☐	Currents	☐	Methane Hydrate	☐
Abnormal Pressure	☐	Fractured Zone	☐	Diapir and Mud Volcano	☐
Man-made Objects	☐	Fault	☐	High Temperature	☐
H_2S	☐	High Dip Angle	☐	Ice Conditions	☐
CO_2	☐			No anticipated hazards as per previous drilling & shallow coring in the area	

What is your Weather window? (Preferable period with the reasons)

Avoid GOM hurricane season

Form 2 - Site Survey Detail

IODP Site Summary Forms:

Please fill out information in all gray boxes

New [X] *Revised* [ ]

roposal #:	Site #: BT1-1A	Date Form Submitted: Dec 15, 2004

	Data Type	SSP Requir-ements	Exists In DB	Details of available data and data that are still to be collected
1	High resolution seismic reflection			Primary Line(s) **Shell survey Line 1053 - SP 225** :Location of Site on line (SP or Time only) Crossing Lines(s): **Shell survey Line 1010 - SP 189** crosses 2.5 km to the east (site moved away from crossing to avoid expected sand)
2	Deep Penetration seismic reflection			Primary Line(s): Location of Site on line (SP or Time only) **Industry 3D survey available over site.** Crossing Lines(s):
3	Seismic Velocity†			Not immediately available, probably not needed for such a shallow site.
4	Seismic Grid			Shell High Resolution 2D seismic survey (~250 Hz) (~1200 m spacing) Conventional 3D seismic survey available (need release)
5a	Refraction (surface)			Not available
5b	Refraction (near bottom)			Not available
6	3.5 kHz			Seismic survey has very high frequency content – expect to survey site with 3.5 kHz prior to siting the APC coring. Location of Site on line (Time)
7	Swath bathymetry			3d seismic-based bathymetry integrated with NOAA swath bathymetry
8a	Side-looking sonar (surface)			GLORIA USGS survey
8b	Side-looking sonar (bottom)			Deep-tow available in the vicinity of site (published by Pirmez et al., 2000), 3d seismic amplitude map in preparation.
9	Photography or Video			Not available to our knowledge
10	Heat Flow			Not available to our knowledge, but likely exists (TDI-Brooks surveys)
11a	Magnetics			Available from USGS GLORIA-EEZ survey & industry surveys
11b	Gravity			Available from USGS GLORIA-EEZ survey & industry surveys
12	Sediment cores			Acquired by Shell in 1990.
13	Rock sampling			N/A
14a	Water current data			NOAA
14b	Ice Conditions			N/A
15	OBS microseismicity			Not Available
16	Navigation			Seismic surveys were precisely navigated (commercial satellite navigation)
17	Other			

SSP Classification of Site:	SSP Watchdog:	Date of Last Review:

Form 3 - Detailed Logging Plan

IODP Site Summary Forms:

New [X] *Revised* [ ]

Proposal #:	Site #: BT1-1A	Date Form Submitted: Dec 15, 2004
Water Depth (m): 465 m	Sed. Penetration (m): 150 m	Basement Penetration (m): 0

Do you need to use the conical side-entry sub (CSES) at this site? Yes ☐ No X

Are high temperatures expected at this site? Yes ☐ No X

Are there any other special requirements for logging at this site? Yes ☐ No X

If "Yes" Please describe requirements:_____

What do you estimate the total logging time for this site to be: **4-6 hours**_____

Measurement Type	Scientific Objective	Relevance (1=high, 3=Low)
Neutron-Porosity		
Litho-Density	Synthetic seismic tie	
Natural Gamma Ray	Lithology and core/log tie	1
Resistivity-Induction		
Acoustic	Synthetic seismic tie	1
FMS		
BHTV		
Resistivity-Laterolog		
Magnetic/Susceptibility		
Density-Neutron (LWD)	Lithology and estimate of density for core/seismic tie	1
Resitivity-Gamma Ray (LWD)	Lithology & estimate of acoustic velocity from resistivity for core/seismic tie	1
Other: Special tools (CORK, PACKER, VSP, PCS, FWS, WSP		

For help in determining logging times, please contact the ODP-LDEO Wireline Logging Services group at: borehole@ldeo.columbia.edu	Note: Sites with greater than 400 m of penetration or significant basement penetration require deployment of

Form 4 – Pollution & Safety Hazard Summary

IODP Site Summary Forms:

Please fill out information in all gray boxes

New [X] *Revised* [ ]

Proposal #:	Site #: BT1-1A	Date Form Submitted: Dec 15, 2004

1	Summary of Operations at site: (Example: Triple-APC to refusal, XCB 10 m into basement, log as shown on page 3.)	Double or triple APC, Log (LWD or wireline)
2	Based on Previous DSDP/ODP drilling, list all hydrocarbon occurrences of greater than background levels. Give nature of show, age and depth of rock:	No previous ODP site in the area. Shallow cores and 3D seismic in the area indicate no apparent hydrocarbon occurrences in the vicinity of proposed site.
3	From Available information, list all commercial drilling in this area that produced or yielded significant hydrocarbon shows. Give depths and ages of hydrocarbon-bearing deposits.	The EB165 (Snapper) field operated by BP produces oil from lower Pleistocene and Pliocene sands at depths greater than 3000 m subsea. The production platform is located approximately 13 km NNE of the site.
4	Are there any indications of gas hydrates at this location?	NO
5	Are there reasons to expect hydrocarbon accumulations at this site? Please give details.	Site is located in largely muddy sediments, and there is no apparent trap. Also, no seismic amplitude anomalies occur within the shallow basin fill.
6	What "special" precautions will be taken during drilling?	none
7	What abandonment procedures do you plan to follow:	No special procedures are anticipated, beyond MMS requirements for shallow core holes
8	Please list other natural or manmade hazards which may effect ship's operations: (e.g. ice, currents, cables)	A seafloor gas pipeline comes within approximately 3 km of the site. Surface currents can be strong at times (Loop Current)
9	Summary: What do you consider the major risks in drilling at this site?	No major risks. Situation is exactly analogous to sites proposed in Basin 4 in Proposal #589 (BT4-3A)

IODP Site Summary Forms:

Form 5 – Lithologic Summary

New [X] *Revised* [ ]

Proposal #:	Site #: BT1-1A	Date Form Submitted: Dec 15, 2004

Sub-bottom depth (m)	*Key reflectors, Unconformities, faults, etc*	*Age*	*Assumed velocity (km/sec)*	*Lithology*	*Paleo-environment*	*Avg. rate of sed. accum. (m/My)*	*Comments*
150	bottom of the well	150 ka	1.5	Mud with minor sand intervals	Margin of intra-slope basin	1000	Numerous reflections observed in seismic line that require detailed lithologic calibration and dating

IODP Site Summary Forms:

Form 1 - General Site Information

664-APL

Please fill out information in all gray boxes
Revised 7 March 2002

New X **Revised**

Section A: Proposal Information

Title of Proposal:	Brazos-Trinity Source-To-Sink: Testing the Fill & Spill Model
Date Form Submitted:	Dec 15, 2004
Site Specific Objectives with Priority (Must include general objectives in proposal)	Sample the margin of Basin 2, same as general objectives: 1. Test whether the filling of the basins is sequential as proposed by the fill & spill model, or whether the basin filling is coeval across the slope 2. Determine the relationship between sealevel/climatic changes and slope depositional history by comparing the timing of basin infill with independent records of sealevel and climatic variations. 3. Evaluate the dynamics of turbidity currents and their interaction with topography on the basin margins. 4. Calibrate the seismic facies at the borehole site and extend the information laterally using hi-resolution 2d and 3d seismic data.
List Previous Drilling in Area:	Location of Site BT2-1A has geological configuration similar to sites in adjacent basins (Basin 1 and Basin 4). Basin 2: Shell Geotechnical boreholes (Rudder #1 and Rudder #2) penetrated entire late Pleistocene onlap-fill unit in Basin 2; wells were spot-cored and completely logged with wireline tools. Basin 4: Marion Dufresne giant piston coring

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Section B: General Site Information

Site Name: (e.g. SWPAC-01A)	BT2-1A	If site is a reoccupation of an old DSDP/ODP Site, Please include former Site #	Area or Location:	Western Gulf of Mexico Protraction Area: East Breaks Block: EB 470
Latitude:	Deg: 27	Min: 31.55	Jurisdiction:	USA
Longitude:	Deg: -94	Min: 27.3	Distance to Land:	~160 km
Coordinates System:	WGS 84, Other ( )			
Priority of Site:	Primary: 1	Alt:	Water Depth:	885 m

Section C: Operational Information

	Sediments	Basement
Proposed Penetration: (m)	150	
	What is the total sed. thickness? >10000 m	

Total Penetration: 150 m

General Lithologies: Mostly mud, some thin sand intervals

Coring Plan: *(Specify or check)*

Double or triple APC to ~150 m

1-2-3-APC ■ VPC* ☐ CB ☐ MDCB* ☐ CS ☐ B ☐ ntry ☐ B ☐

** Systems Currently Under Development*

Wireline Logging Plan:

Standard Tools		Special Tools				LWD	
Neutron-Porosity	☐	Borehole Televiewer	☐	Formation Fluid Sampling	☐	Density-Neutron	■
Litho-Density	☐	Nuclear Magnetic Resonance	☐	Borehole Temperature & Pressure	☐	Resistivity-Gamma Ray	■
Gamma Ray	☐	Geochemical	☐	Borehole Seismic	☐	Acoustic	☐
Resistivity	☐	Side-Wall Core Sampling	☐				
Acoustic	☐						
Formation Image	☐			Others ( )		Others ( )	

Max.Borehole Temp. : *Expected value (For Riser Drilling)*

10 C _____°C

Mud Logging: *(Riser Holes Only)*

Cuttings Sampling Intervals

from _____ m to _____ m, _____ m intervals

from _____ m to _____ m, _____ m intervals

Basic Sampling Intervals: 5m

Estimated days:

Drilling/Coring: 0.75	Logging: 0.25	Total On-Site: 1

Future Plan: *Longterm Borehole Observation Plan/Re-entry Plan*

Hazards/ Weather:

Please check following List of Potential Hazards

Shallow Gas	☐	Complicated Seabed Condition	☐	Hydrothermal Activity	☐
Hydrocarbon	☐	Soft Seabed	☐	Landslide and Turbidity Current	☐
Shallow Water Flow	☐	Currents	☐	Methane Hydrate	☐
Abnormal Pressure	☐	Fractured Zone	☐	Diapir and Mud Volcano	☐
Man-made Objects	☐	Fault	☐	High Temperature	☐
H_2S	☐	High Dip Angle	☐	Ice Conditions	☐
CO_2	☐			No anticipated hazards as per previous drilling & shallow coring in the area	

What is your Weather window? (Preferable period with the reasons)

Avoid GOM hurricane season

Form 2 - Site Survey Detail

IODP Site Summary Forms:

Please fill out information in all gray boxes

New [X] *Revised* [ ]

roposal #:	Site #: BT2-1A	Date Form Submitted: Dec 15, 2004

	Data Type	SSP Requir-ements	Exists In DB	Details of available data and data that are still to be collected
1	High resolution seismic reflection			Primary Line(s) **Shell survey Line 2039 - SP 221** :Location of Site on line (SP or Time only) Crossing Lines(s): **Shell survey Line 2006 - SP 240**
2	Deep Penetration seismic reflection			Primary Line(s): Location of Site on line (SP or Time only) **Industry 3D survey available over site.** Crossing Lines(s):
3	Seismic Velocity†			Not immediately available, probably not needed for such a shallow site.
4	Seismic Grid			Shell High Resolution 2D seismic survey (~250 Hz) (~600 m spacing) Conventional 3D seismic survey available (need release)
5a	Refraction (surface)			Not available
5b	Refraction (near bottom)			Not available
6	3.5 kHz			Seismic survey has very high frequency content – expect to survey site with 3.5 kHz prior to siting the APC coring. Location of Site on line (Time)
7	Swath bathymetry			3d seismic-based bathymetry
8a	Side-looking sonar (surface)			GLORIA USGS survey
8b	Side-looking sonar (bottom)			Deep-tow available over site (published by Pirmez et al., 2000), 3d seismic amplitude map available.
9	Photography or Video			Not available to our knowledge
10	Heat Flow			Not available to our knowledge, but likely exists (TDI-Brooks surveys)
11a	Magnetics			Available from USGS GLORIA-EEZ survey & industry surveys
11b	Gravity			Available from USGS GLORIA-EEZ survey & industry surveys
12	Sediment cores			Acquired by Shell in 1990.
13	Rock sampling			N/A
14a	Water current data			NOAA
14b	Ice Conditions			N/A
15	OBS microseismicity			Not Available
16	Navigation			Seismic surveys were precisely navigated (commercial satellite navigation)
17	Other			

SSP Classification of Site:	SSP Watchdog:	Date of Last Review:

Form 3 - Detailed Logging Plan

IODP Site Summary Forms:

New [X] *Revised* [ ]

Proposal #:	Site #: BT2-1A	Date Form Submitted: Dec 15, 2004
Water Depth (m): 885 m	Sed. Penetration (m): 150 m	Basement Penetration (m): 0

Do you need to use the conical side-entry sub (CSES) at this site? Yes ☐ No X

Are high temperatures expected at this site? Yes ☐ No X

Are there any other special requirements for logging at this site? Yes ☐ No X

If "Yes" Please describe requirements:_____

What do you estimate the total logging time for this site to be: **4-6 hours**_____

Measurement Type	Scientific Objective	Relevance (1=high, 3=Low)
Neutron-Porosity		
Litho-Density	Synthetic seismic tie	
Natural Gamma Ray	Lithology and core/log tie	1
Resistivity-Induction		
Acoustic	Synthetic seismic tie	1
FMS		
BHTV		
Resistivity-Laterolog		
Magnetic/Susceptibility		
Density-Neutron (LWD)	Lithology and estimate of density for core/seismic tie	1
Resitivity-Gamma Ray (LWD)	Lithology & estimate of acoustic velocity from resistivity for core/seismic tie	1
Other: Special tools (CORK, PACKER, VSP, PCS, FWS, WSP		

For help in determining logging times, please contact the ODP-LDEO Wireline Logging Services group at: borehole@ldeo.columbia.edu	Note: Sites with greater than 400 m of penetration or significant basement penetration require deployment of

Form 4 – Pollution & Safety Hazard Summary

IODP Site Summary Forms:

Please fill out information in all gray boxes

New [X] *Revised* [ ]

Proposal #:	Site #: BT2-1A	Date Form Submitted: Dec 15, 2004

1	Summary of Operations at site: (Example: Triple-APC to refusal, XCB 10 m into basement, log as shown on page 3.)	Double or triple APC, Log (LWD or wireline)
2	Based on Previous DSDP/ODP drilling, list all hydrocarbon occurrences of greater than background levels. Give nature of show, age and depth of rock:	No previous ODP site in the area. Shallow cores and 3D seismic in the area indicate no apparent hydrocarbon occurrences in the vicinity of proposed site. Geotechnical boreholes (Rudder #1, #2) drilled in basin center had no hydrocarbon indicators.
3	From Available information, list all commercial drilling in this area that produced or yielded significant hydrocarbon shows. Give depths and ages of hydrocarbon-bearing deposits.	Rudder #1 and Rudder #2 geotechnical boreholes – fully logged and spot-cored by Shell. Shell's Rudder well (EB384-1), drilled to approximately 3000 m in lower Pliocene deposits, is the only exploration well in the basin and was a dry hole.
4	Are there any indications of gas hydrates at this location?	NO
5	Are there reasons to expect hydrocarbon accumulations at this site? Please give details.	Site is located in largely muddy sediments, and there is no apparent trap. There are no seismic amplitude anomalies within the shallow basin fill.
6	What "special" precautions will be taken during drilling?	none
7	What abandonment procedures do you plan to follow:	No special procedures are anticipated, beyond MMS requirements for shallow core holes
8	Please list other natural or manmade hazards which may effect ship's operations: (e.g. ice, currents, cables)	A seafloor gas pipeline passes within approximately 2 km of the site.
9	Summary: What do you consider the major risks in drilling at this site?	No major risks. Situation is exactly analogous to sites proposed in Basin 4 (BT4-3A) in Proposal #589. Previous drilling in the same basin was successful in logging and coring the basin fill sediments.

IODP Site Summary Forms:

Form 5 – Lithologic Summary

New [X] *Revised* [ ]

Proposal #:	Site #: BT1-1A	Date Form Submitted: Dec 15, 2004

Sub-bottom depth (m)	*Key reflectors, Unconformities, faults, etc*	*Age*	*Assumed velocity (km/sec)*	*Lithology*	*Paleo-environment*	*Avg. rate of sed. accum. (m/My)*	*Comments*
150	bottom of the well	150 ka	1.5	Mud with minor sand intervals	Margin of intra-slope basin	1000	Numerous reflections observed in seismic line that require detailed lithologic calibration and dating

APPENDIX C:
FY06 MSP OPERATIONS

Appendix C.1

Relevant discussion from minutes of October 2004 Covallis SPC meeting

The discussion turned to MSP scheduling for FY2006. Miller left the room as a proponent of Proposal 564-Full New Jersey Shallow Shelf. Christie stepped in as an alternate for Miller. Coffin identified the Great Barrier Reef component of Proposal 519-Full2 and Proposal 564-Full as the only MSP projects residing with OPCOM. He suggested approving one of them provisionally for FY2006 pending budget advice from the EMA. Coffin opened the floor for comments.

Duncan wondered if anything had mitigated the concerns about obtaining an environmental permit for drilling on the Great Barrier Reef. Coffin replied that the lead proponent of the proposed site survey expected no problem getting a drilling permit. Skinner recalled that last time it took one and a half years to get a permit, though he mentioned a reassessment underway of the permitting guidelines for scientific research.

Filippelli inquired whether the discussion concerned only the relative costs of the two projects or the relative scientific merits. Coffin advised focusing on science, given the lack of cost estimates or budget guidance. Becker expressed uncertainty about the scientific importance of the Great Barrier Reef component. Quinn explained the importance of having two sites to get the best results. Bekins asked if it would make any difference to see the results from Tahiti before going to the Great Barrier Reef. Coffin explained that the SPC already agreed on the merits of conducting the two components separately.

Evans inquired if Proposal 581-Full2 could represent an MSP operation. Droxler left the room as the lead proponent of Proposal 581-Full2. Baldauf confirmed that a portion of that proposal would require an MSP, so it made sense to do the whole thing as an MSP project. Quinn preferred focusing on the highest ranked proposals. Evans responded that Proposal 581-Full2 might represent the only feasible option in the event of a decrease in the available budget. Quinn regarded that as a decision belonging to OPCOM.

Coffin cited the specific request from the SPPOC for an FY2006 program plan, but since the SPPOC would not receive budget guidance until after its December meeting, he wondered if the SPC could wait until March 2005 to recommend a schedule. Pisias recognized the dilemma of trying to schedule on a yearly basis despite not having a contract on that schedule, and he advised the committee not to worry about budget issues and just determine the best operationally achievable science. Christie recommended extending the timeline of scheduling MSP projects rather than trying to do it only one year ahead. Coffin noted the progress toward the goal of providing OPCOM with more projects than they could schedule at any one time.

Coffin inquired if the committee wanted to review the FY2006 MSP schedule again after approving it now or else leave it in the hands of OPCOM and the SPPOC. Duncan suggested reviewing it again in case of any concerns about readiness. Filippelli asked if the previous proposal rankings remained valid. Becker proposed reaffirming the scientific importance of the two available projects residing in the top-ranked tier and letting OPCOM select one for scheduling. Mori agreed. Becker also asked if OPCOM would deliberate before the next SPC meeting provided that budget guidance comes in January. Janecek expected so and said that the SPC could consider the result in March 2005. He requested the SPC to forward several conceptual models of the science plan for the SPPOC to consider in December 2004. Becker

noted that the SPC could see it again in March 2005 before the SPPOC approves the final FY2006 plan in June 2005. He again suggested reaffirming the previous ranking given that new members had joined the committee since then. Quinn agreed on reaffirming that the top-tier proposals reside with OPCOM for potential scheduling.

Appendix C.2

Rankings of Probable MSP operations from June 2004 SPC meeting

Rankings from June SPC 2004 meetig

Rank	Proposal	#	Short Title	Mean	Stdv
1	522-Full3		Superfast Spreading Crust	3.18	2.30
2	603A-Full2		NanTroSEIZE Phase 1	3.47	2.45
3	603B-Full2		NanTroSEIZE Phase 2	3.76	2.77
4	477-Full4		Okhotsk/Bering Plio-Pleistocene	5.12	3.43
5	482-Full3		Wilkes Land Margin	5.94	3.27
6	553-Full2		Cascadia Margin Hydrates	6.35	3.12
7	600-Full		Canterbury Basin	6.88	3.57
8	595Full3		Indus Fun and Murray Ridge	8.82	2.88
9	547-Full4		Oceanic Subsurface Biosphere	9.24	3.99
10	557-Full2		Storegga Slide Gas Hydrates	9.65	4.05
11	581-Full2		Late Pleistocene Coralgal Banks	10.53	2.94
12	584-Full2		TAG II Hydrothermal	10.88	2.96
13	555-Full3		Cretan Margin	11.18	2.24
14	573-Full2		Porcupine Basin Carbonate Mounds	12.06	2.95
15	537A-Full3		CRISP Stage 1	12.94	1.95

SPC Consensus 0406-15: The SPC forwards the top fourteen of fifteen ranked proposals to OPCOM in three groups as follows. The committee requests that OPCOM propose scheduling options for FY2005 and FY2006 that honor and adhere to these ranking groups as closely as possible.

Group I includes the top seven proposals. **This group equates in priority to the Group I** proposals previously forwarded to OPCOM and currently awaiting scheduling **(519-Full2 South Pacific Sea Level**, 545-Full3 Juan de Fuca Flank Hydrogeology, **564-Full New Jersey Shelf,** and 589-Full3 Gulf of Mexico Overpressures). The committee recommends scheduling the Group I proposals if at all possible within operational constraints.

Group II includes the next three proposals (#8-10). The committee recommends considering these proposals as alternatives only if the Group I proposals cannot fill the schedule.

Group III includes the lower four proposals (#11-14). The committee recommends considering these proposals as alternatives only if those in Groups I and II cannot fill the schedule. Although scheduling should and will be guided primarily by the results of the global

scientific ranking, the SPC recommends limiting the drilling options of Proposal 581-Full2 Late Pleistocene Coralgal Banks to several sites around one of the drowned reefs at Southern Bank, while nonetheless addressing as many of the proposed scientific objectives as possible. Likewise, the committee recommends limiting the drilling options of Proposal 573-Full2 Porcupine Basin Carbonate Mounds to several sites around one mound.

Appendix C.3

Pertinent discussion from March 2004 SPC meeting regarding MSP operations.
12.1 Proposal 519-Add3 South Pacific Sea Level
Watchdogs: Quinn
Conflict-of-interests: Camoin (SSEPs co-chair) as lead proponent
Recommendation: split into two expeditions
Camoin left the room as the lead proponent. Terry Quinn presented Proposal 519-Add3. He identified technology as the only link between the Tahiti and Great Barrier Reef components of the proposal. Quinn characterized the science objectives as highly complementary but independent and stated that they justified drilling at Tahiti with or without drilling on the Great Barrier Reef.

Katz asked if the program had a policy for drilling on living reefs and whether this project should proceed before having such a policy. Coffin asked if the ESO had any policy in place for this. Evans said no, the ESO did not have a written policy for this specific issue, but they would certainly take the greatest care. He supposed that only the drill cuttings would have any impact. Evans also noted that the ESO had done extensive environmental reviews for the Arctic Coring Expedition, and they anticipated similar efforts for this project but had not yet begun to investigate it. Miller suggested investigating this issue before the June SPC meeting. Kenter thought it would help for starters to identify the living parts of the reef. Quinn noted that reports exist from other projects that have drilled on live coral reefs. Ildefonse wondered about the impacts of previous reef drilling in Tahiti.

Fisher argued for taking a more active approach in describing and publicizing preventative measures. He encouraged increasing the pace for examining this issue and preparing an explanation in advance for anything that might go wrong. Kenter cautioned against taking the matter too seriously for a project that involved drilling only 100 m boreholes. Kato believed that the program could not act too cautiously on this issue because public concerns continued to grow stronger and stronger. Austin said that any assessment would have to demonstrate a minimal impact far outweighed by the science objectives. Baldauf remarked that the program would have to submit a formal document of environmental assessment no matter what. Katz supposed that places might exist where the program could never drill.

Prell said that since the responsibility for getting clearances rested with the IOs, the SPC should request a report from the ESO about this topic at the next meeting. Coffin noted that it would affect the other IOs as well, so the IODP-MI probably should undertake it. He added that the OPCOM would have to address this issue immediately if the SPC recommended Proposal 519-Full2 for drilling in FY2005. Katz stated that the EPSP would review this

proposal in June immediately after the next SPC meeting. Coffin suggested that the SPC might prudently consider it for FY2006 instead of FY2005 in the absence of a suitable policy. Austin suggested putting Proposal 519-Full2 and Proposal 564-Full New Jersey Margin in the program plan and deciding which one to do later after working hard to develop the policy. Evans called it a challenge to create a program plan for both of those MSP projects by May 2004. Coffin recommended choosing which one to put in the FY2005 and FY2006 plans. Mevel described the New Jersey project as much more expensive than Tahiti, and said that ECORD might find it extremely difficult financially to implement it next after the Arctic Coring Expedition. Coffin believed that the survey off the Great Barrier Reef would not happen until late this year at the earliest. Evans confirmed that the proponents and their colleagues had obtained permission for a December survey. Gillis preferred evaluating proposals for splitting on a case-by-case basis. Becker remarked that many projects changed after scheduling, and he just wanted to ensure that significant changes would come back to the SPC for approval.

Coffin asked if the committee had any specific advice for the OPCOM. Miller and Austin left the room as proponents of Proposal 564-Full. Becker wanted to inform the OPCOM that the Tahiti portion of Proposal 519-Full2 could stand on its own. Quinn agreed. Prell expressed concern that the SPC had already forwarded projects that remained unready for scheduling. Larsen asked if the Great Barrier Reef portion would have to reenter the ranking process. Moore asserted that the SPC had forwarded the proposal as a complete project and therefore it did not need to come back. Coffin also preferred letting it remain with the OPCOM. Prell asked what would trigger scheduling of the Great Barrier Reef part. Coffin expected a clearer answer to emerge after seeing the site-survey results. He asked Quinn to draft a recommendation for the OPCOM.

SPC Consensus 04-03-13: The SPC recommends that the OPCOM split Proposal 519-Full2 South Pacific Sea Level into two MSP expeditions. The Tahiti component should be considered for scheduling in FY2005.

Appendix C.4

Relevant information pertaining to site survey for Great Barrier Reef

Date: Tue, 15 Feb 2005 10:51:05 +0900
To: Keir Becker <kbecker@rsmas.miami.edu>,
Tom Janecek <tjanecek@iodp.org>
From: Mike Coffin <mcoffin@ori.u-tokyo.ac.jp>
Subject: GBR Site Survey
X-IP: 157.82.131.131
X-FROM-DOMAIN: ori.u-tokyo.ac.jp
X-FROM-EMAIL: mcoffin@ori.u-tokyo.ac.jp

Dear Keir and Tom,

The lead proponent for the GBR site survey, Brad Opdyke, reports:

"I'm running under the assumption that I'll be able to raise the money for the site survey and that it will happen in October or November. I'll let you know, when I know for certain."

Best regards,

Mike
--