

IODP Scientific Technology Panel (STP)

5th Meeting, 20th-23rd August 2007

Beijing Wenhua Plaza

Beijing, China

Synopsis

STP met for 3.5 days in Beijing. In addition to the originally submitted agenda, STP considered at length the budget models requested by IODP-MI to accommodate the reduced financial situation. The time allocated to the meeting was insufficient and over-ran by half a day. Furthermore this meant there was not time to investigate why a significant number of Statements from the previous STP meeting (0612) had not been reported back at this meeting as requested. Consequently a number of statements made here are simply repeat requests for action on outstanding statements from December 2006 and those from the Microbiology Working Group report from 2003. In discussing the budget models, STP did not have time or information available for all IOs to discuss detailed budgets, but has provided some positive suggestions for further investigation and, in order to be prepared for future reductions in budget, proposed a way forward in determining further options should the financial situation not be remediated by non-IODP work for the SODV and the CHIKYU.

Lovell declared a major conflict of interest arising from the recent death of Tim Brewer, EPC Coordinator and a member of ESO. Lovell has temporarily (as Head of Department where Brewer worked) taken over these duties. This is a temporary arrangement and Sarah Davies at Leicester will take over Tim Brewer's role incrementally over the coming months. Meanwhile, at this STP meeting (0708) Lovell has abstained from voting on any statements relating to IOs (this excludes repeat requests for items at the December 2006 meeting). Neal, as Vice Chair, chaired all sessions where there was a perceived conflict for Lovell.

EXECUTIVE SUMMARY

The STP forwards the following recommendations, consensus statements, and action items to the SPC or the IODP-MI as appropriate, and for distribution to the IOs as required. STP suggestions for whether items should be forwarded to SPC and/or IODP-MI are indicated, as are priorities for action items. Brief overviews/background are provided where appropriate in italics.

STP Recommendations

STP Recommendation 0708-01: IODP Budget Models

STP thanks the USIO, CDEX, and ESO for their presentations on possible models to accommodate budget reductions. STP discussed at length the implications of the financial situation facing IODP with respect to the models outlined by the IOs. While STP supported the overall proposal of a full service/reduced schedule model (see Background below), it was concerned that alternative scenarios must also be explored to accommodate any failure to secure non-IODP funds to offset the budget reductions.

STP provides various suggestions for further exploration by the IOs in the Background to this Recommendation.

STP discussion at this Beijing meeting was, however, time limited and to enable further consideration STP requests IODP-MI instruct the IOs to provide detailed analyses of each minimum and standard measurement.

These analyses should include:

- a. a list of equipment available offshore to make the minimum and standard measurements with an indication of whether this equipment is standard “off the shelf” or custom built;
- b. the capital and on going maintenance costs for enabling the equipment to function;
- c. the ongoing technical support costs (i.e. Full Time Equivalent numbers) on an Expedition by Expedition basis;
- d. a comment on the effect of making this measurement in terms of:
 - (i) time involved and effect on flow of core;
 - (ii) the cost and science implications of removing this measurement and it being done by participants (not IOs) on shore;
 - (iii) whether equipment is currently available at core repositories or could be easily removed to shore for access by IODP participants;
 - (iv) any implications for staffing by IOs through removing this measurement (will it lead to a cost saving or not; will it impact other measurements).

IOs should provide an indication of the relative rather than absolute costs as applied to equipment, maintenance and staff support.

Voting record: 15 Yes; 0 No; 1 Abstention (Lovell); (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.
Priority: High

Proposed Deadline 1st November, 2007

STP suggests this be forwarded to IODP-MI & SPC

Background to STP Recommendation 0708-01:

STP approaches the problem of budget reduction models from the perspective that IODP must achieve the best science for a fixed cost. Any proposals should minimise the impact on science while maximising any financial savings. Only one of three requested reports was distributed to STP prior to the meeting (from ESO), so discussion of this was time limited at the STP0708 meeting in Beijing and the following initial conclusions are presented. Further discussions with the IOs are needed, and should be underpinned by additional information supplied by the IOs as requested below.

*The concept of a full service (Minimum and Standard IODP measurements) reduced schedule model is the preferred option. This assumes a high level of additional support for non-IODP work by the SODV and CHIKYU. **Note** full service may approximate that achieved during the latter stages of ODP but is precisely defined as Minimum and Standard Measurements in the revised (STP0708) IODP Measurements document.*

Reduction in number of expeditions may have a positive impact:

- a. requirement for fewer scientists to support expeditions.*
- b. possible exchanges of technical staff could be improved with different platforms operating at different periods within the year.*

The success of IODP Expeditions has traditionally relied on the Expedition Science Party (whether shipboard or shore based (as for MSPs)). This group of scientists provides an economical and efficient means of acquiring large quantities of data in addition to optimising the scientific interaction and thus enhancing the scientific output of IODP Expeditions. The Expedition Science Party should be retained in any model implemented to meet budget reductions.

STP stresses that the IODP Science Plan (ISP) cannot be achieved if the suite of minimum measurements is reduced. All three major emphasis areas of the ISP (Deep Biosphere; Environmental Change; Solid Earth Cycles & Geodynamics) require basic borehole and core characterization to have been made in order to direct more detailed investigations within each emphasis area. Without these basic measurements/observations, the geologic context of individual samples is lost and the scientific return of each expedition is significantly reduced.

STP needs to identify the impact of removing measurements from this full service should further cost savings be necessary for whatever reason. Unit costs are required from IOs, which include capital, maintenance, technical support, and time effects. STP then needs to set these costs against the scientific benefits of this measurement or a series of measurements viewed as a single group in achieving the IODP Science Plan. STP proposes to continue this discussion once this further information is available from the IOs that will enable STP to examine the costs against achieving the suite of minimum and standard measurements; this will include examining how the suite of measurements is achieved and the different approaches to obtaining high resolution versus low resolution data and/or sampling.

To achieve ISP objectives minimum measurements and/or sample processing normally need to be made on board the CHIKYU and SODV. A variety of options were discussed; discussion

focussed partly on whether cores should be split on board or onshore. While for MSP expeditions the core is not split on the platform, the shore based infrastructure to conduct minimum measurements is already in place. Would the MSP approach save the program money if it was applied to the SODV and CHIKYU? From the information given to STP it was concluded that such an approach probably would not since costs of establishing, maintaining, and operating the additional required shorebased facilities would offset this. The STP consensus was that cores need to be split on board the SODV and CHIKYU.

In addressing how cost savings could be achieved, STP discussed the provision of technical support staff:

Technical Support Staff: Supplement full time staff by pool of well trained graduates and postgraduates who could sail to support the science. This could have wide ranging benefits beyond the initial additional technical support.

- There would need to be safeguards in place to ensure quality of students.*
- This may work for some measurements, but not others – so there would need to be an investigation of which measurement areas could benefit from such a model.*
- There would be a need to establish some means of ensuring a corporate memory at the level of technical support, so the proposal would be for such part-time staff to usually take only support roles.*
- Not all IODP member countries will have the flexibility of adding 3 months to the PhD period to allow a student to participate in an Expedition as technician.*

Supplement full time staff with additional trained professional staff:

- Is there scope for ensuring industry use of platform for non-IODP expeditions includes technical support?*
- Is it possible to also use technical staff from non-IO shore based institutions on an expedition by expedition basis?*
- Is it possible to make contracts with service companies for provision of support and/or training purposes? This is the CDEX model where lab services are contracted out to a company. For many areas the price may be higher than using IO staff, but may be more flexible in a reduced schedule model.*

STP asks IODP-MI to explore if there is scope for scheduling Expeditions with similar measurement requirements close together to reduce the costs of maintaining the appropriate equipment/support base on any one platform.

STP has a lack of detailed information on the decisions made in the final design of the CHIKYU and SODV, including the cost implications of different instruments in terms of capital, maintenance, technical support and time for measurement to be made (and the impact on other measurements).

STP wishes to investigate a number of support models:

- Full service/reduced schedule (our preferred model).*
- Reduced service/reduced schedule – reduced service means that all minimum measurements along with only those standard measurements that affect drilling decisions would be conducted.*
- Minimum service/reduced schedule – minimum service means that only minimum measurements would be conducted.*

To be able to recommend any one of these models, STP requires further information from the IOs.

STP Recommendation 0708-02: IODP Measurements Document.

STP has revised the IODP Measurements Document and recommends this new version replace the existing document on the IODP web site.

Voting record: 15 Yes; 0 No; 1 Abstention (Lovell); (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to SPC and IODP-MI.

Background to STP Recommendation 0708-02: This recommendation makes some minor changes to the IODP Measurements Document. A revised version is subkitted to IODP-MI and reflects a need for flexibility in the collection of samples such that whole round cores, which may be required for some microbiological samples, can be acquired in some situations. Recommendations to the standard and supplemental measurements reflect current best practices with respect to microbiological procedures and an understanding of what is possible under current shipboard programs.

For the definition of minimum measurements, change to portray that while usual minimum practice is that all cores are split this does not preclude the collection of whole round cores in certain instances;

Under standard measurements, 1) “depth” be added as a Minimum Measurement; 2) the measurement of phospholipids should be moved to the Supplemental category under “biomarker”, and 3) add “fix samples for microscopic cell counts”; 4) move XRF scanner to Supplemental Measurements.

Under supplemental measurements, add “Microbial activity measurements using radiotracers”

Other changes are proposed and include the deletion of the comment column (which formed the original basis for assessing whether measurements existed in ODP) from the new version.

STP Recommendation 0708-03: Effects of Riser Drilling on Cores. In reference to the STP Action Item 0612-29, the STP recognizes the effect of drilling fluid invasion on the microbiology of cores during riser drilling is unknown. Accordingly, STP recommends that at the earliest opportunity during riser drilling, contamination monitoring with either PerFluorocarbon Tracer (PFT) or natural chemical and/or molecular tracer(s) should be performed both on cores and circulation mud samples. STP further recommends that contamination monitoring should be conducted as appropriate on expeditions that use riser drilling.

Voting record: 15 Yes; 0 No; 1 Abstention (Lovell); (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to IODP-MI.

Background to STP Consensus 0708-03: Diagnostic monitoring of potential contamination from drilling fluids is necessary in order to ascertain the quality of cores obtained during studies of deep seafloor life. Pilot studies (and the terrestrial coring literature) have demonstrated that fluid penetration from core surface to the interior of cores is sensitive to time before samples are processed, temperature at which the cores are held, and permeability

of the geological material. Appropriate sampling procedures, monitoring technologies, and core processing have been developed during microbiology-dedicated, riser-less expeditions. However, the degree of contamination that may occur during riser drilling has not been determined. Under these conditions high mud pressures and muds that may be conducive to microbial growth impinge upon the core and may alter the indigenous microbial communities.

STP Recommendation 0708-04: Legacy Samples.

In reference to STP Action Item 0612-31, the STP recommends that microbiology legacy samples shall be a part of any IODP sampling plan. Collection and storage of legacy samples should follow the guidelines presented in the 2003 Microbiology Working Group report.

Voting record: 15 Yes; 0 No; 1 Abstention (Lovell); (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to SPC and IODP-MI.

Background to STP Consensus 0708-04: This Consensus statement follows on from and supercedes SciMP Consensus statement 0502-08 and STP recommendation 0507-07. The reason for collecting legacy samples is that such core materials may permit: 1) future characterization when scientists recognize the need to test hypotheses that were not apparent at the time of original sampling, 2) retroactive characterization of the microbial communities as methods develop, 3) cross-reference of other methods and 4) recruitment of new microbiologists to IODP.

STP Recommendation 0708-05: Integrating Microbiological Sampling into Expedition Sampling Plans.

STP recommends that microbiology sampling be integrated into expedition plans. Such integration should be flexible enough to accommodate the scientific plans for each respective expedition.

Voting record: 15 Yes; 0 No; 1 Abstention (Lovell); (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to SPC and IODP-MI.

Background to STP Consensus 0708-05: This Consensus statement refers to STP Action Item 0507-07 which refers SciMP Action Item 0502-08, which has been superceded by current knowledge.

STP Recommendation 0708-06: Non-magnetic core barrels

The STP thanks Oda for his presentation, and acknowledges the scientific interest in using non-magnetic core barrels. STP acknowledges the efforts made by the USIO in enabling at least two non-magnetic core barrels to be available for Expeditions and the efforts made by C-DEX in providing a non-magnetic cutting shoe.

STP encourages CDEX and ESO to work towards providing non-magnetic core barrels for future expeditions.

Voting record: 15 Yes; 0 No; 1 Abstention (Lovell); (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to IODP-MI.

Background: SciMP Recommendation 0406-12 proposed that non-magnetic core barrel be used for all IODP APC coring to minimize drilling induced magnetic overprint on sediments. SPC Consensus 0410-23 accepted this with the proviso of recommending rather than requiring the use of non-magnetic core barrels for all APC coring. STP here acknowledges the positive steps taken by the USIO and C-DEX, and encourages C-DEX and ESO to further work towards using non-magnetic core barrels where appropriate.

STP Recommendation 0708-07: Leak Off Test

The STP thanks Lin for his presentation, and acknowledges the scientific interest of performing Leak Off Tests (LOT) as part of Chikyu (riser) operations.

STP recommends that IODP-MI requests CDEX to investigate the feasibility of using LOT/Extended (X)LOT data for estimating the minimum horizontal principal stress for riser drilling as a supplemental scientific measurement.

Voting record: 15 Yes; 0 No; 1 Abstention (Lovell); (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to IODP-MI.

Background: Leak off tests are a routine engineering measurement on riser drill platforms, but with minimal extension can provide valuable scientific information (i.e., stress tests). This request is for a study of the feasibility of incorporating extended leak off tests into the riser vessel program. Further details of the test are provided in the appendices to this meeting.

STP Recommendation 0708-08: QA/QC Draft Report

The STP welcomed the opportunity to provide input to the draft report of the IODP-MI QA/QC Task Force. Suggestions for changes and additions to the report are detailed in an appendix to the minutes. STP looks forward to receiving the final QA/QC Task Force report.

Voting record: 14 Yes; 0 No; 2 Abstentions (Lovell & Neal as TF members). (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to IODP-MI.

STP Consensus Statements**STP Consensus 0708-09: SASEC WG Report**

STP discussed at length the implications and suggestions contained in the SASEC WG report, exploring various models and concepts towards reducing costs while maintaining efficiency and effectiveness in serving IODP and representing the scientific community. As Phase 2 operations begin STP believes there to be an important role in monitoring and evaluating scientific technology on a regular basis while also looking forward to future expeditions' requirements. STP has already agreed to change its meeting format at SPC's request to accommodate this. The Background to this consensus provides additional information based on discussions at STP.

STP recommends maintaining two meetings per year with reduced membership (as now being implemented by USAC and J-DESC).

STP also recommends, under exceptional circumstances, giving members the possibility to leave the panel after one year (voluntarily) and also giving the chair the flexibility to request an extension to the terms of certain members on an as needed basis.

STP wishes to collaborate with EDP to the benefit of IODP as necessary, but sees no requirement for holding joint meetings. Furthermore, the mandates of STP and EDP have little overlap and therefore STP sees no advantage in merging the two panels.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to SPC

Background to STP Consensus Statement 0708-09: In July, SASEC formed WG to review SAS and recommend "any changes to optimally configure its activities as IODP enters Phase II" or "any changes in structure necessary to integrate missions into the IODP proposal review process." The WG recommendations preserve the core SAS proposal review process (SSEP/SPC), but identify significant efficiencies and cost savings in terms of reduced panel memberships and technical panel meeting frequencies.

STP discussed this in breakout sessions based on the 3 discipline working groups. Discussions were facilitated by, but not restricted to, a series of questions as below:.

1: Should STP reduce its membership size? If this is required, then several models to do this:

Model #1: Keep two meetings/yr with reduced membership of 16 panel members (as being implemented by USAC and J-DESC). Possibly with additional “expert witnesses” who are periodically asked for input (using video- or teleconference).

Model #2: Identify a core group (Chair, Vice Chair, 3 x 2 WG Experts, as a CORE Group; with remaining full STP membership as the Full Standing Committee.

Model #2a: Full Standing Committee meets 1 per year

Model #2b: Core Group meets 2 times per year, Full Standing Committee meets 1 per year.

Model #3: One full standing committee (reduced) which meets once/year plus in-between meetings that can consult a wider group of experts for advice.

2: If not, and given the budget won't support the present membership of 20 Panel members, can there be a two tier membership with some members attending and others being electronic members?

No one likes this option; fewer meetings for the whole panel would not encourage debate by members from different countries. (Note the STP meeting I Beijing was possibly the most productive in terms of engaging all panel members throughout the meeting and creating a two tier membership could jeopardize the progress made). BUT some items can be dealt with electronically to reduce number and length of in-person meetings. Attendance in-person at meetings depends on the agenda.

3 : Should STP change the length of term for individual members? There was a consensus among the groups for more flexibility in term length:

Model #1: Give the members the possibility to leave the panel after one year (on their own) and also give the chair the flexibility to request an extension to the terms of certain members on an as needed basis.

It can be optional to be longer particularly if we go a single meeting/year

Model #2: Have a maximum term (4 years) with no minimum length.

Model #3: Consider extending the term of certain members to deal with persistent issues; and shortening the term for non-attending members

4 : Should STP hold two full meetings per year as now? and 5: Should STP hold one full meeting and opt for a second meeting which is:

- a. Electronic*
- b. Videoconference*
- c. A smaller core group*
- d. A combination of the above?*

There was a consensus that one meeting/yr is too infrequent to accomplish required tasks (the STP meetings have never been short of agenda items for discussion, and 3.5 days

allocated by IODP-MI to the Beijing meeting was too short and consequently the meeting over ran by half a day). With reduced STP membership, the frequency of meetings is already discussed in # 's 1 and 2 above.

6 : Should STP merge with EDP or hold joint meetings? If so how often?

There is no need to merge as there is no overlap in mandate, and no money is saved. Having EDP and STP meetings sequentially linked in time and place would be occasionally useful, but they need not occur simultaneously.

7 : Any other suggestions for optimising the effectiveness versus cost of STP?

There should be no wireless connections during meetings. STP meetings should be held separately from other activities, such as non-IODP meeting (e.g. AGU). Try to resolve as many topics as possible through electronic means (this means more workload for the chair and vice-chair) to reduce agenda items during STP in-person meetings. Develop a “welcome packet” for new and temporary members of the STP.

STP Consensus 0708-10: Internet connection during STP meeting sessions:

STP recommends limiting internet access within the meeting sessions be adopted as a general policy of STP and considered across all SAS meetings.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to SPC and IODP-MI.

Background to STP Consensus Statement 0708-10: At the STP 0708 meeting in Beijing internet connections during the formal meeting were not available. Rather than being an obstacle, this lack of a readily available internet connection in the meeting room was found to be a great advantage. The inability to have real-time connection e-mail communication during the meeting allowed the focus of the Panel to remain exclusively on the agenda items enabling excellent discussions involving all panel members. Internet connections could be made available outside the meeting room, during the breaks, or at the hotel.

STP Consensus Statement 0708-11: Time stamp

The STP thanks Basile for his presentation on time stamps for measurements and procedures. The issues resulting from this presentation have been incorporated in STP's response to the IODP-MI QA/QC Task Force report (draft 1) and submitted to IODP-MI.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to SPC and IODP-MI.

Background to STP Consensus Statement 0708-11 follows and closes STP Action Item 0612-27: Time stamp for measurements & procedures.

STP Consensus Statement 0708-12: Common reference collections

STP recommends the IODP-MI to establish a work plan that can provide common reference collections for smear slides and thin sections across all platforms as soon as possible. If necessary this work plan could be endorsed by an ad-hoc working group similar to that created to consider micropaleontological issues.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to IODP-MI.

Background to STP Consensus Statement 0708-12: Common reference collections for smear slides and thin sections is a long-term issue, that has been previously addressed in STP recommendation 0507-02. These recommendations were superseded by IODP-VCD/Lithology Report, but STP has concerns over the specific point of common reference collections, whose current status is unclear.

STP Recommendation 0507-02 proposed that “common reference collections for smear slides and opaque minerals in polished thin sections should be prepared for all drilling platforms and on-land facilities”. This is a follow up to that recommendation. STP also suggests IODP-MI investigates using such collections in education and outreach efforts.

STP Consensus Statement 0708-13: Post-Expedition Data Capture

STP requests that an update be given prior to our next meeting regarding inclusion of post-expedition generated results (data and processed data). STP is particularly interested in the mechanism for this data capture, when it is likely to be implemented, and what the arrangements are for QA/QC of the data.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to SPC and IODP-MI.

Background to STP Consensus Statement 0708-13: This is a follow-up request to STP Recommendation 0606-03: Post-Expedition Results “The STP recommends that the IOs include post-expedition generated results (data and processed data) in the expedition database. The original data should be maintained in the database. Submissions should address methodology, QA/QC, and if necessary, include an explanation of how the added dataset differs from previous versions. The IODP-MI QA/QC taskforce should develop a policy for ensuring QA/QC of these results. The IOs would determine if data submission is voluntary or obligatory.”

STP Consensus Statement 0708-14: STP Geochemistry and Microbiology WG report.

In reference to the Action Item 0612-28, the STP refers to the original recommendations made to IODP-MI. STP requests action to endorse and implement these recommendations.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to IODP-MI.

Background to STP Consensus 0708-14: The STP Geochemistry Microbiology Working Group has found that the recommendations of the original 2003 IODP Microbiology Working Group report have not been acted upon (see minutes of SPC 0406: Item 14.2 SPC Consensus 0406-25). Revisions to the original IODP Microbiology Working group recommendations include adoption of the microscopic cell count protocol (Lunau et al. 2005. Environ. Microbiol. 7: 961-968), routine use of contamination tests (suggested as standard measurements in the IODP Measurements reference), and use of the pressure-temperature coring system whenever possible. The relevant recommendations generated by the IODP Deep Biosphere Workshop held in Vancouver, BC in October 2006 should also be consulted and incorporated, as needed (D'Hondt et al. Scientific Drilling. In press).

STP Consensus Statement 0708-15: Open Hole VSP

STP requested advice from EDP (STP Consensus 0601-03). STP wishes to follow up this general request and again seeks advice from EDP on whether there are “off the shelf solutions” or whether STP should seek to investigate technology development in seeking solutions to IODP requirements.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to SPC.

Deadline: 1 month prior to next STP meeting

Background to STP Consensus 0708-15: VSPs have been implemented infrequently in ODP and IODP phase 1 and have met with limited success. At the international Core-Log-Seismic workshop on October 3-4, 2005, participants widely agreed that VSPs are vital to proper core-log-seismic integration the problems encountered by ODP were largely due to the open hole conditions that non-riser operations. Industry has a long history of successful VSP operations but also generally has must greater well control. EDP is the perfect group within the SAS to investigate this issue due to its strong connection with industry. Both improved downhole receiver technology or even downhole source technology could be considered.

STP Contacts for this discussion are: Georges Gorin; Hongkui Ge

STP Consensus Statement 0708-16: Temperature and pressure resolution, accuracy and calibration

A draft report on resolution, accuracy and calibration of temperature and pressure measurements (STP Consensus 0606-13) has been circulated by IODP-MI (STP Consensus 0612-07) among the IOs. STP requests the IOs to report back on implementation plans for report recommendations prior to the next meeting.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to IODP-MI.

Deadline: 1 month prior to next STP meeting

Background to STP Consensus 0708-16: This is a follow up (3rd) request to STP Consensus 0612-07, which was a follow up (2nd) request to STP Consensus 0606-13 to IODP-MI to circulate a draft report to the IOs for comment and feedback at the next STP meeting.

STP Consensus Statement 0708-17: Vp Measurements on Core Samples at high pressure
CDEX have been investigating the feasibility of making high Pressure and high Temperature Vp and Vs measurements on core samples. STP understands that as a result of this investigation CDEX are in the process of establishing a high pressure facility for measuring Vp on core samples on the Chikyu.

STP requests CDEX report to STP prior to their next meeting on the status of this development.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to IODP-MI.

Deadline: 1 month prior to next STP meeting

Background to STP Consensus 0708-17: This item has been discussed over a significant period of time by both STP and the IOs, particularly CDEX since it applies initially to deep riser drilling, through various Statements:

0507-05 *Methods for measuring Vp & Vs under pressure.*

0601-02 *Investigation of T/P-controlled physical properties measurements*

0601-03 *Vp & Vs at elevated pressures for the riser vessel*

0606-08 *Measurements at High Pressure and Temperature*

0612-02 *CDEX report on feasibility of Measurements at High P & T*

The results of these investigations have led to the proposed implementation by CDEX and STP looks forward to hearing an update to the development prior to its next meeting.

STP Consensus Statement 0708-18: Core Log Seismic Integration

STP recommended (Recommendation 0507-09) that the IODP databases allow for the inclusion of depth correlation data to support inter-hole composite depth sections of recovered cores and core-log-seismic integration. To facilitate depth correlation, the STP recommended the development of software that can be used across all IODP databases.

STP requests an update from IODP-MI (DMCG and/or DSWG) on the status of this recommendation prior to the next STP meeting.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to IODP-MI.

Deadline: 1 month prior to next STP meeting

Background to STP Consensus 0708-18: The background to the initial recommendation 0507-09 states that “Depth correlation data includes how the measured and processed depths and seismic two-way-travel times relate between coring, logging, and seismic datasets for that expedition as determined by the scientific party. Standardized software across all IODP platforms is important for making inter-hole composite depth sections of recovered cores, for core-log-seismic integration, and for comparison of depths between multiple expeditions to the same study area potentially by different platforms. Measured depths may include core depth (curation depth), wireline logging depth (Lmbsf), drill pipe depth (Dmbsf), and mud logging depth (Mmbsf). Processed depths may include meter composite depth (mcd), revised composite depth (rmcd), core-logging integrated depth (imbsf), core-logging composite depth (imcd), etc. Seismic two-way-travel time of the site survey line at the drilling site and the most appropriate time-to-depth conversion (as determined by the science party) needs to be included along with the depth measurements for accurate core-log-seismic integration. Also advantageous is the ability to include multiple tie lines through a drill site rather than only a single tie line. Flexibility in depth scale presentation is advisable allowing the scientific party to choose between different measured or processed depth scales for core-log-seismic integration or comparisons between holes, sites, and expeditions. Software implementation across all platforms of depth and travel time correlation data is currently being worked on by the IODP-MI Data Management Coordination Group. STP requests to be kept informed of the development progress and future use in IODP expeditions.

STP Consensus Statement 0708-19: Core Splitting Techniques

STP Consensus 0612-18 on Core Splitting Techniques requested IODP-MI together with the IOs investigate solutions to this problem and encouraged dialogue with other scientific communities (for example, lake sediments and geology groups). STP restates its request to IODP-MI to report on their findings prior to the next STP meeting.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to IODP-MI.

Deadline: 1 month prior to next STP meeting

Background to STP Consensus 0612-19 was recommendation number 1 in the Core Description Working Group report (2004) available on the STP web page of the IODP web site.

STP requested IODP-MI together with the IOs investigate solutions to this problem and encouraged dialogue with other scientific communities (for example, lake sediments and geology groups). STP requested IODP-MI to report on their findings at the next STP meeting. This is a follow up request to IODP-MI.

STP Consensus Statement 0708-20: Seismic Sources

The STP recommended equipping an appropriate size of a seismic source on IODP drilling platforms. STP requests an update from the IOs on the status of seismic sources on IODP platforms prior to the next meeting.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to IODP-MI.

Deadline: 1 month prior to next STP meeting

Background to STP Consensus 0612-20: This topic was first proposed in an initial request from STP (STP 0601-04) detailed in SPC Consensus 0603-8. STP 0606-01 followed up with specific details to IODP-MI.

STP Consensus Statement 0708-21: Progress report on Paleontology Coordination Group

STP endorses recent progress on Paleontology Coordination Group (PCG) under IODP-MI held on 12-13 August 2007 in Berlin, Germany. STP welcomes further progress on Digital Taxonomic Dictionaries.

STP requests IODP-MI instruct the PCG to accomplish Levels 1 (taxon name list) and 2 (synonymy) for each fossil group within one year as a standard list for IODP after thorough review.

STP also requests IODP-MI to provide guidance on responsibility for maintenance of the database.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki); note alternates present in attendee list.

Priority: High

STP suggests this be forwarded to IODP-MI.

Background to STP Consensus 0708-21: This is a progress report corresponding to STP Consensus 0612-06 from Paleontology WG 2004 Report Recommendation PALEO-3: Taxonomic Dictionaries with stratigraphic databases IODP must coordinate their efforts regarding digital taxonomic dictionaries and cyber atlases and related issues with other national and international initiatives such as CHRONOS, NEPTUNE and et. al. The Paleontology Working Group recognizes the importance of international cooperation and interaction among the IOs and the micropaleontologists community and encourages collaborations with IMRC curators to develop these dictionaries to be used on the IODP drilling platforms The microfossil groups to be covered should include calcareous nannofossils, planktic foraminifera, benthic foraminifera, diatoms, silicoflagellates, radiolarians, and palynomorphs (dinoflagellates and pollen). The taxonomic dictionaries for the Cenozoic and Mesozoic should be updated and expanded on a regular basis (e.g., at least once per year).

STP Consensus Statement 0708-22: Grain Size Measurements

The STP thanks Naruse and Basile for their presentation, and acknowledges the scientific interest of performing grain size measurement on soft rocks during IODP expeditions. A laser granulometer or another apparatus to measure grain size onboard a drilling vessel during a scientific mission, appears to be scientifically valuable but there are considerable technical concerns.

STP refers this for further discussion by STP as a possible component of the STP roadmap.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki)

Priority: High

Background to STP Consensus Statement 0708-22: This follows on and supersedes STP Action Item 0612-34. It also meets item 7 of the agenda (scientific roadmap)

STP Consensus Statement 0708-23: Content management of the Lithology dictionary / catalog

STP recommends IODP-MI to form a Lithology Working Group to maintain dictionaries/catalogs related to VCD/lithology (sediment/rock classifications) with support from the scientific community. This could follow the model provided by the Paleontology Coordination Group.

Voting record: 16 Yes; 0 No; 0 Abstentions (Absent: Bruckmann, Sakurai, Wheat, Inagaki)

Priority: High

STP suggests this be forwarded to IODP-MI

Background to STP Consensus Statement 0708-23: Establishment of dictionaries (taxonomic, lithologic classifications, time-scales) is critical to QA/QC because it reduces uncertainty in the following observations (biostratigraphy, core description). Because dictionaries are living documents, references to the version of dictionaries used must be explicit. However, a route to manage the content of the dictionary (list of dictionaries) is currently not sufficient for the scientific community. Therefore STP investigates the method to provide and maintain dictionaries for observation under commitment of the scientific community. The dictionary for the VCD lithology should be updated and expanded when it is necessary.

STP Consensus Statement 0708-24: Tim Brewer

STP wishes to express its sorrow at the untimely death of Tim Brewer and to acknowledge his longstanding and valuable input to IODP. This includes contributing to SAS panels, to taskforces and as coordinator of the European Petrophysics Consortium, a key element of ESO. Tim's comments at the STP San Francisco 2006 meeting were greatly appreciated and his insightfulness, humour and expertise will be deeply missed, along with his skills and also his ability to liven up an STP meeting.

STP Consensus Statement 0708-25: Shouting Tuo

The STP expresses its gratitude to Mr Shouting Tuo and IODP-China for hosting this meeting in such a wonderful place, and for his superb efforts providing us excellent work and extra-work conditions. Everything was very well organized, and ran really smoothly. We truly appreciated the warm welcome, the excellent official and non-official banquets and your overall hospitality. Thank you again.

STP Consensus Statement 0708-26: Christophe Basile

STP gratefully thanks Christophe Basile for his work and dedication to the IODP over the last three years he has served on the panel. His formal attire and disposition, corporate memory, and slow but sensible arguments (and he thinks he can always get away with them because he is French!) will be sorely missed. Thank you Christophe, for your help and comments, good luck in your post-STP life, and we hope you find no new conflicts of interest.

STP Consensus Statement 0708-27: Naokazu Ahagon

STP wishes to thank Naokazu Ahagon for his tireless service to IODP. He listened quietly and thought deeply as a paleoceanographer. Differing from other STP members, he has never concentrated on writing e-mails during any meetings as like the Beijing meeting. It is now recognized that he keeps contributing to IODP as a secretary of J-DESC Sapporo.

STP Consensus Statement 0708-28: Geoff Wheat

STP wishes to thank Geoff Wheat for his service to STP. While Geoff wanted to cork holes drilled at great expense by IODP, his passion and devotion to this was an example to us all. In addition, his ability to make Alaska look and feel like California served us well on STP and his sunny attitude will be missed.

STP Consensus Statement 0708-29: Nori Suzuki

STP wishes to thank Nori Suzuki for his dedication and hard work on the panel. His keen interest in taxonomic dictionaries, and all the related details, have inspired and stimulated the entire panel, particularly the igneous petrologists. We were lucky to be the recipients of his enthusiastic defense of the science of micropaleontology, communicated through his excellent English. We are pleased to know he will be able to continue to inspire STP through his association with the paleontology working group.

STP Consensus Statement 0708-30: Makoto Okada

STP thanks Makoto Okada for his excellent contributions to the Scientific Technology Panel over an extended period of service. His leadership as Chair has enabled the panel to address the many issues during both Phase 1 and the transition to Phase 2 of IODP, while his good humour and friendship have made him many friends. We wish him well and hope he will continue to play a significant role in IODP in the future.

STP Consensus Statement 0708-31: Hongkui Ge

STP would like to thank our local host, Hongkui Ge, for his wonderful hospitality during our meeting in Beijing. His skill in magically overcoming all the logistic obstacles associated with hosting an international meeting of this scale was truly impressive. In addition to hosting a delightful and well-organized meeting venue, the Panel is extremely grateful for Hongkui's generosity and efforts in providing the panel members with the opportunity to experience the Great Wall, the Summer Palace, and the field trip to his seismic station and laboratories. The acrobatic show and following dinner were once-in-a-lifetime experiences, for which we are extremely appreciative. The financial support by his Geophysical Institute of these critical field trips is also gratefully acknowledged. Thank you Hongkui!

STP Action Items

STP Action Item 0708-32: Science Technology Roadmap

STP will develop a framework for a science technology roadmap to allow resource planning in order to take advantage of new technology that will enhance IODP science. This framework should be put together for discussion by our next meeting.

Priority: High

Leads: Neal & Lovell + All Panel Members

Deadline: 1 month prior to next STP meeting

Background to STP Action Item 0708-32: This is a result from STP Consensus Statement 0612-12: STP Meeting Format and represents the start of the transition by STP to a format of two different meetings per year as welcomed by SPC at its last meeting in Osaka (0703). STP Consensus 0612-12: STP Meeting Format STP agrees to change the format of its twice-yearly meetings in the following way: both meetings will deal with immediate issues, while one meeting will deal with regular reports (IO, IODP-MI, etc.) and the other will consider future issues and planning allowing STP to be more proactive

STP Action Item 0708-33: Measurements that Affect Drilling Decisions

STP will continue to examine the IODP Measurements Document to identify those Standard and Supplemental Measurements that could enhance scientific return in a given expedition by affecting drilling decisions.

Priority: High

Leads: Neal, Lovell, Christensen + All Panel Members

Deadline: 1 month prior to the next STP meeting

Background to STP Action Item 0708-33: STP is attempting to evaluate the IODP Measurements in terms of science impact in order to be prepared and informed IF budgetary pressure requires the reduction of measurements/observations. This will allow STP to make difficult recommendations to cut services and budgets that will maximize cost savings while minimizing the negative impact on IODP science.

STP Action Item 0708-34: Modifications to Drilling Fluids During Riser Drilling on Cores Acquired for Microbiology.

Geochemistry and Microbiology Working Group members Rick Colwell and Takuro Nunoura will investigate strategies for controlling the numbers of microbial cells that develop in drilling fluids used during riser drilling and report their findings at the next STP meeting.

Priority: High

Leads: Colwell, Nunoura

Deadline: 1 month prior to the next STP meeting.

Background to STP Action Item 0708-34: It is known that microbial cells thrive in mud-based drilling fluids and that these high numbers of cells pose a significant risk of contamination to the cores that are collected. GM WG members Colwell and Nunoura are charged with determining strategies that have been used in past terrestrial coring efforts and whether new

drilling mud strategies are available to control the growth of such cells in drilling muds used during riser drilling.

Proposed next STP meeting: During the first two weeks of February 2008

Location Japan

Host: Nori Suzuki

Agenda

IODP Scientific Technology Panel (STP) 5th Meeting, 20th-23rd August 2007 Beijing Wenhua Plaza Beijing, China

Day 1: Start 09.00

1. Introduction and formalities

- a. Welcome (Lovell/Neal); Housekeeping (Ge)
- b. Introductions of continuing and new members, guests, liaisons (Lovell/Neal)
- c. Review and Approval of Agenda (Lovell/Neal) and Approval of Minutes from July meeting (Lovell)
- d. Conflict of Interest Policy & Millard's rules of order and STP mandate (Lovell)

2. Brief Reports from the latest SAS panel meetings

- a. Brief report from most recent EDP meeting (Lovell)
- b. Brief report from most recent SPC meeting (Lovell)

Routine reports: supplied pre-meeting where possible, from SPC, agencies, & IOs; presentations and discussion focused on selected specifics to limit time allocated to each.

3. Brief reports from the lead agencies, IODP-MI and IOs

- a. IODP-MI (Janecek)
- b. CDEX (Matsuda)
- c. JOI Alliance (Blum)
- d. ESO (Inwood)
- e.

Lunch 12.30

4. Report from SASEC WG on SAS Structure (Lovell)

5) QA/QC update from IODP-MI Task Force (Neal)

(note the Task force meets on the Saturday afternoon immediately preceding the STP meeting, and again on the Thursday afternoon immediately after the STP meeting). This is expected to be the final meeting of the QA/QC Task Force. STP is expected to provide feedback to the Task Force by the end of this meeting.

- 6) Presentations from IOs on possible cost reductions; effect on funding and scheduling of expeditions; impact on likely scientific measurements capability.
 - a. USIO (Blum)
 - b. CDEX (Matsuda / Aoike)
 - c. ESO (Inwood)

Day 2: Start at 08.30

- 7) Identify development needs for scientific technology to enable measurements on IODP platforms commensurate with delivering scientific objectives of scheduled (and proposed) expeditions (i.e. a prioritized scientific technology roadmap).
- 8) Discuss scientific measurements (IODP standard and minimum measurements) in respect of Initial Science Plan. What are the costs of making minimum and standard measurements? What are the scientific benefits of making minimum and standard measurements? How will IOs enable these on platforms with intermittent usage? Which measurements can affect drilling decisions while at sea?

This will involve breakout sessions into the various working groups that STP has implemented, and will use the presentations from the IOs as input.

Breakout groups report back before lunch.

Lunch 12.30

Continue with Item (8)

Breakout groups report back.

- 9) Review of STP meeting format: *In line with STP Consensus 0612-12 (STP Meeting Format) we propose migrating our meetings to a structure of two meetings per year: possibly with one meeting dealing with regular reports (IO, IODP-MI, etc.) and the other considering future issues and planning, allowing STP to be more proactive. This transition will identify the best means of organizing the meeting schedules/agenda. During the summer meeting, STP can prioritize items for future directions and examine define long-term plans. During the winter meeting, STP can examine proposals, look backwards and examine previous proposals, updates on current issues and project status. One thing that STP may do is to change the weighting (number of days) of the two different meetings i.e., one is longer than the other because there is more to cover; or it can work on as needed basis.*

Breakout groups report back.

15.00 Finish to enable visit to Beijing Earth Observatory

Day 3: Start at 08.30

- 10) Review any issues connected to forthcoming scheduled Expeditions in terms of scientific objectives and measurement capabilities.
- 11) Panel considers corporate history of previous recommendations and working group reports. Deal with outstanding issues from previous STP activities and Working Group initiatives - need breakout sessions to focus these before bringing closure. Create

summary of various reports and investigations for future reference. (All STP Working Groups)

Breakout groups report back before lunch.

Lunch 12.30

12) Discuss Impact of Mission proposals on the IODP process - how will STP interact with Missions? Are there any science and technology coordination and QA/QC issues?

13) Critically review outcomes of discussions; identify shortfalls and problems, propose modifications, changes, and requirements for scheduled operations.

Day 4 (morning only):

Start at 08.30

14) Executive Session to finalise recommendations, response to Item 6 and advice to SPC and IODP-MI regarding Item 7.

15) Rotation of panel members

16) Location, date and format of the next meeting.

End 12.30

Meeting participants:

Members:

Name (*chair, **vice-chair)	E-mail Status	Affiliation Notes
Ahagon, Naokazu ^{3***}	ahagon@mail.sci.hokudai.ac.jp	M STP
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Wheat, Geoff ***	wheat@mbari.org	M STP

Alternates Attending:

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Saito, Saneatsu ³	saito@jamstec.go.jp	M STP
Aoike, Kan	bluepond@jamstec.go.jp	L CDEX
Allan, Jamie***	jallan@nsf.gov	L NSF
Blum, Peter	blum@iodp.tamu.edu	L USIO
Higgins, Sean	sean@ldeo.columbia.edu	L USIO
Inwood, Jenny	ji18@leicester.ac.uk	L ESO
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Zhou, Zuyi***	zhouzy@mail.tongji.edu.cn	L SPC

***Absent

IODP Scientific Technology Panel (STP)

5th Meeting, 20th-23rd August 2007

Beijing Wenhua Plaza

Beijing, China

MINUTES

In these minutes, the Recommendations, Consensus Statements, and Action Items are not repeated in detail or in their final format. Please refer to the Executive Summary for the full final text of each, as indicated.

The minutes are not meant to be a literal transcription of the meeting. Statements represent overall the speaker's comments and are not intended as direct quotations. Text in reduced fontsize represents additional notes.

Monday 20th August 2007

The meeting started at 09:00, Lovell presiding.

Agendum Item 1. Introduction and Formalities

a) Lovell welcomed everyone. The directors of the Institute for Geophysics also welcomed STP. Ge provided some logistical information on the meeting. Lovell announced the death of Tim Brewer, and introduced a potential conflict of interest problem since he had temporarily become involved in ESO activities. Neal agreed to chair any sessions where this would occur.

b) Continuing and new members, and liaisons introduced themselves. 6 are absent (Ahagon, Brückmann, Nunoura, Okada, Sakurai and Wheat, and with 3 alternates (Inagaki - alternate for Nunoura, Oda - alternate for Okada, Saito - alternate for Ahagon).

c) Proposed agenda was presented, with changes to include an earlier start time (08:30), Janecek providing SPC updates and addition of Bremen PWG reports to section 11. Johnson proposed and Castillo seconded the proposal. Minutes from 4th STP (0612) meeting in San Francisco were reviewed. Acceptance of the minutes was proposed by Neal and seconded by Johnson.

d) Lovell introduced the Conflict of Interest (COI) policy, as required by IODP-MI. Lovell asked if anyone had a COI and also informed everyone that they should speak up if at some later time they feel that they have a COI. Lovell will temporarily replace Brewer at Leicester on European Petrophysics Consortium, and cited potential COI in matters relating to IOs. Vice Chair Neal will lead on those matters. No other potential conflicts were reported. Millard's Rules of Order and the STP Mandate were explained and discussed.

e) STP's mandate was reviewed. Discussion on the status of STP's recommendations and action items, etc was postponed until later in the morning.

Agendum Item 2. Brief Reports from latest SAS meetings

2A. Brief report from most recent EDP meeting (Lovell)

The EDP meeting was attended by Okada but since he is not in attendance at Beijing his report was summarized by Lovell. There were three issues from the SF meeting of relevance to EDP: 1) ESO tool upgrade; 2) STP mandate and structure should be retained as three working groups (Core description, Geochemistry and Microbiology; Petrophysics) to achieve appropriate size of group; 3) Change in meeting to 2 times/year with different emphasis: A) related to immediate issues and B) longer term planning (following the EDP model to some extent). EDP had recommended that STP be more involved with evaluation of science with respect to scientific results.

2B. Brief report from most recent SPC meeting (Lovell)

The SF 2006 STP0612 meeting produced 1 Recommendation, 24 consensus statements and 10 action items. Only 6 were invited to be presented to SPC by the SPC chair in discussion with IODP-MI (see PowerPoint for summary): 0612-03, 0612-09, 0612-10, 0612-11, 0612-12, 0612-13. The change in meeting format (0612-12) was well received by SPC but there was considerable discussion regarding the increase in accuracy of the ESO temperature tool and implementation during Leg 313 (NJ Margin). A COI was identified by Mountain's participation in the discussion. Another member followed up on his concern that taking temperature measurements could cause the hole to collapse. It was ultimately agreed that because temperature is a minimum measurement – and had been agreed by SPC as such - it must be incorporated in Leg 313 planning, and that any deviation from this for safety reasons should be discussed with IODP-MI as an operational issue.

Neal asked for clarification on the limited number of recommendations and consensus statements presented to SPC. Lovell noted that SPC was not able to review all of STP's recommendations and consensus statements. It was discussed that STP should have authority to send recommendations and consensus directly to IODP-MI, which would decide which should go to SPC. In effect this happened since the SPC chair and VP IOD-MI discuss which go to SPC and which go to IODP-MI for action and/or forwarding to IOs. In addition to reducing SPC workload, this should result in better tracking of recommendations and consensus statements (previously some had languished after presentation to SPC).

Agendum Item 3. Brief reports from the lead agencies, IODP-MI and IOs

a) IODP-MI (Janecek)

Overall summary: Two major issues: funding situation and platform scheduling. The funding situation is severe and will require major belt- tightening, certainly for 2008-09, and probably through the remainder of this phase of the program (until 2013). Discussions are underway to 1) manage existing funds to facilitate as much science as possible within the financial constraints, and 2) find alternate funding solutions, including reorienting existing funds and seeking industry funding. Three categories for alternate funding presented: “Y” funding by other agencies e.g., to add observatories; “W” some group tests tools on the platform; “V” leave over the vessel for large blocks of time, i.e., loan it out.

Operational issues: SODV IODP operations put off until Jan 2008. Japan Fishing Unions restricted operations during spring 2008. Riser tensioner problems on Chikyu. SODV delayed to March 2008. MSP delays as well (New Jersey, Great Barrier Reef). SODV weather drivers are Bering Sea and Wilkes. Chikyu is a large (ca. 6 month) non-IODP period. MSP schedule shifted about 9 months. June 07 report of IODP-MI has the details of the current scheduling.

Reduced funding has impacted the platform schedules, completion of SODV. Industry use of the platforms seems to be possible but is as yet undefined; it does seem as if they are interested but there are no specifics yet. Also IODP may have to determine how the platforms can be used. Other changes may need to be made, e.g., in the ranking and scheduling of proposals (the current manner in which this is done is not conducive to industrial needs; it must be much faster.

The scheduling has been developed to ensure flexibility required from any potential over-runs, e.g., longer dry-dock time would cut into equatorial Pacific legs without major impact on the science.

Funding situation

Lead Agency Guidance

Arrives in Feb of the year, 9 mo prior to start of FY, IODP receives budget from Lead Agencies. Budget reduction for 2008. Similar or more severe cuts are in order for 2009. Further, it's anticipated that the budget will be similarly reduced through 2013.

Ramifications.

25-30% reduction in budgets

Non-IODP operations will become an important component of funding.

Reduction in platform time. SODV will run ~8 mo/yr, Chikyū ~2 mo riserless; 5 mo/yr with riser; MSP dependent on program schedule

Other programmatic reductions

SAS panel- reduce size and meeting frequency

IODP=Mi staff reductions

Science services will be reexamined or increase efficiency at both shipboard and shorebased levels

Options:

1. Take available funds and spread it over 12 months. Very limited science capabilities. Need additional external funding.
2. Potential external funding models include
 - conducting IODP science operations over and above base cost of expedition such as observatories
 - Tool/ equipment testing to offset basic Z funding
 - Non-IODP use of vessel.

Follow-up: Neal asked panel if they understood funding models. Basile asked if this applies to MSP as well; Janecek replied MSP is contract-based anyway so it's not subject to the same problems. For MSP, when money is available, it is spent. There is no need to support a vessel for the remaining months. Lovell summarized that the net effect on ESO operations is minimal due to smaller scale operations. Colwell asked Janecek to explain his estimate through 2013. A summary of his response, made by Lovell, is that the lead agencies have asked us not to expect an increase in budget through the end of this phase.

Platform Schedule.

Previous (FY08-09 schedule from Aug 06 SPC) scheduling showed 8 months expeditions on the JOIDES, 7 months on the Chikyū, and significant delays on the MSP.

Jan 2007: EPSP approved drilling of all sites on Canterbury cruise but SODV delivery date moved to Nov 15, 2007 which caused accommodation of schedule

Late Jan- Feb 2007

Budget crisis occurred with a forecast of 25-30% reduction; 2 other comments

June 2007

Chikyū riser tensioner problems causing delays

SODV further delayed to March 2008

MSP program delayed 1 fy due to delay off platform for NJ operations and Great Barrier Reef program deferred to FY2009 or possibly 2008 (depending on NJ scheduling).

Current Schedule (OTF changes)

SODV March 2008 first expeditions to Eq pacific, then Bering Sea and Shatsky Rise, finally Canterbury and Wilkes. Wilkes and Bering Sea need a certain weather window. Eq pac and Bering Sea are being staffed currently.

Chikyu-early 2008 NanTro, followed by Non-IODP operations from Feb through FY09; NanTroSEIZE riserless drilling in early FY2009. So, no change in 3 NantroSEIZE operations in FY2008, and additional NanTroSEIZE operations added in FY09.

MSP – NJ was scheduled in FY07, with onshore sampling in winter 08, shifted to summer 08 with onshore FY09. GBR is uncertain; it will likely be run at the FY08-09 boundary or delayed further.

For FY09-10, looking to add 1-2 IODP expeditions and some potential non-IODP work for the SODV, and Chikyu has a non-iodp interval in FY09.

Additional details are available on the web: download June 2007 report from www.iodp.org/otf/

Lovell summarized Janecek's presentation, as two separate but related issues: funding from lead agencies, and platform scheduling (related to funding but also to operational issues).

Colwell asked for clarification on non-IODP times slots represented on the graphic: Janecek responded that the time slots could be used for non-IODP cruises, but nothing is planned (discussions with industry are underway but details concerning how they want to use it and what we can let them do are under discussion).

Johnson asked about infrastructure and Janecek responded that the amount of infrastructure is uncertain (budget and planning) but will have an impact on the industry use.

Basile asked if there would be an expected change in selection processes; Janecek noted that industry requires a short planning period, but there is a need for long-term response (for long-lead items (casings, budgets)). This requires a renewed efficiency in rankings, scheduling, approval processes but these are under discussion currently.

Gorin asked about how we'd convert the SODV to an oil-drilling vessel; Janecek responded it would not be a conversion but a use of the SODV to support industry needs (although the Chikyu is an appropriate oil drilling platform and has completed such activity already.)

Colwell asked if there would be bias in selection process and Janecek responded that there is awareness that industry needs should not override scientific objectives and that it is a major part of the current discussion.

Lovell summarized that a major issue of this meeting is to evaluate the budget models presented, and make clear recommendations to SPC at the close of the meeting.

3.b. CDEX (Matsuda / Aoike)

CK (Chikyu) finished drilling shakedown in Japan in Nov 2006 (western Pacific - 647 mbsf penetration in 1200 m wd), then went to Kenya and finally Australia. Shakedown was needed in order to confirm drilling capacity under more uncertain conditions. In Australia, problems occurred with riser tensioner. ODS achievement: deep water (2200 m) and deep drilling (2700 mbsf), under high sea current (2.5 km off Kenya). ODS plan versus result were very consistent.

Tensioner problems: tensioners only required during riser drilling; problems occurred in May; inspected in Germany but as yet unsure of the problem.
Legacy samples are being received now at Kochi

They had anticipated greater wd (2 km) and greater penetration, so went to Kenya (2200 m wd; 2700 mbsf penetration) and Australia

- Drilled Pomboo (north of Mombasa); achieved deep water (2200 m) and deep sediment (2700 mbsf) drilling also under currents as high as 2.5 kt average

- NW Australia (drilled 7 well in Carnarvon and Browse Basins)

 - Riser tension problems arose on the way

- Major technological achievements

 - BOP operation at 2200 m wd (doubled that of shakedown)

 - Drilled to 2700 mbsf

 - Operation under high speed currents (avg 2.5knots currents)

 - DPS upgraded (MODU) implemented for Kenya drilling

 - Deviated/ Directional drilling for wireline testing

- Other issues

 - Technical operations with tensioner

Planning vs results were very close (>90%)

Tensioner: 6 tensioners (shock absorber like units) extend over moon pool; tensioner #1 failed (chroming on the rod was etched). Additional tensioners found to be damaged so riser drilling was stopped and Australian drilling continued as non-riser operation. In Singapore, tensioners were removed and sent to Germany for a fix; expected to take a year to fix. This impacts the schedule.

Schedule NantroseIZE Riserless runs in FY07-08 (#314); beginning FY09.

- #314 (FY07) will drill 6 holes

- #315 (FY08) will drill 3 holes including casing

- 316 (FY09) will drill 4 holes

Plan for Stage 1:

- Co-chiefs selection will occur in Oct, with Nov pre-expedition meeting, and staffing in April 2008 for Oct sailing

Plan for Stage 2

- Missed it

Update on other issues:

- Finish refurbishing refers for IODP core repository; legacy samples can now be received at Kochi

- Receiving 80 km of legacy cores in sept 07

Questions on the presentation: Saito asked about the 2 pilot holes planned for Leg 314 to confirm the seafloor is strong enough to support future Riser drilling. Matsuda replied they need 20 cm from each core but will retain the remainder onboard, and will analyze the remainder of core on ship, making data available for science community. The data collected depends on lab expertise that will sail. They will start Leg 314 with 8 laboratory technicians but will expand it to 15 technicians.

3c. JOI Alliance (Blum)

SODV update

Overview. Blum gave an overview of the status of the SODV and planning. MREFC was reviewed well by NSF (may be a model for other similar programs).

The SODV is in the final stages of renovation. Essential items such as the LIMS system and ACP Temperature Tool are under development and coming along nicely. Funding cuts are severe (\$115 M over 3-yr.) but impacts have been reduced by borrowing funds and leveraging costs against the current fiscal year.

Solid frameworks measurement program is the basic system that has been kept. Sample and Data Request Management (SDRM) system is now implemented; fully web-based. This is currently used by CDEX and incorporated into Chikyu sampling; one time only the server went down and this was at a time when others were trying to access it.

Laboratory Information Management System (LIMS)

TAMU is set for core logging. Applications for collecting descriptive and interpretive information (DESCINFO).

Additional tools: Advanced Piston Core Temperature Tool (APTC3). USIO staff on Chikyu for expedition 315 and 316 for training; also will train CDEX and MWJ crew

Downhole Magnetic Susceptibility Sonde (MSS) introduced; more extensive summary of the tool written by Trevor Williams. Williams introduced logging update. USIO directed to reduce to 70% of time.

Funding is \$115 M over 3 yr from NSF-MREFC with no additional funding available

Borrowed \$15M from ODL which will be paid back via increased day costs

Schedule for improvements.

NSF visit was successful and led to final approval from NSF contingent, and it is now in the shipyard. Required a significant change from original ambitious plan, meaning no stretching of the vessel. New scope includes life extension and equipment refurbishment, increased accommodation, new science lab, permanent Schlumberger rig-up, new science lab with increased space, update of scientific equipment and data systems FOR BASIC ANALYTICAL SERVICES (~ODP phase 1).

Status: Gutted ship, and went into drydock for steel work and painting. Drydock is finished. Schlumberger data acquisition unit and a few other things are in place.

Other tools and analytical services

Sample request and data management system is ready; it includes a data management system (SDRM). Created by USIO-TAMU and Chikyu is testing it with formal deployment later in the year.

LIMS (lab information management system) is used to support QA/QC but not for data capture etc. Data capture systems are external and interface with the LIMS.

IODP-TAMU is supplying lab space for laying out equipment in space equivalent to shipspace.

Developing an application to capture descriptive and interpretive information that is highly flexible (DESCINFO: core description, paleontology, datums, strat units).

Advanced Piston Core Temperature Tool, Model 3 (APCT3) developed by team from UCSC and U Bremen+Antares; based on previous APCT and was tested and accepted on Leg 311. missed the rest of it

Deploying USIO engineering and technical staff and downhole temperature tools on Chikyu 315 and 316. The goal is to train CDEX/MWJ staff in APCT3 and DVTP/operation and to develop common procedures and Qa/Qc. CDEX will likely acquire it.

LDEO Borehole (Williams introduced it). Downhole Magnetic Susceptibility Sonde (MSS). NSF funded development to Stuart Robinson and Dave Goldberg to be compatible with LDEO and Schlumberger telemetry. The electronics bench testing is complete, calibration holes are constructed, and downhole testing at LDEO test well will occur Fall 2007. Additional information is provided by a 2 page summary.

Program Planning

USIO met the NSF/IODP budget for FY08 (\$50.8M). A program plan for FY08 has been submitted and it covers 75% of operations, meaning Jan – Sept. SODV project covered through remainder of year, in part due to buy-down from FY07 funds. A large effort is underway to manage the transition from rehab of the SODV to operational phase.

Significant changes in operation schedules are due to funding, fisheries restrictions; significantly the Nantroseize leg was replaced with Eq. Pacific. This will allow us to focus on science during FY08, and worry about FY09 later. As part of belt-tightening, staff changes have occurred, although 2 additional Staff Scientists were hired to accommodate our upcoming science schedule.

Comments: Basile asked if this is for large-diameter pipe; Williams clarified it will work for both existing and large diameter pipe.

Johnson asked what happens to the people on an 8 month operations schedule. Blum responded that it's under discussion, and Lovell deferred discussion of balance of cost/expertise in the future to the afternoon.

Basile asked about the status of large drill pipe, and Blum responded the infrastructure is in place but the drill pipe won't be bought until money is available (Depends on shipyard costs using up contingency monies).

Neal asked whether the 2 month transit time would be sufficient as a buffer. Blum responded it requires 2 weeks transit, and the 2 month buffer is built in to allow for overruns on shipyard time (an additional visit to the shipyard is essential).

Janecek commented that the 2 equatorial Pacific legs were placed upfront so that scope could be reduced if necessary.

Saito commented that the Data management system is well developed, etc. but that no one can access it until Oct 2007. Blum noted the system went down when everyone tried to submit sample requests due to a database issue, and that has been corrected. Saito would like to know how to get information on the application. Blum commented expedition management should have communicated email for user-request issues (24 hour response from service team). Houpt commented additional help resources are available but that email is the best way to go.

3. d. ESO (Inwood)

ESO report discussion led by Neal (Lovell COI).

Overview: Within the year, Sarah Davies will take over from Lovell as coordinator of EPC, and remove his current COI. Exp. 310 (Tahiti) is hosting a post-cruise meeting soon, and EXP 313 (New Jersey) has slipped to Summer 08. Progress is being made toward the Great Barrier Reef Exp. and investigation of a New England hydrogeology expedition is underway. Barrier Reef possibly autumn 2008 or 09.

Brewer's death means Lovell will work as interim coordinator of EPC. Within a year, Sarah Davies will take over from Lovell eliminating the COI.

Tahiti Sea Level Exp 310. Post expedition meeting will be held in Nov 2007

NJ shallow shelf EXP 313. Geotech survey completed by Alpine Ocean Seismic Survey. Mid May start time was postponed to Fall, which is not an appropriate weather window. Thus, EXP 313 is postponed to summer 08.

Great Barrier Reef.

Site survey will proceed pending EPSP approval

Drilling permit application has been made.

Meeting was held on New England Hydrogeology at IODP-MI.

Neal asked about the availability of the platform for Exp. 313, and Inwood answered it is still under discussion with DOSECC.

Agendum Item 5. QA/QC update from IODP-MI Task Force (Neal)

Note: Agenda Item 5 is introduced in extra time before lunch. Item 4 will be addressed after lunch.

Background summary: Grounds for Taskforce was laid in Boston, 2004 and the vision is to establish policies to ensure highest quality data possible are produced on all IODP platforms and associated shore-based facilities. The key goal is to allow for traceability of data within a

rather loose framework, rather than have a set of rules. The policies produce guidelines, rather than set rules, so that they can be applied to all platforms and shore-based facilities. The SAS and IOs are tasked with monitoring success of QA/QC, thus it's an STP issue. Because of the large number of disciplines, the job will be managed within STP by working groups. There are embedded feedbacks within platforms and across platforms to ensure appropriate implementation. STP does not dictate implementation. Major issues include capturing reference materials, establishing general policies, and have IOs submit plans for implementation.

Johnson asked for clarification on reference materials, meaning are things such as calibration measurements going to be recorded and Neal answered yes.

Lovell indicated that STP is charged with discussing the draft QA/QC report, and to clarify issues that come up in discussion, suggest changes, report back on Wednesday. Each group will be led by 2 chairs. STP asked to consider the report overnight then discuss during breakout sessions.

Basile asked how we can discuss the task force documents without specifics. Neal replied that the groups can generate specifics.

Colwell commented that we should evaluate QA/QC with respect to our working groups. Lovell commented that our goal is not to rewrite the draft report, but to make constructive comments for the QA/QC Task Force to take on board..

Williams indicated that there are considerably more detail is available in the report

Higgins emphasised that the report provided guidelines.

Neal stated it must be a living document, which needs to be revised as needed

Suzuki expressed concern that he is the only Japanese representative who has attended and heard QA/QC discussions in STP meetings and therefore asked for history on QA/QC for the other representatives.

Neal replied that the impetus came from the Boston meeting, when it became clear that Janus was insufficient to capture reference data, which its limits ability to compare between platforms. A series of meetings was held, and responses from query forms (science, industry) provide the foundation for the task force report.

Lovell closed the discussion, and suggested working groups (WG) discuss the issue Tuesday during breakout sessions. He reminds us that we are asked to design a practical solution, and not design additional workload for shipboard scientists or for IOs. Working groups leaders:

Petrophysics: Ge and Johnson

Core description: Basile and Suzuki

Geochemistry and Microbiology: Colwell and Ikehara

Broke for lunch at 12:30. Reconvened at 1:30.

Agendum Item 4: Report from SASEC WG on SAS Structure (Lovell)

In light of recent budget issues, there is a real need to evaluate SAS structure in terms of cost savings while ensuring science advisory structure is strong. A complementary issue is whether we need to maintain a biannual schedule when we may be moving to an eight month drilling schedule and more streamlined approval processes. A SASEC working group met to make recommendations. The recommendations define a proposal- driven process,

maintaining SAS oversight.

Becker used questionnaires to evaluate issues. Key issues include corporate memory versus new blood, and budget limits. Items relevant to STP are 1) shortening the proposal residence time; 2) the need for more proactive long term planning; 3) better intra- and inter-panel communication; and 4) the relationship between panels and IDODP-MI task forces.

The SASEC WG proposed voluntary reductions in the size of panels, with core membership augmented by expert advice as needed at meetings. Japan and US would reduce to 5/5, ECORD would remain at 4, with 3 voting members. Term lengths of 3 years may be re-evaluated. One possibility is a one year “probation” leading to additional 3 or 4 year term; another is to extend a term to a 4th year depending on available expertise.

Reductions in panel meeting frequency could significantly reduce costs (30-40%) in SAS, especially for US and Japan. That may be facilitated by electronic means.

Some things to think about: If the budget requires further reductions, how does it affect STP? Significantly, if there is no or limited funding for development and shipboard technology improvements, there is less need for STP. Options include combining STP and EDP, or meeting at the same time to facilitate interaction. Lovell noted significant time constraints at meetings already exist so increased interaction may not be a real benefit unless meetings were even longer!

For STP to think about and respond:

Can STP function as it is, or should there be change? If so, how should the panel adapt? Reduced frequency of meetings? Reduced panel membership? Combining panels? Reducing membership still leads to large meeting costs.

Comments:

-Johnson noted electronic meetings would have great limitations, such as office traffic, time zones, etc.

Suzuki suggested maintaining full membership but only having those who need to attend, attend, (thus comprising the reduced numbers from a larger membership but still meeting the goal of reduced numbers).

Neal suggested one full membership meeting, and a second meeting that is more of a planning meeting of WG chairs. Any work that needs to be done would then be organized through the WG to eventually be dealt with by the full panel (electronically if it's urgent). Neal thinks going to a single meeting would require a full week's schedule due to our history of full agendas, thus it is unlikely to improve productivity at a reduced cost.

Haupt wanted to know the target cost reduction that SAS is looking for. Lovell responded that there is a need for across the board savings. He also noted that this is a report from SASEC, which hasn't recognized a major difference between STP and EDP historically, despite the lack of commonality between the panel mandates and meeting agendas.

Saito asked that if our panel costs are not IODP costs, why must we reduce costs? Janecek noted that program member offices have had their budgets severely reduced, so funding travel and per diem and post-cruise science is impacted at all IOs. Blum responded that IODP has direct costs from IOs.

Colwell asked if there any programs that could serve as model programs to gather information for budget reductions?

Blum responded that all organizations are under the same pressures to reduce costs of

international travel. A strong option is conference calls/videoconferencing at very specific times with designated do not disturb times, supplemented by face-to-face meetings.

This was echoed by Neal, who agreed that if reduced meeting times were selected, the conference calls could function as between meeting meetings, for short time periods (rather than days). Colwell noted teleconferencing works well if it's a small group of people who know each other, but larger groups do not work as well. Houpt added that videoconferencing seems to work with groups as large as 30, based on their planning meetings experience. Janecek noted such things work when participants are in one time zone but that their tests with videoconferencing meant the Japanese scientists were working at midnight. Gorin commented videoconferencing meeting efficiency falls off above 10 people, and falls even lower over 20 people. Suzuki noted videoconferencing is a poor forum for Japanese who tend not to jump into conversations. Core expertise should convene once, then report to WG. Also, worried

The conversation continued with efficiency. Ge noted that time between meetings could be filled in by working group activity, and led by working group leaders. He also recommended keeping core members on for 4 years to ensure corporate memory. Suzuki noted that one meeting a year would lead to very long waiting times (10 – 12 months between meetings), and it may be too long of a wait for to fill in with WG activity, although this might be solved with better email communication during the time lapse.

Lovell asked that the WG incorporate this discussion into break out time, and also have WG make specific recommendations. The reference document, SPC to STP PowerPoint, is available to all.

Agendum Item 6. Presentations from IOs on possible cost reductions

6a. USIO Budget Outlook, presentation by Higgins.

Higgins presented USIO budget and forecasts, as well as cost- efficiency models. Current year budget was met using several strategies. The budget is tight for 08, but funds are covered for 8 months (12 if we run it on a shoestring). FY09 will also be lean and NSF will allow us to use the ship for contract work 30% of the year (target is 70% of time).

USIO expects higher fuel and material costs

IODP-MI asked to consider options:

Three models:

- Core recovery only

- Ephemeral minimum measurements model (w/split cores which requires significant technical staff)

- Four extraction models: paleoceanography, igneous, hydrates, observatories, each of which would require different assumptions for how samples are collected and handled

Operational budgets will require industrial support as currently structured

A major issue is the effect of staff/ science reduction on science delivery. USIO recommendations:

- 1) Operation model is the baseline model (do the work at sea, once the core is split). The baseline model is that which was originally budgeted for.

- 2) Contributions from science party is crucial for successful science delivery and efficiency.

- 3) Core recovery is not the preferred option for USIO or NSF.

4) NSF FY09 operational budgets will require an estimate 4 months of non-IODP funding, with an estimated 4 expedition/ year model.

5) Non-IODP funding will require greater flexibility in planning. Coordination of the off contract work will require clearly defined priorities and deliverables between NSF, IODP-MI and USIO.

USIO Budget for FY08 and beyond

USIO has met it's target for the year but this covers budget only from Jan to Sep 08. SODV project covers costs into 2008. Significant buy-down from FY 07 helped to meet budget.

NSF guidance for FY09: expect a flat to modest increase in funding level of 51M. NSF notes USIO is *allowed* to reduce operations to 70% of time (4 expeditions/ year). However, USIO program costs will increase due to higher ship rates (starting FY09), fuel costs, etc. Non-iodp will also need to be factored in.

Graphic: For a 12 month

transocean contract is ~60%, with fuel 10-15% of budget and the Schlumber contract of 5% or so means that 80% of money is encumbered before any science is done. Science support and labs makes up remaining 20% or so. These percentages are based on a stable budge of \$51M, with a 3% inflation.

Blum: Any additional budgetary funds will go into science

Higgins: 80% is fixed cost, with labs absorbing budget issues.

Graphic: for an 8 month operation (4 legs). Fixed costs drops to 55- 60% so more science can be done. This assumes a odel with 8 month ships costs, but science is paid on a 12 month.

Neal: Request to keep questions to after all three presentations.

USIO Summary of IODP-MI potential operational models

Baseline: core recovery only with additional data added to generate 6 operational models.

Core recovery model, Ephemeral/ minimum measuremodels (ephemeral includes downhole logging), FY06 planning (full staffing).

Core recovery: whole round cores returned to repository, with ephemeral whole round measurements, limited or no science party, and limited USIO support for post-cruise and publications.

Ephemeral/ Minimum: A major issue is what is ephemeral, above and beyond STP minimal measurements. Higgins notes the panel needs to address this! Also notes that upon splitting cores, costs go up rapidly because of the need for shipboard science/ staff.

Cost Analysis on 4 models

Paleoceanography- High sediment recovery

Igenous -Low recovery

Hydrates

Observatory (engineering)

A major issue is the effect of staff/ science reduction on science delivery.

Results:

Onshore program is much more expensive than a shipboard science party. ESO "MSP" style is not equivalent to SODV due to major difference in scale and science delivery provided.

Whole round core delivery to repositories is problematic on many levels. The repository is not set up for whole round, and there is no funding for it. It may require a science party to ask NSF for funding for analysis of whole round cores.

Major conclusion of model cost comparison is such that baseline model for FY09 and Ephemeral/Minimum for 12 months with 4 expeditions are essentially the same.

The ephemeral/ minimum model has only max savings of 2-5% less cost than full service model in FY08. Problem is, we can't afford to run the ship for 12 months without additional funding (non—iodp work).

USIO recommendations:

Operation model is the baseline model (do the work at sea, once the core is split)

Contributions from science party is crucial for successful science delivery and efficiency.

Core recovery is not the preferred option for USIO or NSF.

NSF FY09 operational budgets will require an estimate 4 months of non-iodp funding, with an estimated 4 expedition/ year model.

Non-IODP funding will require greater flexibility in planning. Coordination of the off contract work will require clearly defined priorities and deliverables between NSF, IODP-MI and USIO.

b. CDEX (Matsuda-san / Aoike-san)

Budget Outlook and Operational Analysis

Summary: Matsuda-san presented powerpoint with detailed structure of operations on the Chikyui. SOC target: \$12.1 M. Plan at Aug 07: \$11.6 M

Marine Works Japan(MWJ) provides technicians. The major cost is the POC, and the SOC is much less. SOC costs are related to the number of technicians. Details on costs and savings are found in the PowerPoint. The upshot is that there isn't much of a savings in cost to reduce the science. \$3.5M could be saved by not doing many measurements offshore or onshore.

What do the platforms have that the oil companies might need??

CDEX model analysis; logging is considered an ephemeral service, already incorporated and should be included in basic measurements

It is hard to determine what will require special measurements until the samples are taken

Structure includes 3 groups: Program coordination group, the program outreach group, and the program support group. These are headed by a directors office.

Chikyui onboard structure includes offshore superintendent, who is over Expedition project manager. EPM responds to Chief Science/ science party (26 max), support staff (logging, IT), Lab officer (MWJ) and staff, Onboard Curator (MWJ) and staff, and Publications Assistant (MWJ). MWJ is company (Marine Works Japan). MWJ provides 19 people to work 9 people/ shift.

Costs: SOC \$12.1 M originally budgeted and have received 11.6M. POC target \$62.5

Beyond 2008, 80M is projected for POC.

Expect 5 months riser drilling, with 2 months riserless drilling, meaning 5 months non-iodp.

Unfortunately costs related to oil industry increasing, including crew, fuel, steel, subcontractors services may impact budget.

CDEX Model Analysis

Lab. service level is closely tied to # lab technicians, so more services means more costs. These costs can't be dismissed because you'll still have to pay for it onshore.

Logging should be considered a part of the ephemeral service to guarantee good data recovery, and as a reminder, you cannot revisit the hole for logging data.

So, they developed 6 options carrying with number of techs and number of science party, ranging from 6 techs/shift on board to 18/techs/shift on board. Costs start at 3.5M (option 1) to 7M to option 6. This does not include the cost of science party- just technicians. Thus, reducing onshore services doesn't save much money, but it really reduces the extend of the science. Furthermore, reduced shipboard operations may lead to increased maintenance costs.

Ge: would like to see cost analysis by minimum measurements, etc, as defined by STP.

Neal: Restated question that evaluation should begin with minimum measurements, then adapt them for special cases.

c. ESO (Kuhlmann) Fiscal implications for reduced IODP scientific services for MSPs.

Essentially, budget costs lead to an incremental decrease in science delivery. They did a case study for one year (FY08) including offshore and onshore phase, with high recovery (2.5 km core), using minimum staffing and minimum scientific needs (BC: unclear if this is min measurements or ESO's idea of minimum scientific needs).

Summary: For each incremental loss, you'll lose more and more science. The greatest savings is to eliminate logging.

MSP is different from Chikyu and SODV wherein less is done at sea, more is shipped to shorebased scientists; ESO believes that MSPs already operate at the lower margin.

Step 1: onshore party will do no IODP standard measurements leads to Soc savings of 1%

Step 2: reduce onshore science party so only non-destructive min measurements are performed (no p-mag, etc). This saves 15% of total savings.

Step 3: No NGR logging. Saves 8%

(major costs include techs/staff with only a small cost of consumables)

Step 4: no onshore science party

No core splitting so no VCD, color. Saves 16% (travel, staffing).

Step 5: Offshore phase

No phys props core logging. Saves 10%

Step 6 Offshore phase

No ephemeral properties. Save 8%

Step 7 Offshore phase

No downhole logging. Save 37%

Step 8 Offshore phase

No core catcher (sed, biostrat) Save 4%

Step 9 Offshore phase

No *in situ* temperature tool Save 1%

Break and reconvened 3:30.

Discussion on *Agendum Item 6*

Neal: background to Item 6. July 4 e-mail directing IOs to explore potential cost- savings (SOC's and POCs). All options must be considered.

Basile: From where does the new fiscal climate come from? Neal: from Lead Agencies (ECORD, NSF, MEXT).

Lee: What can be expected from non-IODP funding? Janecek: tool testing, or 3 or more months of the ship taken over by industry. Still exploring.

Christensen: where would the money for tool testing come from? Janecek: industry

Johnson: what are the consequences if no industry funding emerges?

Blum: ODP funds entire year of costs, then relies on non-IODP funding for science beyond the very low science operating budget.

Neal: Address the question to CDEX. If you don't get buy in for the other 5 months, what happens?

Matsuda: Ship would be stopped. Parking is free, reduce ship crew, but retain contract with drilling crew. However, the ship would not survive if the 5 months were not bought.

Basile: the SODV plan will change to 8 months; Chikyu will change to 7 months. Is there a plan to reduce the scientific plans even further?

Matsuda: No

Neal: clarification. Both operators had 12-month operations schedule, but because of budgetary constraints, need to drop to 8 months (SODV) and 7 months (Chikyu). If we do that, we could lose the ship if we didn't cover ship costs with non-IODP funds during those other months. Thus, the need to cover costs for 12 months, with very limited science, to ensure the ship costs are covered.

Johnson: Does Department of Energy(DOE) (US) have money?

Janecek: Discussions are underway with DOE and other non-IODP interests. STP role is not to explore avenues, but to deal with the funding issues related to measurements.

Neal: We need to provide timely input on cost reductions. What can we cut to reduce costs and still maintain a strong science plan?

Gorin: We cannot evaluate scientific efficiency by numbers.

Neal: What can we cut to have maximum effect on the budget, and minimum effect on science?

Johnson: Can we discuss the issues surrounding the core recovery only option, with the goal of possibly eliminating that as an option?

Janecek: Clarification: The USIO responsible model is to fund the ship for 12 months so it isn't lost. Based on the known costs, what science could be delivered with the existing budget?

Blum: We could not deliver analytical services, and would need to make major staff cuts including planning staff, curatorial staff, etc.

Janecek: As a follow-up, in that model, on 12 month funding, what could you do? Collect core and store them away?

Higgins: It's borderline that we could deliver core recovery even. It would be expedition based.

Janecek: This frames one end of discussion, with one end being no science but a ship, and on the other end, the 8 month ship model and hoping that a contract could be secured to cover the 4 months of ship costs.

Neal: The discussion doesn't include MSPs. Neal also doesn't think we could advocate going to get core and then store it.

Lee: An alternative model is to intensively evaluate a portion of the core, with standards done on whole core.

Neal: Based on presentations given, there is little cost difference between minimum and full service models.

Castillo: Let's agree that there is little savings between minimum and full service measurements.

Janecek: The IOs need to look at it from the two end members, with models in between.

Neal: CEDEX numbers indicated 3.5M saved/ year.

Basile and Houpt: Savings of \$ 3.5 M are for no measurement at all (as opposed to onshore option).

Neal: Clarifications: What are costs if we collect cores (including some ephemerals), bring it to shore and follow up with minimum and some standard measurements on shore. USIO- it will cost more (Haupt). CEDEX- it would not save money (Matsuda).

Higgins: unfair comparison, since MSP is not equal to SODV. Thus there are multiple layers of answers to questions due to different levels of service. Blum: As a matter of comparison, core splitting and imaging on shore, for 6-7 km recovery, it would take a year of staff time, as opposed to the 2 months offshore time.

Castillo: MSP has no choice between onshore and offshore.

Neal: role of science party in MSP is very different.

Oda: What is ephemeral, minimum, etc?

Neal: applying the MSP model to the SODV and Chikyu, will result in much reduced science for very little savings, if any. Is that a correct statement? Can we apply that model for cost savings?

Higgins: To a first order, that is probably true. We have an estimate of doing nothing, and doing full service. MSP lies in between but has not been costed out.

Johnson: If it takes so long to process the core, how could we possibly do it all in a year, with 4 legs each taking a year to do the processing?

Haupt: Additional facilities are required.

Lovell: We will revisit this on Tuesday, Item 8. Download IODP measurements document in preparation for this discussion.

Neal: End members include getting core and storing it, and the in-between model of applying MSP model to SODV and Chikyu is probably not workable, so what is left? What do the IOs have to say about what is left? What are the preferred scenarios?

Matsuda: CDEX would like to be operating the Chikyu as a big mother ship. We want to have full science because the costs aren't that much with respect to platform operations.

Higgins: Given the choice between ocean science or ocean drilling, the USIO wants ocean science. To do that, we need to follow the recommendations made although it's not certain that plan is secure either.

Neal: For a science driven program, we need to protect the science. We may lose the 12 months operations, so we need to maximize science.

Christensen: How much of the 4 months funding from non-IODP is necessary?

Blum: We don't know contract costs because we don't know the science needs of the contractors. That will impact how many months of outside use is required. We do know that expertise overlay must be available and cultivated. Also the synergy factor is important for keeping the program alive within the community, and that requires money.

Basile: Is it possible that a company can add money to a scientific leg and thus change the ranking of a leg in the selection process?

Janecek: That is probably not a doable option because that entity will need to go through ranking process, and it's unlikely that they could bias the ranking because they have money. Adding money to a cruise will not buy a better ranking.

Lovell: What do you mean by full service?

Blum: FY08 baseline service. i.e., that which we've worked toward for funding.

Matsuda: standard measurements with science party on board

Lovell: Is that the same or more than IODP phase 1?

Blum: It is essentially the same, with upgraded technology on SODV

Matsuda. Full operations on Chikyu

Lovell: When we return to Agenda item 8, we will redefine standard measurements.

Castillo: Instruments would need to be used/ maintained those 4 months of contract.

Blum: Maintenance of instrumentation would occur on ship if there is funding for science; if we are operating at the core recovery level then there is nothing to maintain.

Neal: To Castillo- it's worth making the recommendation although it may not be feasible without the budget.

Lee: where do POC costs come from?

Janecek: POC costs come directly from lead agencies (NSF, MEXT, ECOR). Those funds are set. SOC funds are co-mingled, with NSF acting as central banker. Those funds are very different for each entity. IODP-MI distributes funds. Money from China and other countries (Korea) go to SOC.

Saito: Comment on 8 month vs. 7 months. It is unlikely that Japan would be able to staff a full 26 months of science annually because Japan would need to supply over 100 scientists/ year.

Suzuki: We have limited resources in terms of the science party, so the 7 or 8 month model works well for the number of scientists available.

Saito: It would need to be 7 or 8 months, but at full service.

Blum: The USIO supports full service, but don't forget that we may need to go to a 6 month model rather than 8 month.

Janecek: SASEC would be happy with an average of 7 /2 years, with variable costs of expeditions. 3 expensive, 4 cheaper.

Basile: Cannot achieve scientific objectives without full service.

Neal: Lets have discussion for/against full service to explore all options.

Basile: In France, ODP –related work was funded by ODP in France. Now, science funding is for IODP and funding for post-cruise must come from other sources. This is a huge problem, both for funding and the time lag between core recovery and funding to work it up.

Colwell: The current science plan cannot be accomplished with a reduced operational level.

Neal: Working groups need to evaluate this in terms of achieving the science plan.

Lovell: Include ESO operations in comments/ discussions

Basile: Cannot remove scientific community without destroying science.

Lovell: MSP operations are different to USIO and CDEX. Different funding model because it's funding by mission and not support for a year.

Lovell: Suggests move to item 8 to facilitate discussion during breakout groups tomorrow, and returning to item 7 later.

Agendum Item 8. Discuss scientific measurements (IODP standard and minimum measurements) in respect of Initial Science Plan.

Neal gave an overview of the issue of measurements, and reminded the panel that ephemeral measurements were not included, although they were presented in the IOs presentations today. Paraphrasing, Minimum measurements are the minimum needed to describe the core a/o the drill site (for logging). The panel needs to revisit minimum measurements and discuss those measurements that can influence drilling, i.e., Real time analyses such as Biostratigraphy and petrographic analysis in case of igneous expedition.

Paraphrasing, standard measurements should be taken whenever practical and appropriate (Core petrophysics, downhole petrophysics, microbiology and geochemistry, rig floor) and supplemental measurements should be made if needed, essentially on a mission specific basis (Downhole petrophysics, core petrophysics, Geochemistry and microbiology). Supplemental measurements often have third party aspects such as tool development, which generally require a long lead time to achieve

Safety measurements are expedition specific, such as gas hydrates or sulfates.

The charge to the panel is to look at the minimum measurements, and consider removing some of them to standard. After discussion tomorrow, we will reconvene to achieve IO input for advice on savings, etc. Eventually the panel will develop a consensus statement based on revisitation of the document.

Lovell: use framework in Item 8 for considering this. Consider costs (hardware, instrumentation with dedicated technician,). How will IOs enable instrumentation to function on a platform that may not be using them 12 months? Not in document: Which measurements affect drilling decisions at sea? Remember that we'll add in clause to accommodate different objectives.

Basil: Ephemeral measurements were not defined; do we have to define them?

Blum: A key distinction is that between ephemeral properties, and ephemeral measurements. Ephemeral properties change rapidly, ephemeral measurements would need to be repeated (by revisiting site).

Lovell: 3 things to prepare for tomorrow morning.

1. IODP measurements document (read doc)
2. Provide feedback on QA/QC report (read doc)

3. Discuss budgetary issues - read last 5 slides of SASEC WG PowerPoint

Return with specific plans.

Janecek: come up with a set of priorities if we don't get full 4 months.

Neal: if full service on 8 months isn't possible, what do we want?

Lovell: reconvene at 8:30. Reception at 18:30, 2nd floor, with name badges.

Ended at 17:10.

Tuesday August 21st, 2007

Meeting convened 8:30

Ge led discussion of meeting logistics.

Lovell introduced agenda for Day 2.

Breakout into 3 STP working groups to discuss major issues (with reference to PowerPoint document):

1. QA/QC guidelines, remembering relationship between IOs and scientific community. Goal is to develop specific recommendations from each working group, with justifications for comments for/ against, in PowerPoint form.
2. Output from SASEC working group to improve efficiency and reduce costs. Goal is to develop strong recommendations to SPC for SAS structure, in PowerPoint form.
3. IODP Standard and Minimum Measurements
Goal is to identify new set of minimum and standard measurements, with justification for comments for/ against, in PowerPoint form.
4. Budget Reduction Models as presented by the 3 IOs.
Goal is to discuss impacts of budget issues on science output.

Breakout groups met from 9:00 – 10:30.

Break from 10:30 – 10:55.

Breakout groups reconvened at 10:55 until 12:30.

Lovell led discussion to evaluate status of discussions in breakout groups. All groups are making progress. All groups should have PowerPoint loaded onto computer for presentation immediately after lunch.

Reconvened at 13:35

Lovell reconvened group, introduced groups.

Microbiology and Geochemistry Working Group

Colwell presented.

Presentation interrupted by lion cavorting on screen.

ESO: Holger: system is flexible enough to adopt future QA/QC issues.

Comments:

Houpt: All 3 data acquisition systems can accommodate capturing the QC parameters capable of implementing; retrieval will have to be on a request basis at the beginning of the implementation.

Core Description Working Group

Basile presenting

Suggestions: Detailed suggestions are found in the group's presentation. The CDWG

emphasizes the need to replace 'Measurements' in text with 'Measurements and Observations'. Also, dictionaries must be traceable as they evolve through time (there is a need to be able to refer back to dictionary as it was used at that time). Also, curation and other critical sample handling issues need to be included in database, via a time stamp on core splitting, etc.

Suggests 2 recommendations/action items:

Establishment of dictionaries is critical to QA/QC.

Content management by each IO should be monitored.

Petrophysics Working Group

Johnson presenting:

Contamination issues are an overriding concern, particularly in paleomagnetism (also extends to microbiology). There is a need to reorganize the QA/QC document to better define policies, and then procedures. More specifics are needed for review procedures of the QA/QC produced for each expedition. A possible solution is to have designated readers ensure that the document is read and understood. There is also a need to include a summary of the core sample state (such as wetted, dried, rehydrated) to trace sample quality through time.

Janecek: What documents at IODP aren't being read, because if that is the case, we'd like to be able to rectify that?

Johnson: We didn't have a particular set of documents in mind, but instead wanted to make sure that someone reads the QA/QC document.

Higgins: The expedition party would document the changes, which would then go forward. These should be captured early on so that they are part of the review process all along.

Lovell: Assuming that the proposals are acceptable to the panel, they will be taken to the QA/QC panel.

Neal: The suggestion for reorganization includes incorporation of a section on procedures.

Blum: core and sample handling should be included in the database; the panel needs to provide specific examples of these instances to ensure that they are included in the database.

Lovell summarizes Petrophysics suggestions. Are there any objections to the WG suggestions? Task force is asking for feedback, which will go on to SPC, then come back to STP for feedback. STP does not have to approve the QA/QC document.

Lovell summarizes Core Description suggestions. Proposing to change measurements to observations and measurements; ensure traceability of dictionaries as they were used; critical sample handling need to be addressed, possibility with time stamps (Basile will return to time stamps as a Action Item outstanding from the SF meeting).

Two additional recommendations are presented, on dictionaries and content management of dictionaries, which aren't suggested to go into the document but instead to go as a formal STP recommendation. Concerns that QA/QC should be mentioned in the IR (this is acknowledged by task force) and that QA/QC be available with the data (this is the ultimate goal but as Houpt mentioned, it will start out on a request basis due to scheduling issues). No

comments on the Core Description suggestions.

Lovell summarizes the *Microbiology and Geochemistry Working Group*

WG report in that they find the primary message of the report is implementable, although they will add a section by Inagaki on contamination and there are some questions on traceability and feedbacks. No comments?

SASEC WG Discussion and feedback:

Microbiology and Geochemistry (MG) Working Group - Colwell presenting

Assuming that a reduction is essential, the MG group believes it is best to have 2 meetings/year with reduced membership, using “expert witnesses” with input by video and teleconferencing but who wouldn’t necessarily have to travel to the meeting.

EDP and STP should be sequentially linked but there is no benefit to having them at the same time.

A welcome packet for new and temporary members would be useful for new members.

Longer terms may be useful for those with useful information, and shorter terms for the remainder or non-producers is also an option.

Core Description Working Group- Basile presenting

Membership size should stay the same with the same status for all members (i.e. no electronic vs. attending members). Attendance and frequency at meetings is important, but is agenda dependent. One a year, or one / two years is possible, with in between meetings on an as needed basis. Shorter or longer terms are possible, depending on number of annual meetings. Electronic/ teleconferencing means of communication would be used to accomplish much of the work in smaller working groups or with full group. There is no overlap with EPD in agenda, with no cost savings. Meeting efficiency is improved with no wireless, and also separating it from other events such as AGU, since meeting in isolation fosters greater communication after working hours.

Petrophysics Working Group- Johnson

Lovell performed a Vanna White impersonation by holding up a white board with reorganization scheme for STP (actually this was the laser display board as used in I’m Sorry I haven’t Clue – see <http://www.bbc.co.uk/comedy/clue/>). They suggest 8 core members with a chair, VC, then a min of 2 leaders of each of the 3 working groups. The 8 core members would define the panel, with additional members providing input. Two models are presented. They note that having full panel consensus once a year is not enough, since events change so rapidly right now. Membership should not be fixed, and range from 1 – 4 years. There is little advantage to a combined EDP/ STP meeting. STP has a wide range of tasks, and needs a wide range of expertise.

Lovell summarized the main points.

Size of STP shouldn’t be changed due to large range of expertise.

There is no routine need to have a joint meeting with EDP.

Range of models for meeting times, with a range of options. But need to retain breadth of expertise as we enter phase 2

Neal: full membership is going to be reduced by 4 people, to 16, so we need to deal with it even if we don't like it. USSAC is reducing down, with after this meeting 6 instead of 7 US, then the following year, 5.

Johnson: STP needs proportional expertise.

Neal: That was brought up, but the budget mandates that the current size cannot be maintained.

Johnson: this implies they will relax the mandate for expertise coverage in STP.

Lovell: So if we need to reduce by 3, can we still cover expertise? If not, can we retain the current membership but not have them attend meetings?

Blum: if we go to that system, why not add more people to the set of people who are available on a between meeting basis.

Higgins: that would expand the number of alternates, since there would be a pool of candidates who have already engaged, at least electronically, in the conversation.

Basile: Is there is difference between electronic members and experts?

Lovell: apparently none

Houpt: A group could provide stakeholder support for IO ops.

Basile: CD group meeting model. During the last meetings, what questions can be discussed only by the core groups?

Lovell: looking back, could we have managed our agenda items using a set of core groups?

Basile: why not be able to do it all as an electronic means.

Johnson: the core group would function as filters to ensure only big issues go up

Christensen: that promotes the opinions of those filters

Higgins: rotate the people through the core group so eliminate that risk.

Lovell: there is no official leader for each working group; instead, choose the persons most appropriate to the task.

Castillo: this should be agenda driven

Christensen: an issue with the agenda driven model is that we don't have just one agenda.

Janecek: try to envision a model where you don't have to deal with everything? Maybe focus on one issue/ year? Once phase 2 is in place, it may be possible to de-diversify.

Lovell: this will come up again tomorrow as we discuss how to change our meeting format. Once in Phase 2 there will be more monitoring

Christensen: the single agenda items can be dealt with electronically in a small group.

Neal: it's hard to get people to respond to emails. Productivity and efficiency is a function of the persistence of the working group leader to get response.

Lovell: Basile and Christensen will summarize in a short document for the QA/QC.

Castillo and Johnson will summarize the SASEC WG report responses.

Documents should be prepared by lunch tomorrow (word document).

IODP Minimum measurements: discussion and feedback.

Petrophysics Working Group- Johnson presenting.

What are the costs of NOT making minimum and standard measurements? Enormous in terms of science.

If you aren't making the measurements you aren't fulfilling the goals of the drilling program.

Scientific lab equipments must be maintained during down time, ideally paid for by non- IODP contractors.

Minimum measurements were examined in detail, and the group decided they should not

change.

Core description Working Group- Basile presenting

Minimum measurements should be made on ship, but we recognize that this may not always be an option. We explored the consequences of a core recovery model (core catcher science). We do not see a benefit to delaying VCD and other min measurements to offshore facilities because of the major consequences to science, including degrading science, and impacting drilling decisions, for no cost savings. One member thinks VSP should be moved to minimum measurement.

Gorin: VSP is important, especially if seismic has been shot before.

Castillo: we focused on VCD.

Microbiology and Geochemistry Working Group- Colwell presenting

We focused on each type of sample individually.

Minimum measurements: should this indicate across all platforms? It infers that all cores should be split, which could be a problem for those who may need whole core rounds. The group feels it's imperative to split core to enhance coring objectives. No measurements should be eliminated. Even though its microbiology, all the other data are essential to place the microbiology in context.

Standard measurements: Move phospholipids to supplemental measurements and list under biomarkers, due to difficulty of measurement and cost to do so shipboard.

Add FIX some samples for microscopic cell counts, based on improvements to methods.

Include under Rig Floor, mud gas analysis as a measure (already on Chikyu)

Supplemental measurements: add CH₄ isotope analyzer and microbial activity measurements using radiotracers.

How do standard and supplemental measurements impact drilling decisions? Significantly, on 4 points.

Lovell: questions?

Suzuki: are safety measurements outside scope of STP?

Neal: safety is an expedition specific measurement but it needs to be made.

Basile: SF meeting discussion we noticed that depth was not a minimum measurement and it should be included.

Lovell: yes it should. In summary, the consensus is that overall the measurements document should not be changed

Christensen: our group agreed it would not like to see changes, but we did explore the consequences of changes that may be imposed upon us, such as core recovery only model.

Neal: We need to undertake basic scientific evaluation to meet objectives. We started to explore a core recovery only scenario. We need to fully explore the impact of not splitting core on ship, and come up with a means of evaluating the two end members, and also to evaluate incremental components in between. Let's focus first on the scientific aspects for the end member options defined by the IOs, then lets explore budgets.

Lovell proposed STP break out and revise work with specific examples of how it would impact the science

Neal: how would it impact us to go from just collecting cores, then split later (maybe years later). How would that impact science?

Castillo: Our group worked on that, and we considered the loss of ephemeral properties. Some expeditions require real- time data on core splitting.

Colwell: If we turn to this in small groups, let's look at current ISP and primary topics that are to be considered, such as "deep biosphere is to be evaluated" can we still achieve objectives by not splitting at sea.

Basile: the major scientific value of the program is the synthesis resulting from the scientific party working together. We need to retain the multi-disciplinary nature of the program.

Lee: consider reduced costs in project design and procedure, rather than project implementation stage.

Lovell: summarizing, it should be the scientific objectives that drive the costs. We need to return to the measurements again tomorrow. We should start tomorrow at 8:15, with panel members in executive session to discuss budget models for an hour. 8:15 for STP, 9:15 for IOs. Panel needs to read STP expertise document and rotation times. Everyone should read Status of STP items, coded into finished, ongoing with IOs, and ongoing among ourselves. That will provide foundation of discussion of our unfinished items. Four other documents should be read to summarize QA/QC and other matters.

Wednesday August 22

Meeting begins 8:15

Lovell introduced the executive session, emphasizing the goal of discussion of models for budget reduction. Janecek will sit in to provide information on a request basis. Lovell will step aside during ESO discussions due to his COI; Neal will lead.

Discussion focused on impact on science of budget- driven reduction in services. Some models for saving money were introduced, including obtaining at least a portion of technical staff from a pool of expertise (technicians already at other institutions; graduate students and post-docs).

At 11:10 Lovell welcomed full panel and liasons. Begin with Items 11, 8 and 9 before lunch; after lunch breakout groups will convene for discussion.

Agendum Item 11: Panel considers corporate history of previous recommendations and working group reports. Deal with outstanding issues from previous STP activities and Working Group initiatives - need breakout sessions to focus these before bringing closure. Create summary of various reports and investigations for future reference. (All STP Working Groups) Document: Status of STP Items 0708.

Two driving forces: 1) WG reports that are old but had recs and suggestions- we need to check on them. 2) STP has generated lots of statements so we need to revisit our history and evaluate.

Document is color coded to show Purple (closed); Yellow (ongoing but not our responsibility); Green: Items are ongoing and are our responsibility although some may be superceded by new ones.

Closed items: a large number (78) of recommendations and action items have been closed. The status of some of the items are generally firm, although some are undergoing closure at this meeting.

Ongoing Others: a moderate number (26) of recommendations and action items are currently being managed by other groups, although many of these are already closed or superceded (many items refer to ongoing topics and subjects, thus later versions replace earlier ones). Three working groups are listed; uncertain whether they are still inexistence (Tom).

Blum: Meville (IODP-MI Data manager) presented a report to the STP at the SF meeting that summarized working groups.

Neal: those reports were not final at SF; they are now online

Blum: not clear what the new guy will do

Lovell: do we need a consensus statement to ask for the status of the 3 working groups to IODP-MI. Castillo may have volunteered to do this.

Castillo: The reference is 0612-01, which is still in progress.

Lovell: New members: we need a list of consensus statements/ recommendations and action items at the end of the meeting. Use the templates to develop them.

In working groups after lunch, go through documents and look at items still in progress to see if any action (such as an action item to request further information) is necessary to close it out.

Ongoing STP: a moderate number (24) are ongoing and STP responsibility. Can we close

them off? If not, we need to task panel members with solving them.

Johnson: can the working group have enough information for useful feedback?

Lovell: each working group should have a corporate memory, or can be accessed through executive summary of previous minutes.

Neal: has minutes from previous meetings, with full recommendations.

Johnson: this is going to take a long time

Castillo: most of the recommendations will be within easily accessed within recent minutes

Lovell: we haven't been drilling and instead have worked with planning items. We need to tighten up our past activities so we can move to a monitoring phase in phase 2

Neal: comments on WG reports from the meeting: recommendations need to be followed up with progress reports, etc. to ensure nothing falls through the gap.

Kawamura: SF meeting consensus that STP should support the formation of Paleontology Coordination Group (PCG). This endorsement led to the convention of PCG, Aug. 12-13 07 chaired by Lazarus (Berlin) and Soeding (IODP-MI). This was a follow-up to the IODP Paleontology meeting in Houston (2006) at which three tasks were set up. The PCG approved this, and laid out a timetable.

Taxonomic name lists are under development using Janus and Neptune lists, and info will be inserted by expert pane. IT resources are needed and identified. The PCG will meet again in ~1 year to review the Taxonomic Name Lists (TNLs) and to make plans for development of dictionaries.

Blum: You mention that Synonym references will be included, which is an expansion of the basic TNL that was the ODP style. Evolution of taxonomy isn't incorporated in that system.

Kawamura: Because species concepts are variable, need to have synonym lists and it should be integrated into databases.

Suzuki: TNLs in Janus and Neptune is limited only to biostratigraphy and taxonomic datums (. After list is established, each committee from micropaleontology will evaluate set of synonyms.

Basile: will the same list be used by each IO?

Kawamura: that's the plan

Suzuki: we want all three to use it. We would like STP to make the recommendation that all 3 IOs use the same list.

Basile: how will the list be maintained?

Suzuki: Experts will be selected to maintain the list voluntarily.

Christensen: that's been the model (voluntary monitoring) for Chronos

Blum: we will need to add synonyms .We also have to make distinctions between viewing and updating content.

Blum: summary: contract workers cleared up Janus database working on a specific data migration that is being used by the PCG in merging Janus and Neptune TNLs. These folks had interaction with Paleontology Working Group (PWG) and PCG.

Lovell: do we need an action item to find out how database will be maintained?

Kawamura: approval of the agenda

Blum: we need the list

Kawamura: within 6 months or so; executive summary available in a few weeks.

Lovell: Christensen will write a consensus statement on receiving report, and asking for a timetable for getting information to IOs.

Castillo: Report on Action Item 0612-33. Ahagon presented a talk on the importance of

onboard XRF analysis. Precision ($\pm 5\text{wt}\%$) of ICP-AES analysis onboard Joides is problematic particularly with respect to silicon, which is the foundation for volcanic classifications. Action item asked for community input for a better way to do this at sea. ICP-AES vs XRD. Currently Chikyu will follow XRF as a standard, and SODV will use ICP-AES. These are consistent with QA/QC (allow each IO to choose). Solution is to use both, or force both platforms to use the same instrument (against QA-QC).

Neal: QA/QC is not intended to force specific instrumentation, but instead to ensure that all data are available for assessment.

Basile: will we be able to see the precision of the instrument used, in the data as it's presented.

Neal: we assume so

Houpt: for the silica example, for ICP-AES 4-5% is a good result, thus it's a method issue. Our intention is to report or estimate uncertainties with every measurement that will be collected, although that's not an easy task. Any standard run outside of regularly given precision values would be flagged.

Neal: the issue isn't insurmountable.

Blum: it would be fine to make a recommendation of one instrument over another (e.g., XRF ICP-AES). The existing instrumentation is a function of budget the SODV was supposed to sail with a new XRF and new ICP-AES.

Basile: Presentation on Time stamp for measurement and procedures 0612-27. Referring to ephemeral as lasting for only a very short time, or transitory, he examined which of the min measurements are ephemeral. All but biostratigraphy, smear slides and thin sections are impacted. The issue is the amount of time that elapses between coring and analysis, for example changes in oxidation of rocks will impact magnetic properties. There should be a time record for each computer driven event (and that requires synchronized clocks). The VCD should have a time record of the time it was entered into the computer, but there is no time record for many, such as photography (what is the delay between core splitting and photography) and phys props measurements (how long after the sample was collected was it analyzed?).

Time is not a minimum measurement but time tracking should be incorporated into QA/QC procedures. This should also extend to curation (such as core splitting etc).

Christensen: does VCD get a second stamp if there is a change?

Houpt: yes

Blum: this a new way of looking at it. How do we distinguish between the time data was captured and the time it was entered? If you want to have a time stamp of the event (such as core on deck or core splitting) you may need to treat time as a measurement.

Basile: Much of the information we are after is status of the sample, such as wet/dry sample? Can we have a column for entering the measure to click on wet or dry

Blum: if we do a measure, wet or dry is just an attribute for quality control. Later you won't be able to find out when it changed from wet to dry, in terms of time, unless that is a measurement that you seek to take.

Basile: this can be simplified by asking if sample is wet or dry, taken a few minutes or hours or days before (a simple measure, as opposed to the actual time of action)

Houpt: what resolution of time is required for a given parameter. If you are taking one sample, you can get the time within a few minutes. If you are taking 500 samples, the records will either be rected ahead of time or after the fact, and you'll get a time range.

Neal: there is in place on the SODV for recording some time stamps, that may not be perfect. On the Chikyu, is there a similar way of recording time of analyses?

Aoike: time is recorded on PC so yes. Time stamps such as curation are an implementation issue.

Neal: measurements have a time stamp. Observations don't have a time stamp (e.g., Wet or dry when you weight it). Time you measure the data may differ from time you made the observation.

Higgins: no one has evaluated this in terms of core flow. Do we need this? Sample preparation should cover this (e.g., leaving long time period between taking sample and measuring it).

Lovell This is an important issue, but requires a huge investment of effort (e.g. Core on deck, core cut, core split, etc). Other issues, including wet vs. dry. What is dry? What is wet? Is there empirical evidence that our data are poor because of the lack of time stamp.

Higgins: moisture and density measurements should be in QA/QC of the individuals. Others are necessary such as core on deck and core splitting.

Basile: be aware that observations aren't time stamped and should be managed as it can be.

Haupt: time stamp is essential information, of both the time it was measured and when it was uploaded etc. Time stamps can be added to some things in the future. We are also addressing time synchronization on ship

Lee: Magnetic susceptibility data are also available in core logging, so we can use that to make comparison for data quality.

Lovell: recognition that your ideas are important, and that time tracking should be incorporated in QA/QC,

Basile: we did it already in the week.

Lovell: Basile will write simple consensus statement that it's been taken care of .

Two things to do in working groups this afternoon, returning at 13:30 to same rooms. As WORKING GROUP, look at any outstanding items from last meeting in terms of reports, and go through these lists quickly to identify action items and consensus statements pertinent to your working group, for ongoing STP and ongoing Others. Note which need follow-up with a goal of identifying if something is happening on that item. The second thing to discuss is item 8, scientific measurements and costs. This is a continuation of yesterday's discussion on the topic.

Neal: look at min, standard and supplement, and revisit them with respect to drilling decisions and loss of science with loss of measurements.

Lovell Also, we'll add depth

Haupt: And justifications as to how?

Lovell: yes include the why and how to show that it's scientifically driven.

Break 3:00 – 3:15

Reconvened 3:20

Lovell: Need to follow up on our follow-ups with Action Items or consensus Statements.

Lovell: presented ideas for potential SAS meeting locations, pointing out that the the majority as currently scheuled would be in Europe. He also requested input for expertise document.

Williams: Presented PP WG. Two types of drilling decisions- scientific decisions and drilling safety/optimization decisions.

Assigned them high/medium/low priority.

Minimum measurements: split core photography was not needed for drilling decisions. They include downhole logging even though the hole is already drilled, as it is useful for future holes on the same expedition.

Neal: have you moved any measurements between categories?

Johnson: it's where it was.

Neal: this isn't the most efficient way of addressing changes.

Johnson: we tried to examine what was useful for drilling, and realized that many of the standard and supplemental measurements were useful for drilling.

Neal: what we want is to get a revision to the measurements document.

Basile: this is minimum for drilling decisions, rather than science.

Higgins: How do you emphasize any subset of the measurements without knowing expedition? You can make the case for every measurement for at least some expeditions.

Lovell: want to know what can justify retaining measurements.

Higgins: What model are you asking the questions under?

Neal: look at standard and supplement measurements and determine which would impact drilling decisions.

Higgins: CD WG determined that standard and supplemental measurements aren't going to significantly impact drilling decisions.

Basile: every minimum measurement has an implication on drilling decision, with core photography having lesser value for drilling decisions but very high for science.

Christensen: are we suggesting that making decisions on standards and minimum measurements based on drilling decision?

Gorin: this is a means of retaining the measurement (For scientific reasons) but justified on the basis of drilling decisions.

Neal: presentations are abandoned in favor of revisiting measurements document. As a start, we talked about adding depth as a minimum measurement. Where there any others that should be added to the minimum measurement category? No. So, on to standard- should any be moved from Petrophysics?

Basile: possibly grain size but that's a later decision

Johnson: how round core photography not useful for drilling

Neal: let's stick to just moving category (to supplemental or to IOs).

Higgins: there is little evidence to support an XFR scanner as a shipboard measurement.

Blum: if you do something like that, you need to redefine standard measurements. The standard measurements come from facilities that already exist on the vessel.

Gorin: VSP should be moved to minimum measurements if seismics are run.

Higgins: there are previous recommendations for moving VSP to a more regular part of analyses.

Lovell: comments on right may not be carried forward.

Higgins and Lovell: MSP can't do VSP so it's not a min measurement since the MSP can't do it.

Johnson: VSP is mission specific.

Higgins: EPCAP cruises are not doing it. VSP may be mission specific but it's more widely viewed as a regional tie in.

Johnson: essential for hydrate leg.

Ge: Engineer has a concern about borehole waiting time, linked to VSP measurement.

Neal: It should be on a case by case basis?

Gorin: it's a function of hole condition

Neal: retain VSP in standard. Microbio and Geochem.

Colwell: Changes for microbiology part. Phospholipids should go to supplemental as a biomarker. Add fix samples for microscopic cell counts.

Changes for rig floor: add mud gas analysis.

Lovell: isn't mud gas provided routinely through mud logging? We could restate it as mudlogging (including gas).

Neal: fix sample requires a certain procedure, which leads to better control on data.

Lovell: therefore, Colwell should write a consensus statement on the changes.

Neal: supplemental measurements: any changes?

Lovell: remove last 3 lines of last paragraph of supplemental measurements section.

These seem inappropriate as budgets are changing.

Johnson: we talked about it but didn't come to any conclusions.

Higgins: downhole tool comment is wrong.

Lovell: the comments column should go away completely.

Calwell: add microbial activity meas using radiotracers under supplement. Inagaki suggested adding analyzer.

Neal: that's something to put on the technology roadmap. Keep it separate.

Colwell: asked for clarification on what aspects to add to the consensus statements.

Neal: in existing document, some changes need to be made, including to the descriptions under the categories (esp. supplemental). Callwell wasn't there a change to minimum measurements?

Neal: Modify statement because it doesn't reflect microbiological goals. The defining statement should be "understanding the stratigraphy and texture allows more informed drilling decisions to be made thereby enhancing science objectives; cores should be split except where science objectives specifically require the collection of WRC"

Lovell: this requires splitting the core. That requires a certain ship (not MSP) and staff. Although IODP min meas don't have to be done at sea, Rick was implying that it be done at sea. MSP allows it to be done in Bremen, but not on the platform.

Neal: we'll need to refine the statement

Colwell: main point is that in situations where microbiologists would require a section of whole round core we don't routinely want the whole core split. Could be explicit in stating that "in some case, microbiology doesn't require it".

Basile: Whole round cores have been done many times, and if you put it in min meas it must be done

Lovell: this is a sampling issue rather than a measurement, and we don't refer to when or how core is split. That's a science plan issue, which is IODP-MI and cochiefs. There doesn't appear to be a threat to microbiology.

Calwell: the statement could have been an overreaction to the implication that all cores will be split.

Summary: can we make the word more strict.

Colwell: has encountered issues where all cores have been split and whole rounds aren't permitted.

Gorin: how about adding a comment?

Lovell: add sentence, While usual practice is that all cores are split, there will be occasions where the science plan dictates whole round cores.

Blum: Or add "unless it is otherwise needed in exceptional circumstances.

Lovell: we mustn't open the door to allow cochiefs to not make measurements in exceptional situations.

Janecek: insert a check that it requires approval

Neal: do we have consensus amongst the panel on this? The intent behind these defining measurements that can affect drilling decisions was to look at standard and supplemental. We are looking at trying to define measurements within standard and supplemental categories that impact science by their impact on drilling decisions. Different groups have looked at this differently. The goal is to make sure that we don't cut a measurement that may have an adverse impact on science due to drilling decisions.

Basile: it is usually a case by case basis

Neal: once is enough to affect drilling decisions. But not all impact drilling decisions.

Higgins: I don't see the connection. If you have the capabilities to do it, they will or not exist on a given platform. It would be identified ahead of time.

Lovell: we are looking at 2 things. We just revised IODP measurements and can send it on, without the comments column. Great step forwards Second issue: given the list of measurements, and given models for budget reductions, there is a situation that could arise in the future when we have financial difficulties, and how do we cut them off. For example that happened in NJ. We'd rather have the data but we can't afford it. IT may be on the cost of the measurement or equipment, but is there another way of looking at the categories, by identifying the importance of each of these elements and how they may affect other decisions.

Higgins: trying to predict a priori is a difficult thing to do without a science plan in front of you. The bigger problem is how to adapt to a mid-size model. How can you rank it?

Lovell: identify things that may influence drilling as a means of helping to prioritize decisions about budget.

Higgins: you can always find examples of something that will help you, and the data may have been useful.

Neal: if you couldn't get those data quick enough to make the decisions, then was it useful?

Basile: we discussed measurements that affect drilling decisions. WE didn't go through how cutting it would affect the science. It is of concern to make potential cuts based on drilling decisions, without integrating science impact.

Lovell: each group has evaluated them. Please make up some brief notes as a stimulant for further discussion to next meeting.

Basile: our group has little impact for standard and supplementary.

Lovell: Christophe will write that up.

Johnson: PP WG write up is already in.

Lovell: Afternoon's achievements: gone through outstanding items with associated list of action items and consensus statements. Need to allocate some people to help Rick revise IODP measurements document. Gorin will assist.

Neal: I will do it, with Rick and George's input.

Lovell: Move to Item 9. Review of STP meeting format. The proposal is to change the format into 2 meeting/ year, whereby one meeting deal with regular reports and the other considers future issues and planning, technology, etc. Example is VSP and clamping in the boreholes.

Let's revisit yesterday- SASEC WG report led to discussion about meeting size. Should STP reduce its size? 3 models (Refer to document)

Model 1: 2/yr with reduced membership.

Model 2: a 1/yr with full committee
B core group meetings 2 times. Year

Model 3 all meet once/year

Suzuki: the USA has already decided on the reduction? Is it decided or suggested?

Neal: it's been formally decided already.

Suzuki: so doesn't that mean we have no choice to retain full memberships.

Lovell: after this meeting, US will only have 6, then 5 next year.

Kawamura: J-DESC is coordinating with USSAC

George: ECORD will remain as 4, with 3 voting members.

Castillo: the models presented include that reduction.

Lovell: let's go to the idea of adjusting our agenda, as the EDP has changed. This was put forward, though, before the SASEC report. So if we decided to shift the agenda to 2 different agendas, that implies whole panel meet 2x year. Change in format, not number of meetings. If we adopt this, that will help.

Janecek: given the reduction in force, that supercedes the request to reformat, and you'd probably want to come up with a format of the STP choice that meets requirement in people/meeting/year, but also search for a means to improve efficiency. This older proposal doesn't need to be retained.

Lovell: We need to take a longer term view, to begin to define what a roadmap may look like.

Castillo: Based on previous meetings, what % is devoted to long term?

Lovell: we have spent the last few years on design for both the Chikyu and the SODV. Under ODP, working groups were in close dialogue with the cruise staff. That's changed. So we are in a new phase. We can expect more condensed and more expedition focused reports from the IOs in the future. Try asking this question- can anyone remember a meeting when we didn't have a full agenda? We always have a very full agenda. Is that because we've generated too many action items, and recs?

Which model is favored: 1,2,3.

Basile: model 2 has many problems. Most agree (by show of hands)

Saito: if we've adopted the 554 model, why would we reduce the core further?

Lovell: not sure

Gorin: having a core group impacts agenda because of expertise issues.

Johnson: can increase efficiency, but would result in 2 tier membership

Neal: we are considering a reduction, but we have serious concerns with all models. I prefer model 1, through forced reduction, and no likelihood of a reduced agenda.

Suzuki: if it's limited to core groups, we forget to enter into agenda. Model 3 is a problem with progress on action items. By default we are left with model 1.

Gorin: the number of members is a forced reduction, but most if not all of the expenses are paid by the national IODP. These are cost reductions that have nothing to do with IOs. Maybe IOs should cut costs by reducing liaisons.

Lovell: is there going to be a reduction in IOs attending? But even with a core group meeting, we'd still want some IO representation.

Colwell: model 1 could cope the best with the existing degree with which things must be discussed, and that probably won't change soon.

Saito: summer/winter meeting concept. If we choose model 2, which would be assign?

Lovell for model 2, the big meeting would be the summer meeting. Also, if people don't attend how would their memory be impacted if they don't attend a meeting for another full year. When I send emails out, silence occurs. That is understood since we are on voluntary basis, but electronic communications are difficult.

Basile: model 2 new people will not be in the core group.

Lovell: it seems that we are in favor of model 1

Higgins: one aspect of model 2 is to have a larger, non-core member of people to draw from that would aid in flexibility.

Lovell: that can be done with model 1, and still retain additional members electronically.

Higgins: you wouldn't then have to reduce – it would work as an in between?

Basile: model 1 will still allow you to attend, but fill in with expertise.

Johnson: if things get worse before they get better financially, there will be a need for frequent meetings (2x year). Once every 12 months doesn't seem like enough.

Christensen: Filling in expertise on a one time basis would probably be difficult to work efficiently.

Lovell This echoes Christophe's statement that it takes a few meetings to come up to speed

Naruse: In Japan we already have a pool of expertise to fill in.

Neal: Let's talk with the alternates about this. Oda-san, do you feel you understand everything

with all of the issues? Has it been difficult to grasp this?

Oda: I was on the committee in Japan for 1 year, then absent, then asked to come to STP as an alternate.

Neal: with that experience what is your preferred model?

Oda: once a year is not practical because we lose a lot of memory, and also we need to be flexible because non-IODP cruises require flexibility in decision making. Twice a year is necessary. Core members meeting makes it difficult for the newcomers to attend. Need a buffer to train.

Lin: if membership reduction has already been decided, I'd say that model one is best. The meeting style, with one for future and one for current, is nice but the future meeting should also deal with extant items.

Ge: Model 2 may be built on basis of most active members, which isn't that different from Model 1. Those folks may need to have a longer membership.

Suzuki: what is the difference between Model 2 and working groups.

Lovell: Model 2, core group is from different disciplines, but working group is from same group. Other groups don't seem to be moving from 2 meetings.

Ikehara (Kochi): It took me a while to understand, so it takes some time. Meeting two times is important.

Lovell: overall the majority is in favor of model 1, although there are some arguments for model 2. We need a consensus statement on this. But we also need to deal with proposal to change agenda. Summer: future and long term. Winter: look back and examine status. IOs, do you have a preference for us to look forward in summer or winter?

Blum: we don't have a preference.

Haupt: Program planning begins in Jan.

Blum: Development planning would have a different schedule from program planning.

Lovell: If we have two meetings/year, which of the 2 should look forward or back? When the IOs schedule finance planning, should we look forward in summer or winter. Peter said it's complicated with no easy solution.

Neal: I rudely didn't call on Lee to give his opinion on models.

Lee: In opinion, expect ESO, Japan, and US to reduce numbers.

Lovell: CDEX and ESO, is there a preference in terms of when we look forwards in terms of engineering development? Summer or winter for proposals to purchase or develop?

Matsuda: earlier the better

Janecek: only asking part of the question. It's allocation of development, and may be allocation of resources of resources in general

Lovell: what do EPPD do?

Janecek: they look more than one year out, so they began this summer to look forward, with winter to look back.

Kuhlmann: ESO it depends on when an expedition or an onshore phase may take place and that may occur any time during the year.

Higgins: it will be hard to change from the current format, because of the need for the watchdog role,. Also there is unpredictably about when an MSP when occur. The format may not fit well, although some aspects may work.

Johnson: can we have it in the spring and fall.

Lovell: we have report to the SPC which meets them.

Blum: I'd like to echo Higgins's comment, that SPC will have a hard time separating. Although there is the assumption that some of each meeting would be set aside for emergencies.

Lovell: We would like to focus on the main part of the meeting looking ahead (or behind)

with some of the meeting focused on urgent issues. We will write a consensus statement that we implement a summer/ winter format.

Agednum Item 7, development of a prioritized scientific technology roadmap.

Under the new meeting format, we'd develop that draft in one year from now (Summer), meaning where we'd want to go for expeditions planned or proposed. They may be tied to big items such as engineering; some may be smaller and tied to personnel for writing manuals or QA/QC.

Neal: Roadmap presentation. (reference to PowerPoint)

Slide 1. 8 legs are currently scheduled, with no major technology issues.

Slide 2. There are a set of proposals with SPC. Technology may be 3rd party tool. Note that the number of proposals is increasing.

Janecek explained how SPC rankings work. Each member ranks them from 1-n, so lowest number of mean is best.

Slide 3. Some of the possible technology issues include development of new technology (isotope analyzer), third party tool development (magnetic such), LA ICP-Ms, local crustal structure (STP 612-17).

He suggests putting ideas on a roadmap list, so we don't lose it through the cracks of a busy agenda.

Kasahara proposed local crustal structure and it will be lost, unless it's on the roadmap.

Rick: are these technologies we are aware of. Can we query science leads of upcoming cruises to begin to find out what they need?

Lovell: EDP has done this by producing a leaflet for proposals. This is a general way to invite communication

Blum: EDP has struggled with the 3 separate issues of the roadmap,

Castillo: proponents need to write if there are technology issues, which will be flagged early on.

Lovell: that's at the SEP stage. Looking at the EDP roadmap, aims are very generic.

Basile: splitting soft core should be added.

Lovell we know we have a problem with soft core and we need to discuss it.

Wrap up.

Panel members at 8:30 for executive session. We will format consensus statements at 8:30.

All talks in the morning. Three: one on laser granulometer, one on mag core barrels, one on leakoff tests.

Meeting adjourned at 5:15.

Thursday 23rd August 2007
Convened at 8:30.

Panel worked on finalizing Consensus statements and action items.

Break at 9:15 – 9:30.
Reconvened 9:30.

Lovell reviewed the rather full agenda, and noted the panel would run overtime, finishing by 3:00 pm. Three presentations will be made, followed by discussion and executive session.

Presentation on Laser Granulometer, action item from SF meeting. (Naruse)

Issues include the difficulty of obtaining consistent results for grain size for VCD (e.g., silty clay versus clayey silt). Laser methods can measure a wide range of particle sizes, quickly and with very high reproducibility (1%). Requires removal of organic matter using H₂O₂. JAMSTEC has instrument already.

Problems include possible issues with accuracy within mixed material (e.g., mixed siliciclastic and carbonate sediments), unknown issues associated with vibration onboard, and cost is not low (~\$70k).

Johnson asked about flocculation. Hajime-san noted the procedures are automated, and he and Gorin noted they include deflocculant. Colwell noted that grain size analysis is also very important for microbiology, and that while the instrumentation cost is not cheap, might that cost balance itself out due to high numbers of samples that can be analyzed? Hajimi responded probably.

Basile presented a complementary presentation focusing on the science issues related to grain size.

Summary: Granulometers are an important tool for sedimentologists but it is not used by IODP. This is in spite of the fact that it is very important for paleoceanography (e.g., clear relationships between grain size and oxygen isotope stratigraphy). Grain size is a hidden min measurement: core and smear slide descriptions. Leg 303 explanatory notes indicate the need for accurate measure of grain size and abundance (classification depends on knowing relative abundance). Smear slides provide a qualitative estimate, but this is an insufficient method for clay especially. Usually grains are treated as either fine-grained or coarse-grained, which is insufficient. Leg 184 identified glacial increases in mean grain size, with the majority of the change within the silt fraction. This is information that would be lost with only quality measurements. Such a result onboard might allow for a very high resolution time scale onboard. It would also allow for comparison with gamma ray, magnetic susceptibility, etc. Size of the instrument is not a limitation onboard, and the time required to run it is very small, similar to the amount of time it takes to create a smear slide. It can be run by scientists or by technicians. It has a very high scientific value for sedimentological processes, and would provide the same level of improvement in classifications that ICP-MS did for petrologists. Because of budget issues, it may be worthwhile testing a shore based machine for science and technical issues.

The discussion that resulted was in support of the concept but identified significant difficulties in the associated digestions often required. Johnson asked if it was well accepted

in the scientific literature, and Basile replied it is. Castillo asked about smear slides, and analysis of mixed lithology. Basile replied that smear slides are always necessary and will be retained but that the granulometer gives important other information. He continued that mixed lithologies are easily dealt with, because you can remove the carbonate fraction. Christensen asked if they'd investigated the X-ray based instrument, the Sedigraph and Higgins noted it is more widely used. Janecek brought up the issue of procedures. He noted the use of grain size is mostly for siliciclastics and that what you'd be measuring at sea on a paleoceanography leg would require removal of carbonate, biogenic silica, organics to get grain size on siliciclastic remains. He suggested there is uncertain value of performing this measure on a bulk sample and that the shipboard utilization may be restricted to siliciclastic-based paleoceanography legs, with good sample procedures.

Basile pointed out that we need to have grain size, and Higgins noted that review articles on grain size values depend on instrument used, and are probably not useful for shipboard. Blum noted that while it would be great to have it out there, different results give different techniques, e.g., automatic deflocculant procedures. He stated that sample preparation is key, needs standardized preparation techniques, with great effort going into analysis. He noted that the SODV had a laser device at sea for 2 legs and it was removed; he said the rewards are great but may be more appropriate for shorebased research. This was seconded by Houpt, who noted the driving factor is the technique of the operator.

Blum also noted that IODP drilling recovers sediments that are impacted by diagenetic effects which will alter the results.

Neal added that this is a promising technology, but the procedures need development.

Basile noted that while we need to be able to use it onboard, there seems to be a lot of technical concern with this method., and it may need to be put on the technological roadmap. Neal agreed that adding it to the technological roadmap will allow us to keep it in mind, and Lovell stated that we can discuss at the next meeting, whether it should be on the roadmap.

Basile noted that by then the Chikyu may have tested it.

Lee asked for clarification, and received, that laser reflection depends on grain size and composition.

Johnson noted that this is an example of a potential problem where the numbers would get into the IR, but be meaningless without the QA/QC.

Neal thanked Naruse and Basile. Lovell introduced Lin.

Presentation on feasibility for application of downhole measurement (Lin)

Lin presentation on LOT (leak-off test) and XLOT (extended LOT) methods

Allows measurement of stress in sediments that are cored which is very important to understand in the seismogenic zone (stress is the driving force in earthquake propagation; key to understanding).

LOT= leak-off test and XLOT (extended LOT) are used to determine mud pressure, on rise drilling (and continental), and provides a useful scientific measure. Mud is injected and may create a new fracture. Science of interest is the change in pressure during pumping; drops in pressure are interpreted as creation of fracture, or propagation or closure of fracture. Pressure data is an estimate of minimum stress. Testing was done on Chikyu Shimokita shakedown cruise last year. Determined min horizontal stress, and vertical stress of rock units. This has important implications in understanding rock response to stress, in earthquakes. But, it's hard to do this determination and it's of low accuracy for deep drilling

Neal asked for clarification of deep drilling, to which Lin responded >1km.

Lin continued the presentation. XLOT has potential. And it doesn't add any cost. He requests STP formulate a recommendation to do this, and it may be a supplemental measurement.

Comments:

Gorin noted the oil industry uses LOT as a standard and that it is key to understanding how much mud should be used. The time it takes to do a LOT vs an XLOT is minimal (10 mins). Is LOT not standard practice?

Saito agreed it's an operational requirement. Gorin: so if it's being done it will only add 10 minutes. Lin: it takes 20 – 30 minutes. Gorin: make it a standard or minimum measurement in the case of an earthquake investigation project. It should be compulsory.

Suzuki: A clarification to Aoike and Matsuda. Lin wants to make sure these LOT data are distributed to scientists. Ge: LOT and XLOT are now standard procedures, for cement quality and to understand the stress of the formation (density, and other parameters). The justifications then are for drilling safety and scientific value. The limitation is that it can only be used in a cased hole, followed by an open hole (3 m). Neal: seems that the data are being collected for the LOT but the XLOT is not run all the time? Do you have to ask to run that?

Lin: yes. Gorin: 15 min is 15 min downtime.

Neal summarized the issue by asking if standard safety practice is LOT, so we'd endorse that XLOT if done routinely on riser drilling down to 1000m since we heard below that it's not very accurate. Is that correct?

Lin: XLOT is best. LOT is also useful for stress measurement. I suggest the choice be a function of the feasibility of investigation.

Suzuki: last slide please. The most simple recommendation is that CDEX should prepare a statement to the scientists about this.

Neal: time constraints mean we can only hear from Ge and then Janecek

Ge: these are test made by the IODP so maybe we can use pressure meters on the pipe downhole to increase accuracy of these measurements.

Neal: need to look into cost

Janecek: operational aspects of nanotrosize is overlooked by a management team. We are spinning up Riserless aspects, but a recommendation from STP is timely and useful. We' are discussing these now and will probably include them.

Presentation on non-magnetic core barrels (Oda)

Lovell: this was discussed in Boston. STP recommended that we use non- magnetic core barrels. SPC did not accept it and would only recommend they not be used, not required.

Johnson: why

Lovell: cost limitations, and some of SPC felt you still got a magnetic overprint by bringing core up through the pipe, thus the cost isn't worth it.

Oda: 3 types of CIM (coring induced magnetization)

Coring induced magnetization (deformation, magnetic field [IRM], deformation + magnetic field); APC and core barrels are magnetized. Deformation of core during piston coring (APC), but this can be restored by calculation

IRM: in presence of strong magn field, seds can pick up additional magnetization, but it can be removed by demag easily.

The combination of these two is serious, and can cause a stable magnetization that can't be completely removed by demag.

On APC, bottom hole assembly is very strongly magnetized.

Data from Leg 202 (Lund et al. 2003) demonstrated a 2-fold increase in magnetization of samples when using a mag core barrel, with magnetic and non- magnetic core barrel used

alternately on holes in core. Data show with non magnetic core barrel there is a low intensity, but using magnetic core barrel, intensity increases. Cannot remove the overprint and still retain useful magnetic signal, particularly if you are interested in understanding magnetic polarity.

There has been 2 non-magnetic core barrels used on the JR, and the Chikyu is considering it. At least 2 should be ready for paleomagnetically important expeditions.

Johnson: this is not a new problem and its an issue that we've been struggling with for 30 years. The last recommendation is very reasonable.

Lovell: IO update please.

Blum: WE consider 2 nonmag barrels a must, and would like to aquire more.

Lovell: CDEX?

Aoike: CDEX is just considering with respect to the core barrel. For nanrosieze 1, we will provide a nonmag cutting shoe.

Lovell: you hope to acquire it?

Aoike: probably.

Johnson: if we go for more non-magnetic metal, it's not optimized for physical properties, therefore you induce risk.

Neal: eso?

Kuhlmann: we didn't use them so far, and if we use them in future it will depend on drill rig and barrels in the future. It depends on cost and availability for rig used.

Lovell: after this, should we make the recommendation to thank Oda-san for his presentation, and encourage CDEX and ESO to use them whenever possible. Acceptable?

Agreement from all: YES

Lovell: we will take a 5 minute executive session to discuss budget model draft.

10:50 coffee break, but panel stays to go into Executive Session.

(Grumbles from all.)

Lovell: Review of Budget Models draft 4. Need to agree to the text on the budget models, and after the coffee break, present to the IOs.

Editing ensued. Text was agreed upon.

Executive session ended at 11:45. Break from 11:45 – 11:55.

Lovell presents STP Budget Model Statement to IOs; comments by the IOs follow (Change AI at the end to a CS; Lovell requests information before the next STP meeting):

Lovell: Presentation of the STP response to the budget reduction models. This follows the presentations by the IOs, and we have had considerable discussion. We did not have enough time for full discussion and we need more information. We realize we could have had the information if we'd asked, and we are going to ask for this. But likely in a different form. Our response is in the framework that we welcome the information you've given but that we need more information to evaluate and make decisions.

-Document is read to IOs, deferring questions until later.

Below are the comments Lovell made as he described the document, by paragraph:

Paragraph1: We are not saying we have not been able to get the information.

P3: fewer expeditions will allow us to make getting good scientists to staff the platforms easy;

we consider that it may be able to exchange technical staff between platforms, with a benefit.

P4: to cut the number of scientists dramatically would not help the science

P8: tech support staff: with students, we are not suggesting they replace techs, but supplement a part time staff. With techs, we are talking about staff who would normally sail on other cruises doing similar work. For the CDEX models, the day to day costs may be higher, but lower annual costs.

P10: safety measurements are implicit in all three models

Action Item proposed but realize it should be a Consensus statement:

a) Standard off the shelf improves the likelihood you could use a person from the community to staff it, as opposed to a propriety instrument that may require special training.

We do not want extensive spreadsheets that give very detailed information. We'd like to have a simple presentation of the data to make it as painless as possible but as useful as possible. We realize it's not what we'd hope to achieve but we haven't had time to discuss it fully. We got presentations from the IOs only on Monday. **We need this information before the next STP meeting.** Comments and discussion?

Higgins: from the IO side, we provided the information requested by IODP-MI, and it's up to IODP-MI to determine what's requested.

Lovell: we are not saying the information isn't there, and that it isn't sufficient, but that the information is not in an accessible format.

Higgins: this is a rewrite, as a summary. The equation has already been answered to show there is no cost savings.

Lovell: Summing up STP discussions, I disagree. The IOs have provided us with ballpark estimates for specific approaches to savings, and if IODP-MI and SPC want us to seriously consider cost savings then we need detailed information.

Blum: the data are available, and you are asking for details, but not full details. We tried to filter it, by boiling it down the essence as requested.

Lovell: could the spreadsheet be circulated to all panel members, and we'll boil it down. So far we've had no detail. But so far, we've only been given a glance, and not detailed access. So far we've gotten ballpark, and interpretations, and we're being asked to say yes or no to a global interpretation, and we can't do that without detail.

Blum: we didn't send spreadsheet around. We can get the spreadsheet into an appropriate form and send it out, but we need the information.

Neal: it sounds like we're going to have to request all the detailed information from CDEX, ESO and USIO to analyze the data ourselves, especially since the assumptions aren't all the same.

Janecek: given that you won't be meeting as a group until Feb, and this process will be rapidly evolving as we learn more about non-IODP work, you may want to start with the first line of the consensus statement. We, IODP-MI and the IOs, can discuss what level of data is necessary for STP, including applying filters. I accept that there is a problem between too much information and not enough.

Lovell: it's important to note that STP did not request any of this information. It came from IODP-MI. We're in the middle. We're being asked to conduct an analysis without having been able to ask the question. We back the full service reduced model, which you all proposed, but we are relying on funds that don't exist to back that up. Tom we recognize there is an urgency here, but it's likely that the non-IODP work will come through. The danger is later on, if the oil industry crashes, and we (IODP) want to be prepared.

Neal: IO input on Tom's suggestion? When is that meeting?

Janecek: meeting isn't scheduled yet, and may be multiple. It's evolutionary process as we learn how it will all fit together, because we don't know where it sits. This document will provide a way forward and allow us to get the answers we'd like to get as the information becomes available.

Neal: We'd still like to hear from the IOs.

Blum: more than happy to provide the information. It is a complex picture, because we have multi-tasking expertise requirements. We can establish clear guidelines and filter requirements, but it can't be just an executive summary because that is what you got.

Neal: we got a lot of information that let us make the decision on our preferred model. The big IF is the extra money, and we were given information that if we don't get that money it's difficult to even get core. We looked to the two end members, core recovery vs. full service and we explored the in-betweens, hoping to find some additional options. That's what this document is about.

Janecek: a different way to frame it, with a reduced service model, if that funding doesn't come in, what are the alternatives other than reducing operations. Is the same number of operations, with reduced service, is that viable?

Neal: exactly. We want to be able to evaluate the science cost associated with reductions in service.

Lovell: ESO or CDEX

Matsuda: This is a large request, and will take time. A big question is what will happen in the in-between time. I have to start thinking about that. We don't have an action plan for that situation- what kind of contract should I make to companies that use Chikyu to balance maintenance costs with recovery time., what are the costs. It's complicated, not easy and will take some time.

Kuhlmann: the greatest challenge is probably to find a format that provides the information, that includes the ifs and assumptions, without providing all the fine details. Giving you the information without everything that is behind it, but providing you with the information you need for flexibility you need for mission specific decisions. With IODP-MI guidance it will be helpful

Lovell: remember this is going to IODP-MI and SPC who may reject it. We have done what IODP-MI requested and this is our response. We are trying to find a way through difficult times, by identifying mechanisms to maintain science.

Janecek: this is useful as we work toward operational models over the next few months. We now know the type of information that the community wants to know, which is perhaps different from what IODP and the IOS considered. There are viable answers to many of these issue, these are thing that concern the community and what they want to know, why we choose to make measurements one way over another. This is very useful in taking this forward for the next 3 years.

Blum: off the shelf versus custom built is difficult. Often, there are some instruments that need to be built. What bearing does it have on costs? Why is it on there?

Neal: issue is if it's off the shelf and requires a lot of training, that's important for the models we suggested (grad students wouldn't be able to do it). If it's custom built, maintenance requires a technician rather than port call maintenance. What we really asked is equipment and additional maintenance costs.

Christensen: isn't there also an issue as to whether these are still under development?

Neal: if the instrumentation is still under development it should not be a minimum measurement.

Lovell: we'll break for lunch until 13:15, when we'll reconvene for a general meeting. We'll

close the meeting by 14:00 for an executive session.

Reconvened session at 13:25.

Ge provided additional logistical information.

Lovell: thanks to Ge.

Original items 5, 6, and 7 resolved.

Executive session to finalize matters

Rotations.

Ahagon, Basile, Okada, Suzuki, Wheat rotate off now according to IODP-MI records.

Ge will rotate off next meeting (0712); we would like to extend his term for another 2 meetings.

Castillo, Christensen and Lovell rotate off 0807.

Lin: note Masuda doesn't rotate off; I do.

Next meeting: Japan, Feb 2008. Suzuki will host the meeting. Must be no later than early Feb so we can report to SPC. Jan is very busy time in Japan. December is too soon after this meeting.

Neal: a thought on the timing of next meeting. What about the issue we discussed before lunch? December may be necessary.

Lovell: hopefully we'll get some feedback next week from SPC, and depending on information from IODP-MI and IOs, we may need to meet earlier.

Still in general session, so will run through Consensus statements that do not require voting..

Meeting is formally closed at 1:50. Executive session now begins after a break.

Executive session reconvened at 2:15.

Inagaki is absent for this executive session.

Lovell led discussion:

Consensus statements, Recommendations and Action Items were discussed and finalized.

The executive session ended at 16.00. There was great joy.

**5th Meeting of the
IODP Scientific Technology Panel (STP)
Beijing Wenhua Plaza
Beijing, China
20th-23rd August 2007**

**Day 1:
Start 09.00**

1) Introduction and formalities

- a) Welcome (Lovell/Neal); Housekeeping (Ge)
- b) Introductions of continuing and new members, guests, liaisons (Lovell/Neal)
- c) Review and Approval of Agenda (Lovell/Neal) and Approval of Minutes from July meeting (Lovell)
- d) Conflict of Interest Policy & Millard's rules of order and STP mandate (Lovell)

2) Brief Reports from the latest SAS panel meetings

- a) Brief report from most recent EDP meeting (Lovell)
- b) Brief report from most recent SPC meeting (Lovell)

Routine reports: supplied pre-meeting where possible, from SPC, agencies, & IOs; presentations and discussion focused on selected specifics to limit time allocated to each.

3) Brief reports from the lead agencies, IODP-MI and IOs

- a) IODP-MI (Janecek)
- b) CDEX (Matsuda)
- c) JOI Alliance (Blum)
- d) ESO (Inwood)
- e)

Lunch 12.30

4) Report from SASEC WG on SAS Structure (Lovell)

5) QA/QC update from IODP-MI Task Force (Neal)

(note the Task force meets on the Saturday afternoon immediately preceding the STP meeting, and again on the Thursday afternoon immediately after the STP meeting). This is expected to be the final meeting of the QA/QC Task Force. STP is expected to provide feedback to the Task Force by the end of this meeting.

- 6) Presentations from IOs on possible cost reductions; effect on funding and scheduling of expeditions; impact on likely scientific measurements capability.**
- a. USIO (Blum)
 - b. CDEX (Matsuda / Aoike)
 - c. ESO (Inwood)

Day 2:
Start at 08.30

- 7) Identify development needs for scientific technology to enable measurements on IODP platforms commensurate with delivering scientific objectives of scheduled (and proposed) expeditions (i.e. a prioritized scientific technology roadmap).
- 8) Discuss scientific measurements (IODP standard and minimum measurements) in respect of Initial Science Plan. What are the costs of making minimum and standard measurements? What are the scientific benefits of making minimum and standard measurements? How will IOs enable these on platforms with intermittent usage? Which measurements can affect drilling decisions while at sea?

This will involve breakout sessions into the various working groups that STP has implemented, and will use the presentations from the IOs as input.

Breakout groups report back before lunch.

Lunch 12.30

Continue with Item (8)

Breakout groups report back.

- 9) Review of STP meeting format: *In line with STP Consensus 0612-12 (STP Meeting Format) we propose migrating our meetings to a structure of two meetings per year: possibly with one meeting dealing with regular reports (IO, IODP-MI, etc.) and the other considering future issues and planning, allowing STP to be more proactive. This transition will identify the best means of organizing the meeting schedules/agenda. During the summer meeting, STP can prioritize items for future directions and examine define long-term plans. During the winter meeting, STP can examine proposals, look backwards and examine previous proposals, updates on current issues and project status. One thing that STP may do is to change the weighting (number of days) of the two different meetings i.e., one is longer than the other because there is more to cover; or it can work on as needed basis.*

Breakout groups report back.

15.00 Finish to enable visit to Beijing Earth Observatory

Day 3:
Start at 08.30

- 10) Review any issues connected to forthcoming scheduled Expeditions in terms of scientific objectives and measurement capabilities.

- 11) Panel considers corporate history of previous recommendations and working group reports. Deal with outstanding issues from previous STP activities and Working Group initiatives - need breakout sessions to focus these before bringing closure. Create summary of various reports and investigations for future reference. (All STP Working Groups)

Breakout groups report back before lunch.

Lunch 12.30

- 12) Discuss Impact of Mission proposals on the IODP process - how will STP interact with Missions? Are there any science and technology coordination and QA/QC issues?
- 13) Critically review outcomes of discussions; identify shortfalls and problems, propose modifications, changes, and requirements for scheduled operations.

Day 4 (morning only):

Start at 08.30

- 14) Executive Session to finalise recommendations, response to Item 6 and advice to SPC and IODP-MI regarding Item 7.
- 15) Rotation of panel members
- 16) Location, date and format of the next meeting.

End 12.30

**5th Meeting of the IODP Scientific
Technology Panel
STP**

**20th-23rd August 2007
Beijing Wenhua Plaza
Beijing, China**

Welcome and logistics

Director of Institute of Geophysics
Professor Wu Zhongliang

Local Host:

Dr. Hongkui Ge

Institute of Geophysics,
China Earthquake Administration
Beijing, China

Ms Wang Xiaoqing (Qiong)
Ms Zhen Yanting (Cecilia)

- Willing volunteers for taking minutes...

Professor Tim Brewer, 1959-2007

University of Leicester

ESO Petrophysics
Consortium Co-ordinator

Associated with LDEO
logging & Liaison to various
IODP SAS Panels & IODP-
MI Task Forces



Introductions of continuing and
new members, guests, liaisons

Apologies:

Ahagon, Naokazu
Brückmann, Warner
Nunoura, Takuro
Okada, Makoto
Sakurai, Shinichi
Wheat, Geoff

Alternates Attending:

Inagaki, Fumio - alternate for **Nunoura, Takuro**
Oda, Hirokuni - alternate for **Okada, Makoto**
Saito, Saneatsu - alternate for **Ahagon, Naokazu**

New STP Members:

Gorin, Georges E.

ECORD U of Geneva
Sedimentology, organic geochemistry

Lin, Weiren

Japan JAMSTEC
Physical & mechanical properties

Naruse, Hajime

Japan Kyoto U
Sedimentology

- Approval of Agenda...



Agenda

Day 1:

Start 09.00

- 1) Introduction and formalities**
 - a) Welcome (Lovell/Neal); Housekeeping (Ge) (10 minutes)**
 - b) Introductions of continuing and new members, guests, liaisons (Lovell/Neal) (10 minutes)**
 - c) Review and Approval of Agenda (Lovell/Neal) and Approval of Minutes from July meeting (Lovell/Neal) (10 minutes)**
 - d) Conflict of Interest Policy & Millard's rules of order and STP mandate (Lovell/Neal) (10 minutes)**

Day 1:

- 2) Brief Reports from the latest SAS panel meetings**
 - a) Brief report from most recent EDP meeting (Lovell) (10 minutes)**
 - b) Brief report from most recent SPC meeting (Lovell) (20 minutes)**

Day 1:

Routine reports: supplied pre-meeting where possible, from SPC, agencies, & IOs; presentations and discussion focused on selected specifics to limit time allocated to each.

- 3) Brief reports from the lead agencies, IODP-MI and IOs**
 - a) IODP-MI (Janecek) (10 minutes)**
 - b) CDEX (Matsuda / Aoike) (10 minutes)**
 - c) JOI Alliance (Blum) (10 minutes)**
 - d) ESO (Inwood) (10 minutes)**

Lunch 12.30

- 4) Report from SASEC WG on SAS Structure (Lovell)
- 5) QA/QC update from IODP-MI Task Force (Neal)
- 6) Presentations from IOs on possible cost reductions; effect on funding and scheduling of expeditions; impact on likely scientific measurements capability.
 - a. USIO (Blum)
 - b. CDEX (Matsuda / Aoike)
 - c. ESO (Kulhmann)

(note the Task force meets on the Saturday afternoon immediately preceding the STP meeting, and again on the Thursday afternoon immediately after the STP meeting). This is expected to be the final meeting of the QA/QC Task Force. STP is expected to provide feedback to the Task Force by the end of this meeting.



Day 2:
Start 08.30

- 7) Identify development needs for scientific technology to enable measurements on IODP platforms commensurate with delivering scientific objectives of scheduled (and proposed) expeditions (i.e. a prioritized scientific technology roadmap).
- 8) Discuss scientific measurements (IODP standard and minimum measurements) in respect of Initial Science Plan. What are the costs of making minimum and standard measurements? What are the scientific benefits of making minimum and standard measurements? How will IOs enable these on platforms with intermittent usage? Which measurements can affect drilling decisions while at sea?

This will involve breakout sessions into the various working groups that STP has implemented, and will use the presentations from the IOs as input.

Breakout groups report back before lunch.

Lunch 12.30

Continue with Item (8)

- 9) Review of STP meeting format: In line with STP Consensus 0612-12 (STP Meeting Format) we propose migrating our meetings to a structure of two meetings per year: possibly with one meeting dealing with regular reports (IO, IODP-MI, etc.) and the other considering future issues and planning, allowing STP to be more proactive. This transition will identify the best means of organizing the meeting schedules/agenda. During the summer meeting, STP can prioritize items for future directions and examine define long-term plans. During the winter meeting, STP can examine proposals, look backwards and examine previous proposals, updates on current issues and project status. One thing that STP may do is to change the weighting (number of days) of the two different meetings i.e., one is longer than the other because there is more to cover; or it can work on as needed basis.

Breakout groups report back.

Finish 15.00



Day 3:
Start 08.30

- 10) Review any issues connected to forthcoming scheduled Expeditions in terms of scientific objectives and measurement capabilities.
- 11) Panel considers corporate history of previous recommendations and working group reports. Deal with outstanding issues from previous STP activities and Working Group initiatives - need breakout sessions to focus these before bringing closure. Create summary of various reports and investigations for future reference. (All STP Working Groups)

Breakout groups report back before lunch.

Lunch 12.30

- 12) Discuss Impact of Mission proposals on the IODP process - how will STP interact with Missions? Are there any science and technology coordination and QA/QC issues?
- 13) Critically review outcomes of discussions; identify shortfalls and problems, propose modifications, changes, and requirements for scheduled operations.



Day 4 (morning only):

Start 08.30

14) Executive Session to finalise recommendations, response to Item 6 and advice to SPC and IODP-MI regarding Item 7.

15) Rotation of panel members

16) Location, date and format of the next meeting.

End 12.30

13.30 IODP QA/QC Task Force (final meeting)

- Approval of Agenda...
- Proposed & Seconded by...

- Approval of Minutes...
- Proposed & Seconded by...

COI policy

- IODP Conflict of Interest Policy is clearly stated on the IODP-MI website and all attendees are referred to this.

COI policy

- A conflict of interest is a situation in which the interests (for example: personal, familial, professional or commercial) of an IODP SAS member or designated alternate involved in proposal nurturing, evaluation, ranking, scheduling, or assessment processes, or in IODP-related financial or commercial enterprises, have a real or perceived impact, either positive or negative, on the results of the nurturing, evaluation, ranking, scheduling or assessment processes, or related contractual work.

Declaration of COI

- Panel Members, Guests and liaisons must declare COI at the start of the meeting; these must be recorded in the minutes
- If any further COI arise during the meeting they must be identified and recorded in the minutes.
- Other attendees can indicate when they think there is a conflict of interest.

Roberts (Millard's) Rules of Order

(from Robert's Rules of Order)

- The basic principles behind Robert's Rules of Order are:

- someone has to facilitate and direct the discussion and keep order.
- all members have the right to bring up ideas, discuss them, and come to a conclusion.
- members should come to an agreement about what to do.
- members should understand that the majority rules, but the rights of the minority are always protected by assuring those members the right to speak and vote.

Roberts Rules of Order

Take up business one item at a time.

- a. Each meeting follows an agenda.
- b. Only one main motion can be pending at a time.
- c. Only one member can speak at a time.
- d. Members take turns speaking.
- e. No member speaks twice until all members have had the opportunity to speak.

Roberts Rules of Order

- a. Members take their seats promptly when the chair calls the meeting to order, and conversation stops.
- b. Members raise their hands to be recognized by the chair and don't speak out of turn.
- c. In debate, members do not 'cross talk', or talk directly to each other, when another member is speaking.

Roberts Rules of Order

- d. Members keep their discussion to the issues, not to personalities or other members' motives (unless COI).
- e. Members speak clearly and loudly so all can hear.
- f. Members listen when others are speaking – the majority rules, but the rights of individual, minority, and absent members are protected.

STP Mandate

1. General Purpose.

The Scientific Technology Panel (STP) reports to the Science Planning Committee and may communicate directly with IODP-MI.

The panel shall contribute information and advice with regard to handling of IODP data and information, methods and techniques of IODP measurements (including factors that impact measurements, such as sample handling, curation, etc.), laboratory design, portable laboratory needs, downhole measurements and experiments, and observatories to the SPC; through the SPC, to the Science Planning and Policy Oversight Committee (SPPOC) and IODP-MI; and, through IODP-MI, to the implementing organizations (IOs).

STP Mandate

Decisions. Decisions shall be made either by consensus or voting, as decided on a case-by-case basis. Votes shall be decided by a majority of all members present and eligible to vote. **A quorum shall consist of at least two-thirds of the voting members.** Voting records shall be kept and reported in the meeting minutes.

Meetings. The **panel shall convene biannually**, generally approximately mid-way between SPC meetings, and additional electronic meetings may be held as appropriate.

Outcomes from STP San Francisco meeting presented
at SPC Meeting in Osaka (March 2007)



6.1.4. Scientific Technology Panel (STP)

Mike Lovell reported on the December 2006 STP meeting:

1 recommendation,

24 consensus statements, and

10 action items.

Lovell presented six consensus statements that had been previously identified by the SPC chair as of relevance to the SPC:

6.1.4. Scientific Technology Panel (STP)

STP Consensus 0612-03:

STP recommends that ESO upgrades its currently used downhole push-in temperature tool to an absolute accuracy of 0.01°C and a resolution of 0.001°C.

This must be accomplished before the New Jersey Expedition

6.1.4. Scientific Technology Panel (STP)

Consensus 0612-09:

STP discussed the panel mandate at the December 2006 STP meeting and agreed that it did not need any modification at this time. The current mandate allows STP to restructure its two meetings per year to address immediate issues at one of its yearly meetings, while dealing with future issues and planning at the other (STP Consensus Statement 0612-12).

Any specific changes will be addressed after the SASEC working group on SAS Review reports its findings.

6.1.4. Scientific Technology Panel (STP)

Consensus 0612-10: STP will continue to have three working groups within its structure:

- Chemistry & Microbiology (CMWG);
- Petrophysics (including Physical Properties, logging, downhole measurements, paleomagnetism, and underway geophysics);
- Core Description (including Micropaleontology).

6.1.4. Scientific Technology Panel (STP)

Consensus 0612-11:

STP welcomes the presentation by Thomas Janecek on how the Operations Review Task Force may proceed in future, together with the opportunity for STP to become more involved in considering Expeditions in terms of Scientific Technology.

STP agrees with the proposal that the VP Science Operations will report annually on expeditions reviewed in that time frame (in line with the proposed STP Roadmap agenda), and that where appropriate IODP-MI should request specific advice from STP and participation in individual reviews.

6.1.4. Scientific Technology Panel (STP)

Consensus 0612-12:

STP agrees to change the format of its twice-yearly meetings in the following way: both meetings will deal with immediate issues, while one meeting will deal with regular reports (IO, IODP-MI, etc.) and the other will consider future issues and planning allowing STP to be more proactive.

6.1.4. Scientific Technology Panel (STP)

Consensus 0612-13:

STP welcomes the adoption of a plan to implement larger diameter drill pipe on the SODV.

STP offers its support for the full implementation of this plan since larger diameter pipe will allow the use of state-of-the-art well-logging tools during IODP.

The IOs should provide the scientific community with information about these additional downhole logging capabilities.

6.1.4. Scientific Technology Panel (STP)

Lovell reported that the next STP meeting would take place during the week of 3-6 June 2007 in Beijing, China.

6.1.4. Scientific Technology Panel (STP)

Regarding STP Consensus 0612-12 (STP Meeting Format), Becker noted that he was glad to see that the STP welcomes the change in meeting format.

Referring to STP Consensus 0612-03 (ESO Temperature Tool), Mountain expressed serious concern about the requirement for temperature logging as a minimum measurement. He noted that Expedition 313 (New Jersey Shallow Shelf) has no logging component and that none of the science party wants to make use of temperature measurements. He cited a risk of cave-in while waiting for temperature measurements to be made as justification for re-evaluating the necessity of temperature measurements as a minimum measurement. Becker declared that Mountain's question was a possible conflict-of-interest (Mountain is a proponent of 564-Full and co-chief for Expedition 313).

6.1.4. Scientific Technology Panel (STP)

Becker also noted that there are SPC consensus statements on this exact issue (0410-20, 0603-14) which support the idea of recording temperature profiles as a minimum measurement.

Following up, Bekins echoed Mountain's concern about hole stability and agreed that a hole collapse could jeopardize the success of the expedition. She asked where it would be appropriate to raise this issue.

Becker replied that this type of issue should be raised during the review of the Scientific Prospectus, when the science is assessed to compare how it conforms to the program approved by the SPC.

6.1.4. Scientific Technology Panel (STP)

Bekins asked if the consensus statements permitted any flexibility in when temperature measurements should be made.

Becker read SPC Consensus 0410-20 ("The SPC receives SciMP Recommendation 0406-9 and recommends wherever feasible measuring the temperature profile at each sedimentary IODP site."), and suggested that this statement provided adequate advice for the IODP-MI to act on this particular case.

20.1. Liaisons to other panels and programs

The SPC identified its liaisons for the upcoming round of SAS panel meetings as follows:

SSEP - Becker and Mori;

EPSP - Becker;

SSP - Behrmann;

STP - Zhou;

EDP - Becker;

IIS-PPG - Byrne.

Fifth Meeting of the Engineering Development Panel (EDP)

July 9-11, 2007

Tokyo, Japan

Makoto Okada represented STP

Agendum Item 8: STP Report (Makoto Okada-10 minutes)

Latest STP meeting held in SF 7-9 Dec. It generated 1 recommendation, 24 consensus statements and 10 action items. Key consensus items were:

- o ESO temperature tool, upgrade to an absolute accuracy of 0.01 degC and resolution of 0.001 degC before the New Jersey expedition.
- o STP mandate, structure and format: suggested no change to the mandate but to continue with the three working groups. The two meeting/yr plan would allow one to be related to immediate issues and other for longer term planning matters.
- o Operations review task force: STP will be involved in reviewing scientific technology aspects of programs.

The next STP meeting will be in Beijing in August.

IODP-MI Report

5th Meeting of the IODP Scientific Technology Panel

Beijing China
August 20-23, 2007



Discussion Items

- Funding Situation
 - Lead Agency Guidance
 - FY08
 - FY09
- Platform Schedules
 - Chikyu
 - SODV
 - MSP



Lead Agency Guidance

The Lead Agencies understand that the target budget and the January 1, 2008 delivery date of the SODV to IODP

precludes the ability to drill all of the expedition projects named in the SPC Consensus Statements in FY 2008.

Please work with the IODP Implementing Organizations and the IODP SAS in constructing a FY 2008 drilling schedule that falls within the available budget.....

The IODP budget may be even more challenging in FY 2009 and beyond. The Lead Agencies urge IODP-MI, working in concert with SASEC and IODP-related committees and organizations, to exert leadership in the reduction of IODP costs which may involve difficult restructuring of the program.

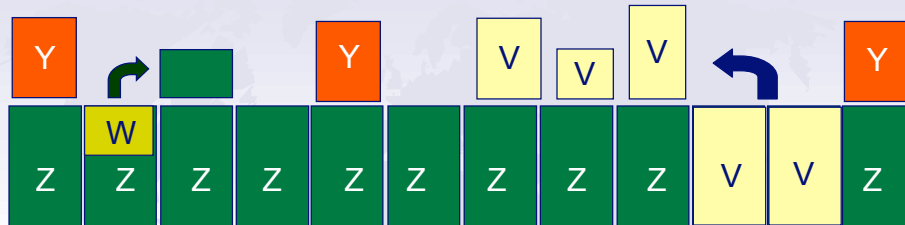


Ramifications of Lead Agency Guidance

- ~ 25-30 Reduction in budgets
 - Non-IODP operations an important component
- Reduction in Platform Operating Time
 - SODV -- Approx 8 months/yr
 - Chikyu -- 2 mo/yr riserless and 5 mo/yr riser
 - MSP -- Dependent on program scheduled
- Other programmatic reductions
 - SAS panel -- size / meeting frequency
 - IODP-MI -- Staff reductions (20% in FY08)
 - Science Services -- Shipboard/shorebased



Potential External Funding Models



"Z" funding -- base level of funding to provide a prescribe set of science services-

Additional Funding:

"Y" Funding- External funding to conduct IODP (SAS approved) science operations over and above the base cost of the expedition (e.g., observatories)

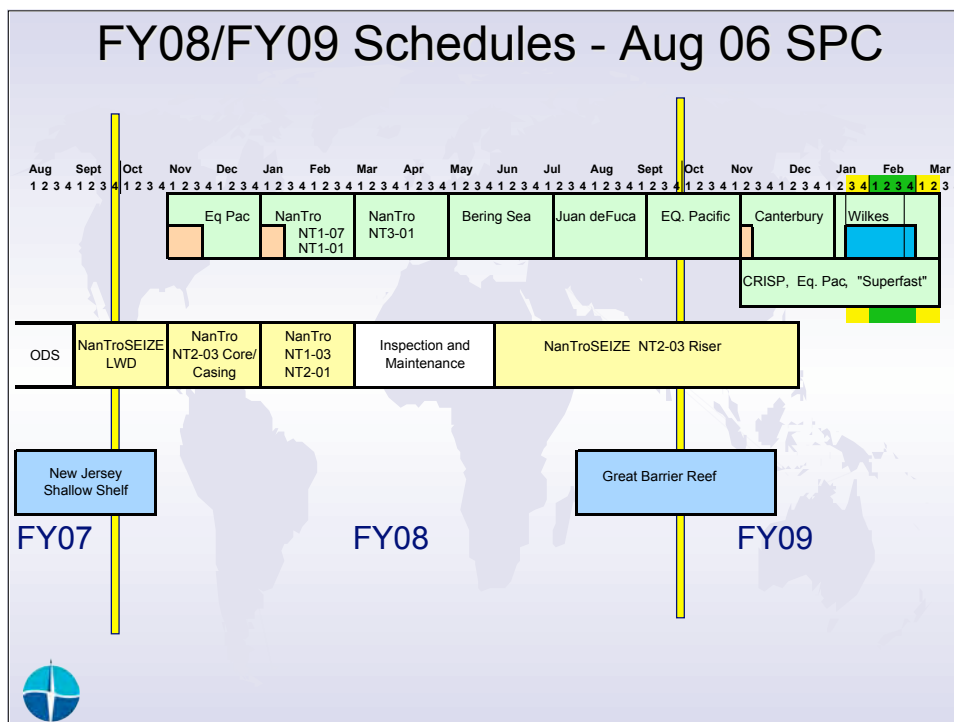
"W" Funding - External funding for tool/equipment testing used to offset "Z" funding. Frees up base funds for other expeditions.

"V" Funding - Non-IODP use of vessel. Frees up base funds for other expeditions (e.g., deepwater casing installation by SODV).



Scheduling Updates





Operational Issues during the past year

January -- 2007

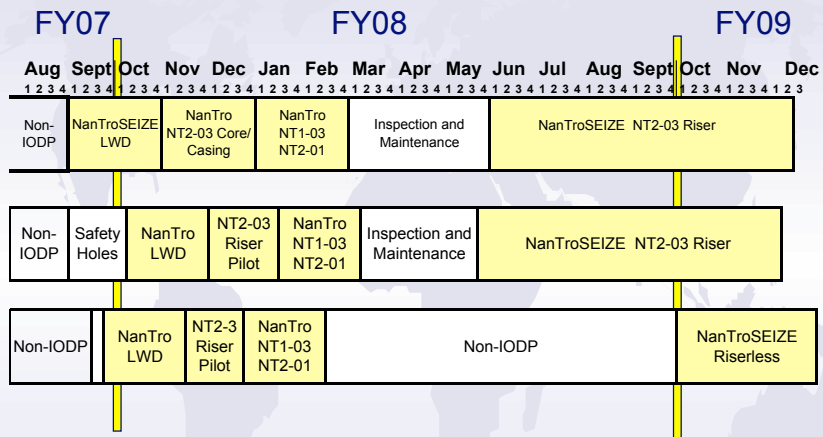
- EPSP - Evaluation of Canterbury Shallow Hazards
- SODV - Delivery date moved to Nov 15, 2007

Late January - February 2007

- FY08 Budgets - ~ 25-30% reduction
- SODV IODP Operations
 - Start date of international operations - Jan 1, 2008
- Japan Fishing Union restrictions (March-May)
 - No operations in NanTroSEIZE region : Mar – May



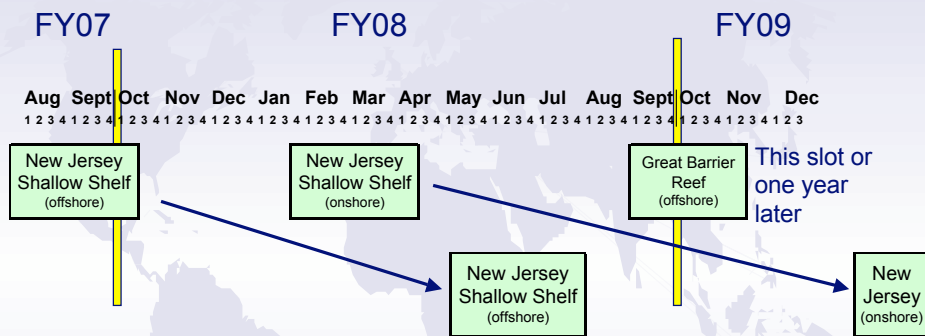
OTF scheduling changes -- Chikyu



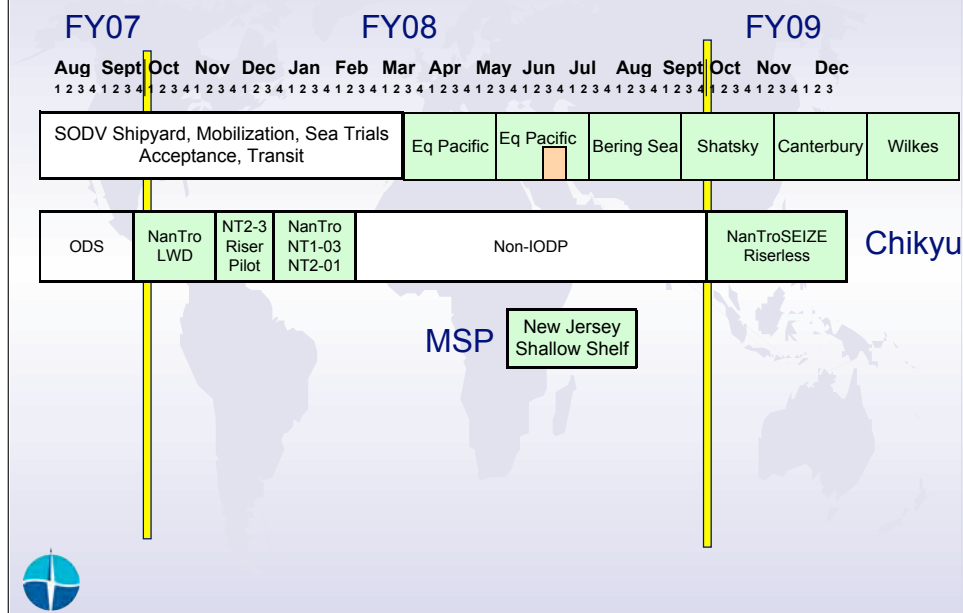
- Insert "Safety Holes"
- NT2-03 Riser drilling begins January 2009
- Addition of Riserless expedition in early FY2009



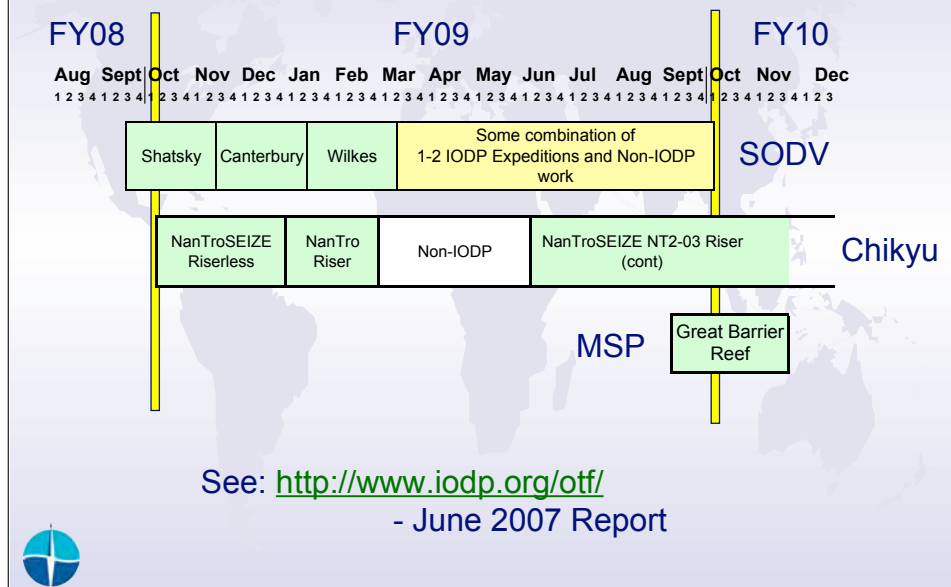
OTF Scheduling Changes -- MSP



FY08 / Early FY09 Schedules



FY09 Schedules



Proposal No.	Short Title	Rank	Mean	Std	Group
SPC Meeting #1 - Sep03 - Sapporo, Japan					
519-Full2	South Pacific Sea Level (Great Barrier)	1	4.43	2.56	I
545-Full	Juan de Fuca Hydro (2nd exp)	3	4.64	3.88	I
564-Full	New Jersey Sea Level	4	5.21	3.81	I
589-Full3	Gulf of Mexico (2nd exp.)	5	6.21	5.22	I
SPC Meeting #3 - Jun04 - Yokohama, Japan					
603A-F2	NanTroSEIZE Phase I	2	3.47	2.45	I
603B-F2	NanTroSEIZE Phase II	3	3.76	2.77	I
477-Full4	Okhotsk/Bering Pliocene/Pleistocene	4	5.12	3.43	I
482-Full3	Wilkes Land	5	5.94	3.27	I
553-Full2	Cascadia Hydrates (2nd exp)	6	6.35	3.12	I
600-Full	Canterbury Basin	7	6.88	3.57	I
621-Full	Monterey Bay Observatory	n/a	n/a	n/a	n/a
SPC Meeting #5 - Mar05 - Lisbon, Portugal					
603C-Full	NanTroSEIZE Phase III	1	1.38	0.81	
595-Full3	Indus Fan and Murray Ridge	2	3.06	1.12	
626-Full2	Pacific Equatorial Age Transect	3	3.19	2.07	
SPC Meeting #7 - Mar06 - St. Petersburg, FL					
677-Full	Mid Atlantic Ridge Microbiology	1	2.4	2.1	I
603D-F2	NanTroSEIZE Observatories	2	2.9	1.9	I
637-Full2	New England Hydrogeology	3	3.9	3.6	Holding Bin
605-Full2	Asian Monsoon	4	5.9	3.6	I
549-Full6	Northern Arabian Sea Monsoon	5	6	3.2	I
537A-F5	Costa Rica Seismogenic Phase A	6	6.6	3.5	I
SPC Meeting #9 - Mar07 - Osaka, Japan					
505-Full5	Mariana Convergent Margin	1	5.59	3.36	I
659-Full	Newfoundland Rift Margin	2	5.76	3.8	I
633-Full2	Costa Rica Mud Mounds	3	6.12	3.48	I
552-Full3	Bengal Fan	4	6.29	4.06	I
644-Full2	Mediterranean Outflow	5	6.35	3.44	I
654-Full2	Shatsky Rise Origin	6	6.65	4	I
537B-F4	Costa Rica Seismogenic Phase B	7	6.94	2.93	I
522-Full5	Superfast Spreading Crust	8	7.18	4	I
661-Full2	Newfoundland Sediment Drifts	9	7.29	4.13	I
548-Full2	Chicxulub K-T Impact Crater	10	8.18	5.04	II
612-Full3	Geodynamo	11	9.71	5.64	II
581-Full2	Late Pleistocene Coralgal Banks	12	9.94	4.19	II

Questions?

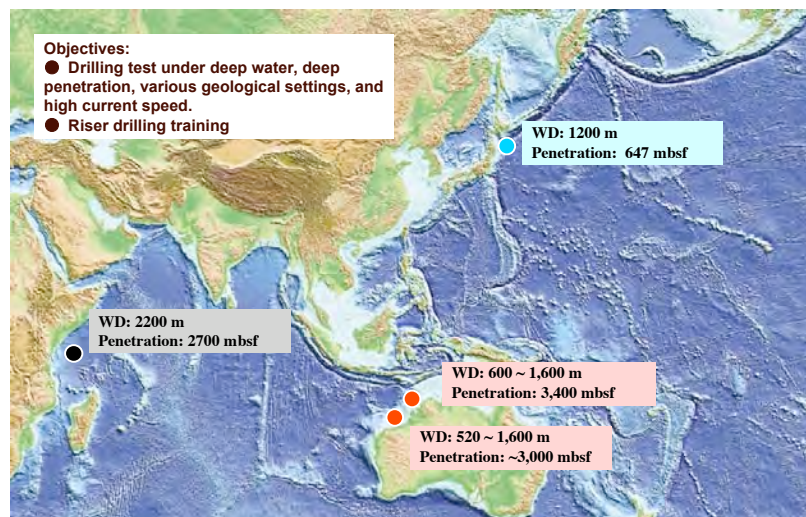


CDEX-Chikyu Report

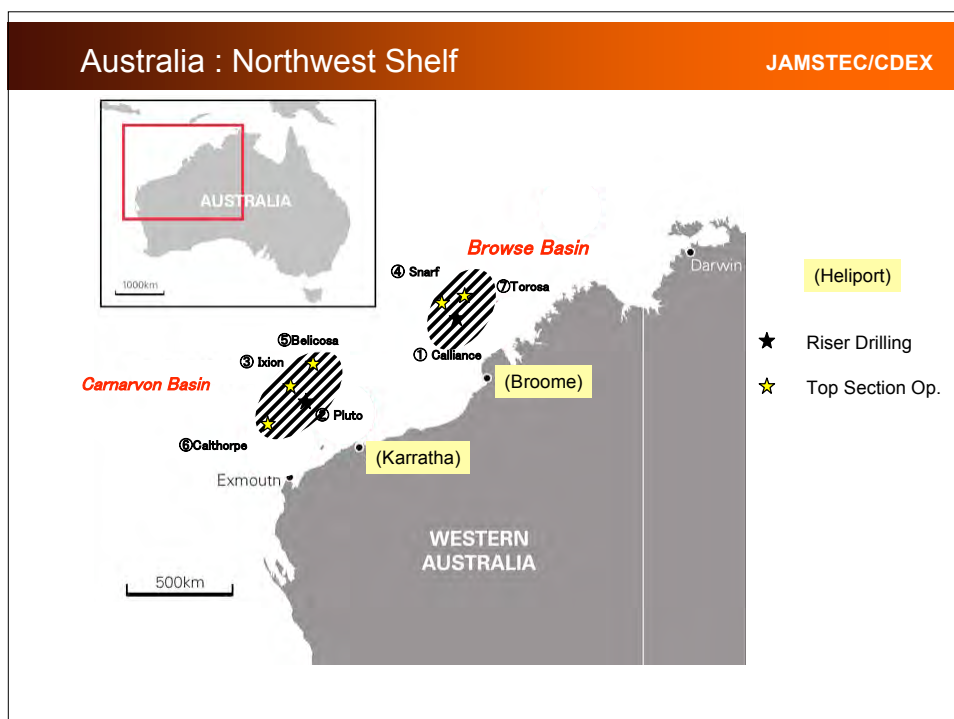
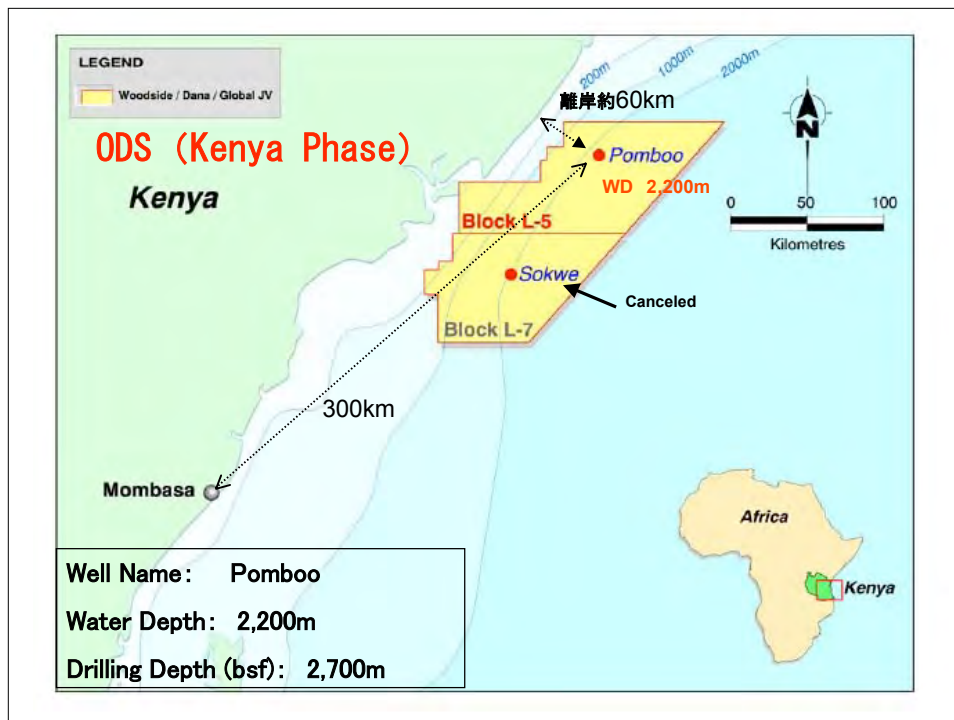
Scientific Technology Panel
'07 Aug 20-23 @ Beijing

Shigemi Matsuda (CDEX)

ODS (Oversea Drilling Shakedown)



Nov.'06 ~ July '07



海外試験掘削 (ODS: Oversea Drilling Shakedown) 総括表

H19年6月19日現在

【ケニア沖】

掘削計画名	行動	掘削海域	水深(m)	掘削深度(m) (海底下)	実施予定期間	ヘリポート	特記事項
1 Pomboo	探査試験	ケニア北部沖	2,193	2,694	12月初～1月末	Mombasa	水深2,000m超の大水深でのワイザー掘削の成功、 浅層流下での掘削の成功。

※ ケニア沖掘削コンソーシアム: Woodside(豪)30%、DANA(英) 30%、Global Petroleum 20%、Repsol(西)20%

【豪州北西大陸棚】

掘削計画名	行動	掘削海域	水深(m)	掘削深度(m) (海底下)	実施予定期間	ヘリポート	特記事項
1 Calliance	探査・評価試験	Browse	500	3,700	2月下旬～4月初	Broome	中水深(<600m)のワイザー掘削。
2 Pluto	探査・評価試験	Carnarvon	1,000	2,200	4月中～5月中	Karratha	傾斜掘削、進行掘削
3 Ixion	上部孔井作業	Carnarvon	1,340	1,200	5月中～6月初	Karratha	36インチ、9.5/8インチケーシング装置
4 Snarl	上部孔井作業	Browse	1,440	1,860	6月初～6月中	Broome	36インチ、9.5/8インチケーシング装置
5 Bellicosa	上部孔井作業	Carnarvon	1,400	800	6月中旬	Karratha	36インチ、9.5/8インチケーシング装置
6 Carthorpe	上部孔井作業	Carnarvon	830	700	6月中旬	Karratha	36インチ、9.5/8インチケーシング装置
7 Torasa	上部孔井作業	Browse	1,400	約2,000	6月下旬～7月初旬	Broome	36インチ、9.5/8インチケーシング装置

(1)及び(2)は Woodside社(100%)、(2)のPlutoは2010年生産開始予定の最後の評価井。この天然ガスのほとんどは日本に輸出予定。

(3)のIxionは、Woodside社(50%)、Total(30%)、MMI(20%)が権益を持つ。

※MMI: Japan Australia LNG (MMI) Pty Ltd

三菱商事、三井物産が50%出資した豪州石油・ガス開発のための会社

※Woodside、Totalは、豪州の石油開発会社

(4)のSnarlは、豪州大陸棚周辺の大水深ガス・油田のなかで最も有望なものであり、WoodsideがShell、BP等のメジャーと共同開発を目指している。

(5)のCarthorpeは、三井物産の100%現地子会社(Mepau)が40%の権益をもつ鉱区。

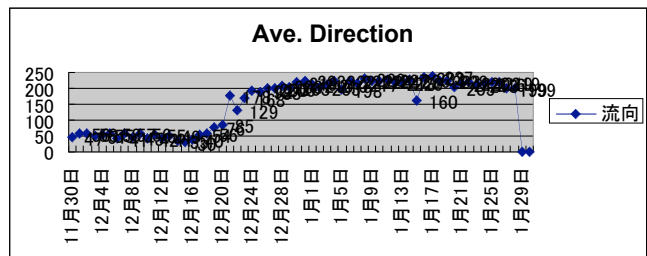
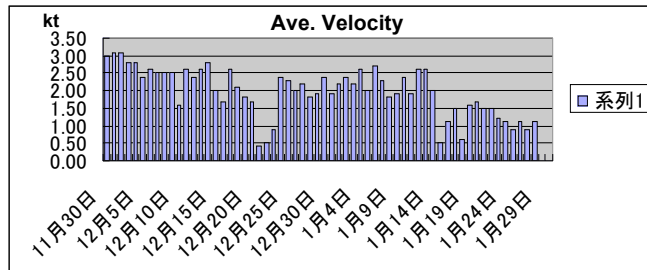
ODS Technical Achievement

- ① BOP Operation at 2,200m WD
- ② Drilled to 2,700m (below sea floor)
- ③ Operation under av. 2.5kt sea current
- ④ DPS upgrade (MODU)
- ⑤ Deviated/Directional Drilling

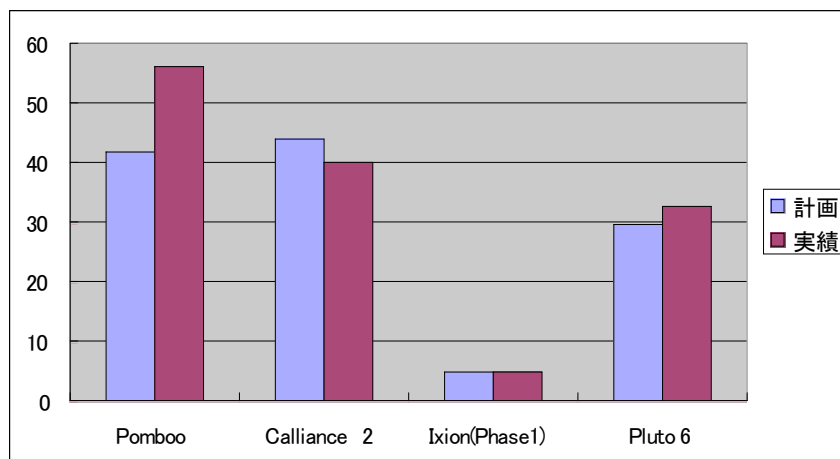
Other

Equipment Failure/Down Time ration reduced

Off-Kenya Pomboo-1 Sea Current Measure Result (30/Nov/2006-29/Jan/2007)

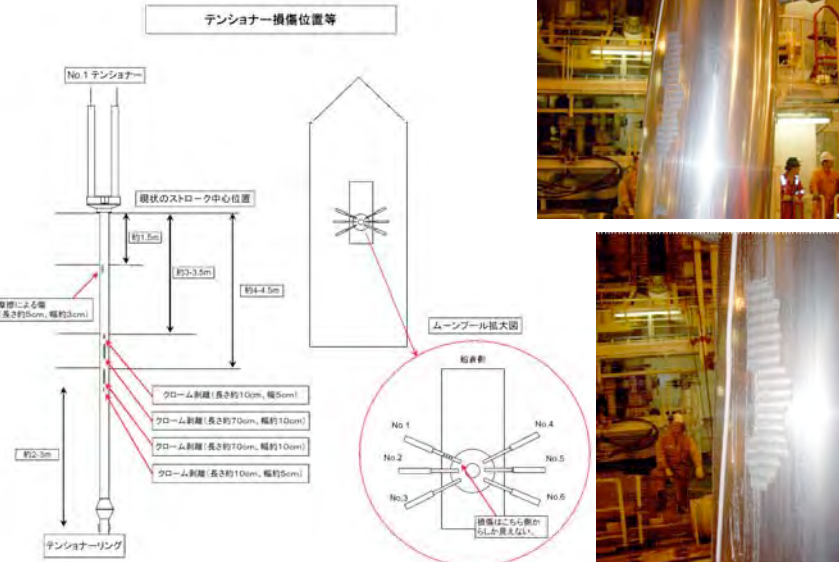


ODS Operation Time (Plan vs Result)



Plan Days	42	44	5	30
Actual Op.	56	40	5	33
Op. Rate	93.5%	96.2%	96.6%	95.4%

5月19日の状況



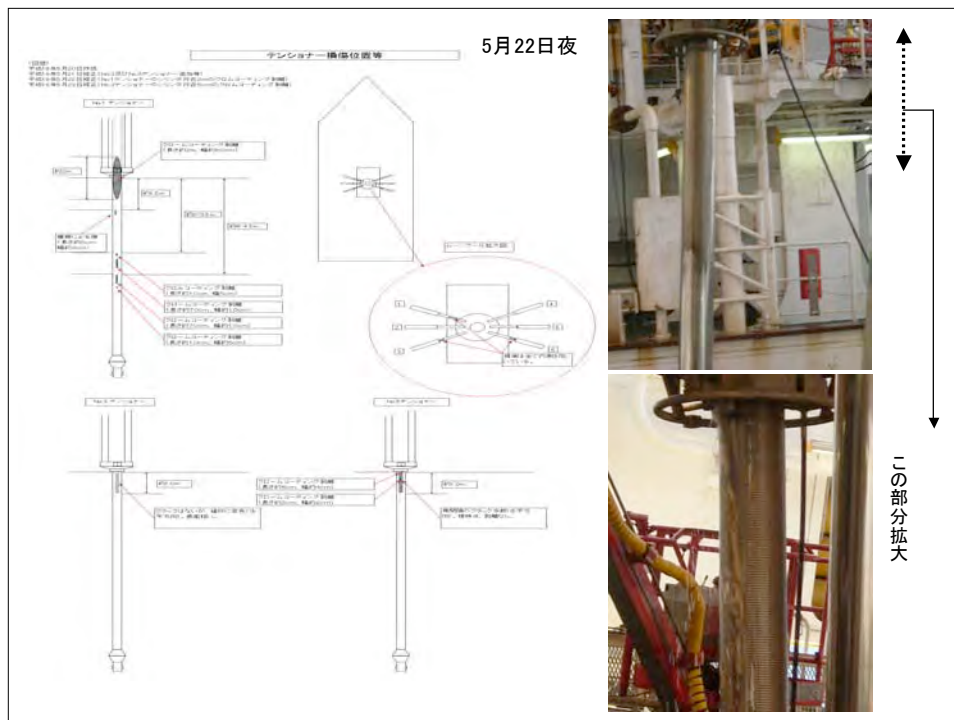
※ ロッドのギザギザはストロークアウト量計測のために製造段階で刻んでいるもの。それをNi,Cr,Carbide粉末で金属溶着したもの。

Riser Tensioner Failure Report



Facts/Events:

- 19 May At Ixion well, while running BOP/Riser
No.1 tensioner **No.1 cylinder oil leaked**
and found some damage on the rod
- 20 May Judged no affect on the operation
Continue BOP landing without No.1. tensioner
- 21 May All six tensioners examined
Found two other tensioners damage (No.6, 3)
- 22 May No.1 Rod damage widen
Stop operation
- 23 May Suspend Ixion well, pull back BOP/Riser
- 30 May Decision : no more riser operation in Australia
but Top Section operation continue



Result of visual inspection (May25)

No	テンショナー状況(5/25)
1	損傷激しい。コーティングが広範囲に剥離。
2	見掛け上、異常なし。
3	コーティングの剥離までは行かないが、表面に異常あり。
4	コーティングの剥離までは行かないが、表面に異常あり。
5	見掛け上、異常なし。
6	損傷激しい。コーティングが広範囲に剥離。



No3



No4



No5

No6

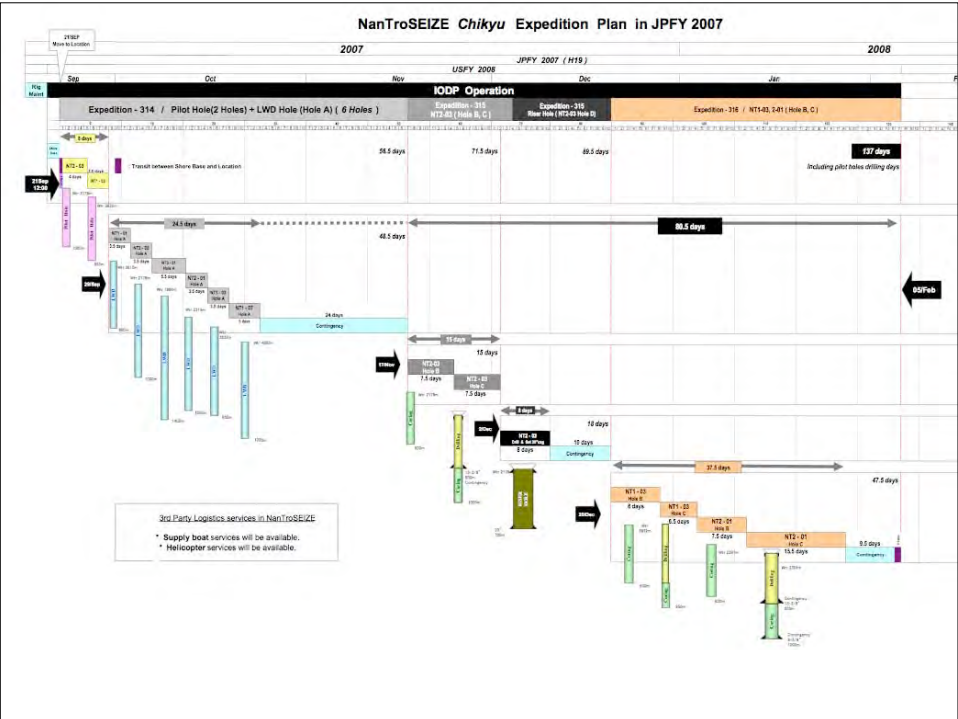
Chikyu Schedule

2007											
US FY07						JP FY H19			US FY08		
JP FY H18											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ODS (Oversea's Drilling Shakedown)							Dock		IODP:NanTroSEIZE Stage1/RL		

2008											
US FY08						JP FY H20			US FY09		
JP FY H19											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IODP Stage1/RL		Dock & Inspection			Non-IODP			IODP:NanTroSEIZE Stage1/RL			

2009											
US FY09						JP FY H21			US FY10		
JP FY H20											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IODP:NanTro Stage2/Riser		Dock		IODP Expedition Availability (5 Months for Riser + 2 Months for Riserless) per Year							

2010											
US FY10						JP FY H22			US FY11		
JP FY H21											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IODP Expedition Availability (5 Months for Riser + 2 Months for Riserless) per Year											



NanTroSEIZE Stage 1

- NanTroSEIZE Stage 1
 - Sample Requests
 - Request Window: July 15~August 24
 - Sample Requests Evaluation
 - Sample Requests as Multi-Expeditions
 - To be completed by September 15

Rest of Stage 1

DRAFT

- Co-Chief Selection
 - Oct. 31, 2007
- Pre-Expedition Meeting
 - Nov. 2007
- Planning & Scientific Prospectus
 - 31 Dec. 2007
- Call for Participation
 - 1 Jan. - 29 Feb. 2008
- Staffing
 - April 2008

Schedule of Stage 2 **DRAFT**

- Prepare Overview Document
 - 30 July, 2007
- Call for Participation
 - 1 Jan. - 29 Feb. 2008
- Pre-Expedition Meeting
 - April 2008
- Staffing & Scientific Prospectus
 - June 2008



- By '07 Apr Finish refurbishing reefers
- Receiving legacy cores in '07 Sep
- Receiving cores from NanTroSEIZE in '08 Feb



USIO

USIO Report for the Scientific Technology Panel (STP) Beijing, 20-22 August 2007

- SODV update
- Other tools and analytical services updates
- Program planning

1



USIO

SODV Update - Project Overview

- Funding
 - \$115M over 3-yr from NSF-MREFC
 - No additional program funds available
 - ODL reinvested \$15M in some vessel improvements in return for an increase in day rate for the improved vessel
- Schedule
 - 2-Jan-07 Vessel design freeze
 - Jan-Mar Commercial shipyard discussion
 - 1-Feb-07 Shipyard “bridging” contract in place
 - 3-Apr-07 NSF approved SODV project
 - 9-Apr-07 Shipyard contract signed
 - 10-12 July NSF-MREFC project review
 - 6 July - 1 Aug Dry dock
 - 31-Dec-07 Vessel commissioning

2



USIO

SODV Update - Project Overview

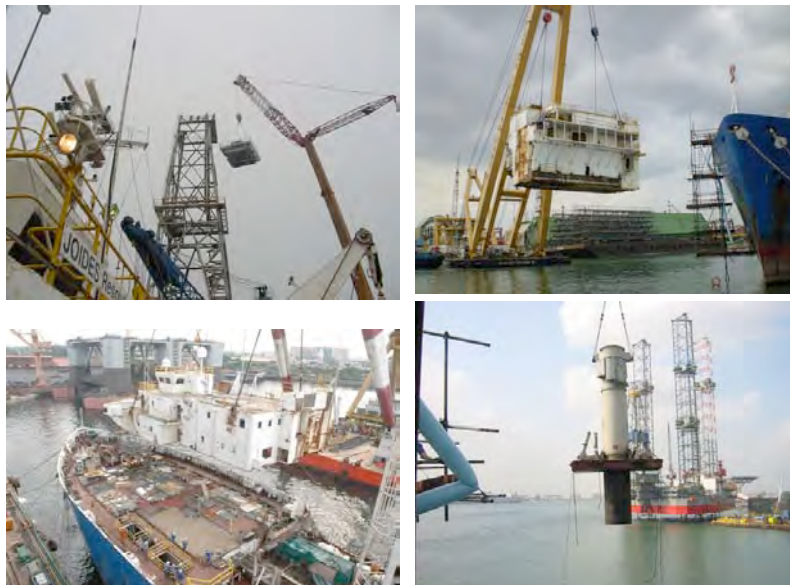
- Scope/Re-scoping
 - Fixed funding and significant price increase in petroleum industry sector due to market forces required major re-scoping of the original plan
 - Conversion within existing hull instead of new vessel or vessel stretching
 - Reduced scientific capability compared to original plan
 - Major effort completed to resolve scope, budget, and contract changes
- New scope includes:
 - Life extension and equipment refurbishment
 - Increased accommodations with improved habitability
 - Permanent Schlumberger rig-up
 - New science laboratory with increased space
 - Upgrade of scientific equipment and data systems *for basic analytical services* (approx. IODP Phase 1 services)
 - New galley above water line

3



USIO

SODV Update - Vessel Conversion



4



USIO

SODV Update - Vessel Conversion



5



USIO

SODV Update - Vessel Conversion



6



USIO

SODV Update - Vessel Conversion



7



USIO

SODV Update - Downhole Logging

- Lab design: Schlumberger data acquisition (Maxis) now located next to downhole measurements lab to improve co-ordination with Schlumberger engineer.
- Wireline heave compensator: New system will be tested during the last week of August.
- Large diameter tools: Built-in infrastructure for handling large diameter pipe and logging tools.
- Information Technology:
 - Installation of LDEO server equipment into TAMU server racks
 - Configuration of LDEO servers in SODV network and integration testing
 - LDEO will act as Mac OSX knowledge base for USIO and provide second line Mac OSX technical support to shipboard computer staff

8



USIO

SODV Update - Shipboard Analytical Systems

- After de-scoping, SODV analytical systems essentially provide the IODP Phase 1 level analytical services
- Significant technology upgrades are implemented for high-quality delivery of these basic data framework services; e.g.:
 - Data management
 - Laboratory Information Management System (LIMS)
 - Digital Asset Management system to capture and access any file
 - Web services, versatile data access and reporting
 - Geological data capture and analysis
 - Capture of descriptive and interpretive data and full integration in the LIMS
 - Increased graphical reports and integrated data visualization
 - Core loggers
 - Highest quality imaging of cores possible
 - Enhanced natural gamma radiation data
 - Broader range, higher resolution spectral color measurements
 - Chemistry
 - New discrete analyzer; new ion chromatograph

9



USIO

SODV Update - Shipboard Analytical Systems

- Sample and Data Request Management (SDRM) system
 - Fully web-based for request submission and management
 - Created and operated at USIO-TAMU
 - Currently online for first set of Chikyu operations
 - Formal deployment in fall 2007

The screenshot displays the SDRM web application. On the left, a sidebar titled 'My Requests' shows a list of request statuses: draft, submitted, reviewing, revise, approved, completed, and rejected. The main content area is titled 'Sample Request' and contains a form for request details. The form includes fields for Request ID, Created, Modified, Modified By, and Version. It also has a 'Request Type' dropdown set to 'Research'. Below this, there are checkboxes for 'Existing' and 'Future' requests, with a note to specify if it's a request for existing or future materials. A section for 'Previous Request Number' is also present. At the bottom, there are fields for 'Co-Requesters' with first and last names, email, and affiliation, and a 'Research Task' dropdown set to 'Major element'.

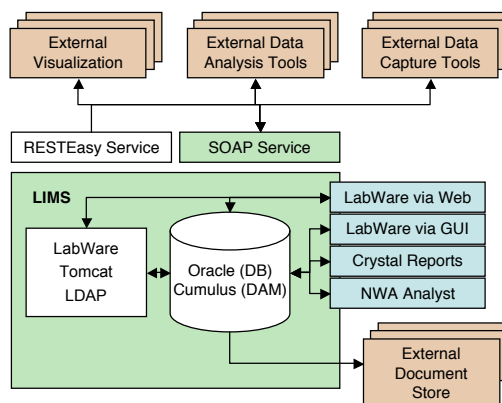


USIO

SODV Update - Shipboard Analytical Systems

- Laboratory Information Management System (LIMS)

- LIMS supports data management
 - Enter/modify
 - Store
 - Retrieve
- LIMS supports QA/QC
 - Log
 - Verify
 - Accept/reject
 - Flag, Alert, Audit
- LIMS is one of many tools in data management systems
- LIMS is not for
 - Data capture
 - Data display
 - Data analysis
 - Document management



11



USIO

SODV Update - Shipboard Analytical Systems

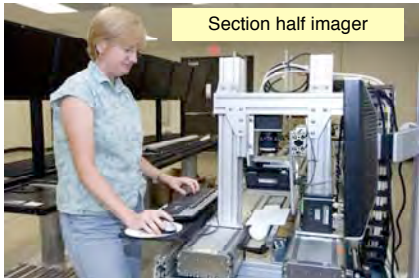
- Core laboratory staging area at IODP-TAMU
 - Core loggers
 - Core description
 - Moisture and Density



12



SODV Update - Shipboard Analytical Systems



Section half imager



Section half multisensor logger



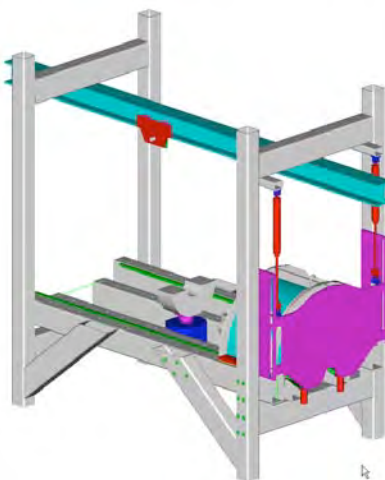
Whole-round multisensor logger



SODV Update - Shipboard Analytical Systems



Natural gamma ray multisensor logger





SODV Update - Shipboard Analytical Systems

- Application to capture descriptive and interpretive information (DESCINFO: core description, paleontology, datums, stratigraphic units, etc.)

VCL Master Ultimate Edition

File Edit Help

Template: paleo2

Current Sample

Fossils		Unit context	Unit definition											
Sample1	Top	Sample2	Bottom	Ammonites	Calymene	Calymene	Calymene	Calymene	Calymene	Calymene	Calymene	Calymene	Calymene	Calymene
1	313-1257-A-1H1-SS1	0.5		abundant	common	trace	trace	abundant	abundant	trace	common			
2	313-1257-A-1H4-SS2	18.2		abundant	common	trace	trace	abundant	abundant	trace	common			
3	313-1257-A-2H2-SS3	5.6												
4	313-1257-A-2H4-SS4	60.5			trace									
5	313-1257-A-2H6-SS5	103												
6	313-1257-A-3H3-SS6	35		common	abundant	common								
7	313-1257-A-3H5-SS7	64												
8	313-1257-A-4H1-SS8	23												
9	313-1257-A-4H2-SS9	46		common	abundant		abundant							
10	313-1257-A-4H4-SS10	79						common						
11	313-1257-A-4H6-SS11	145						abundant						
12														
13														
14														
15														
16														

Sample selection

Configurable columns



Other Ongoing Tools and Services Activities

- Advanced Piston Core Temperature Tool, Model 3 (APCT3)
 - New model APCT3 developed by UCSC - U. Bremen team of Pls and German company Antares
 - Based on previous APCT
 - Tested and community accepted on Leg 311
 - USIO initiated an integrated engineering, analytical and application development effort to implement the new tool within "downhole temperature service" framework
 - USIO-CDEX collaborative tool implementation effort
 - Acquired 6+6 tools (SIC project)
 - Received 3 prototypes from UCSC on permanent loan Electronics from Antares
 - Procured additional 9 electronics assemblies from Antares
 - Shoes re-designed by CDEX, fabricated through USIO
 - Acquire and integrate new analysis program (written by Heesemann) - SODV project
 - Integrate data flow - SODV project
 - Implement routine calibration service for IODP APCT3 tools in USIO metrology lab - FY07 SIC project



16

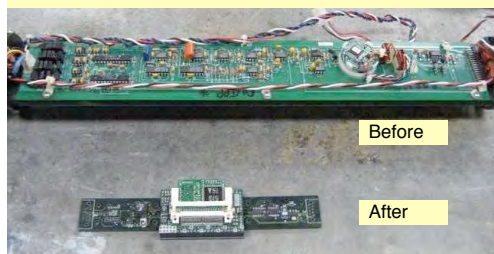


USIO

Other Ongoing Tools and Services Activities

- USIO will deploy engineering/technician staff and downhole temperature tools on Chikyu expeditions 315 and 316
 - Train CDEX/MWJ staff in APCT3 and DVTP/P operation
 - Develop common procedures and QA/QC
 - Deploy new model of DVTP/P with new data logger
 - CDEX likely to acquire the USIO upgraded tool in 2008
 - Formal agreement to be completed in early September

Common Data Acquisition (CDAQ) system for downhole measurements



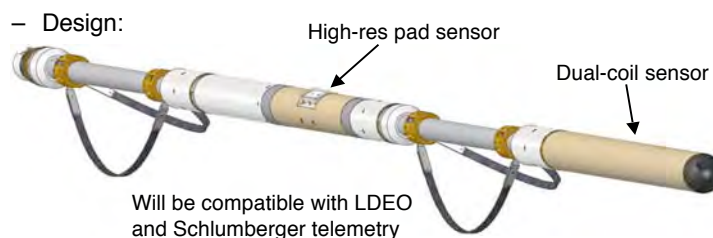
17



USIO

Other Ongoing Tools and Services Activities

- Downhole Magnetic Susceptibility Sonde (MSS)
 - Third party tool, funded by NSF grant to Stuart Robinson and Dave Goldberg.
 - The MSS will be ideal for core-log integration, site to site correlation, and paleoclimatic cyclicity studies.



- Status:
 - Electronics bench testing complete. Calibration holes constructed.
 - Downhole testing at the LDEO test well this Fall.

18



Program Planning: FY08

USIO

- USIO has met the NSF/IODP budget target for FY08 of ~\$50.8M
- Program Plan was submitted to NSF (SIC/POC) and IODP-MI (SOC)
- Covers ~75% operations (January - September 2008)
 - SODV project covers the remaining part of year
 - Significant support through “buy-down” with FY07 funds
- Current planning efforts focus on managing the complex transition from SODV facility construction to operational phase
 - Splice SODV management with operations management
 - Deployment schedule
 - SODV projects acceptance: process, criteria, schedules
 - Change of funding sources
 - Training for shipboard staff
 - Service management and user change request management
 - Technical documentation management

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Program Planning: FY08 Operations Plan

USIO

- Changes to operations schedule:
 - CORKs were de-scoped
 - NanTroSEIZE operations with the riserless vessel removed
 - Previously scheduled as the first expedition in Phase 2 (February/March 2007).
 - Japan Fisheries restrict operations in the area to earlier than 1 March.
 - Time constraints would limit operation time
 - Would have provided a limited buffer (high schedule risk) in case of SODV delivery slippage.
 - As a result, schedule is being revisited and re-configured
 - Replace NanTroSEIZE with Equatorial Pacific
 - Transit from Singapore to Honolulu
 - Addition of Shatsky Rise to schedule
 - One additional expedition to be added
 - Additional schedule changes under discussion

20

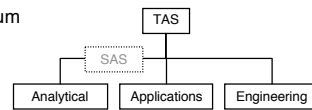
 Program Planning: <i>DRAFT</i> Ship Schedule (1)							
USIO							
Expedition	Port Dates (2)	Start Date	End Date	Days	Port/ Sea (Days)	Transit/ Ops (Days)	Co-Chief Scientists
Mobilization/ Transit/ Sea Trials (3)	Singapore	01-Jan-08	17-Mar-08	29	0/29	24/5	TBN
Equatorial Pacific 1	Honolulu	17-Mar-08	17-May-08	61	5/56	12/44	Palike, Ahagon
Equatorial Pacific 2 (4) /Juan de Fuca	Honolulu	17-May-08	17-Jul-08	61	7/54	19/35	Lyle, Raffi
Bering Sea	Astoria	17-Jul-08	16-Sep-08	61	5/56	13/43	Takahashi, Ravelo
Shatsky	Tomakomai	16-Sep-08	16-Nov-08	61	5/56	17/39	TBN
Canterbury	Suva	16-Nov-08	16-Jan-09	61	5/56	7/49	TBN
Wilkes Land (5)	Wellington	16-Jan-09	21-Mar-09	64	5/59	16/43	TBN
1 This operational schedule is pending SASEC, IODP-MI BOG, and Lead Agency approval. 2 Ports of call may change for logistical/budgetary considerations. 3 The ship will depart Singapore when ready. Duration of the sea trials during the initial transit may increase. 4 Equatorial Pacific 2 scientists will depart ship in San Diego prior to JdF operations. 5 Wilkes Land includes operational time for Adelie.							
21							

 Program Planning: FY09+	
USIO	
• FY09 program planning has essentially begun as result of unprecedented fiscal challenges to the program • NSF/IODP guidance is that the FY08 funding level will be the target for FY09 and beyond – USIO directed to reduce operations to ~70% of time (~4 expeditions per year) – One more expedition to be scheduled, contingent on funding levels • More details on budget constraints and resulting service options to be presented separately	
22	



Recent Appointments

- SODV
 - Project Manager (Singapore): Guy Bear
- JOI
 - Associate Director: Sean Higgins
 - Assistant Director: Margo Morell
- TAMU-TAS
 - Manager Tools and Analytical Services (TAS): Peter Blum
 - Supervisor of Analytical Services eliminated
 - Supervisor of Analytical Systems: David Houpt
 - Supervisor of Applications Development: Paul Foster
- TAMU-SCIOPS
 - Supervisor of Science Support: Adam Klaus
 - Staff Scientist: Joerg Geldmacher
 - Staff Scientist: Kusali Gamage
- LDEO
 - Logging Staff Scientists: Trevor Williams and Louise Anderson
 - Log Analyst: Tanzhuo Liu
 - Project Coordinator: David Grames





Scientific Technology Panel (STP)
Aug. 20-23rd 2007, Beijing

ESO report

J. Inwood, H. Kuhlmann



Dr Tim Brewer 1959-2007



Sadly, Tim collapsed and died on Saturday 14th July while attending a conference in Barcelona.





Dr Tim Brewer 1959-2007

- Tim was Manager of the European Petrophysics Consortium (EPC) that is a key element of ESO.
- He had long experience of logging with ODP through association with the Lamont group.
- We shall all miss his experience, expertise, humour and friendship.
- Mike Lovell, as Head of Department of Geology, will manage EPC in the short term until a long-term arrangement is made.



ESO Report for 5th STP Meeting

Tahiti Sea Level – Expedition 310

- Post-expedition meeting is to be held in Tahiti in November 2007
- ongoing tracking of post-expedition research output





New Jersey Shallow Shelf - Expedition 313

- Geotechnical survey was completed by Alpine Ocean Seismic Survey Inc in early May
- start was to be in mid-May, but there was gradual and continued slippage
- After the start date slipped to mid-August it was decided that continuing the expedition into the late autumn/early winter was not a viable option. Key factors were the potential loss of drilling time, platform supply risks, and safety issues. The Co-chiefs were immediately informed of the decision, followed by the Science Party and PMOs, before the information was more-widely distributed.
- ESO is in discussion with DOSECC to try to establish with a platform owner a contract that includes a defined start date for 2008.



Future expeditions

- Planning is proceeding for the **Great Barrier Reef Expedition** with a view to implementation in Sept-Nov 2008 or 2009.
- Pending satisfactory site survey work in September-October 2007, and SSP and EPSP approval.
- Drilling permit application has been made to the Great Barrier Reef Marine Park Authority, and a tender notice for a platform has been placed in the Official Journal of the European Union.
- A useful meeting was held at IODP-MI with the proponents of the **New England Hydrogeology** proposal.

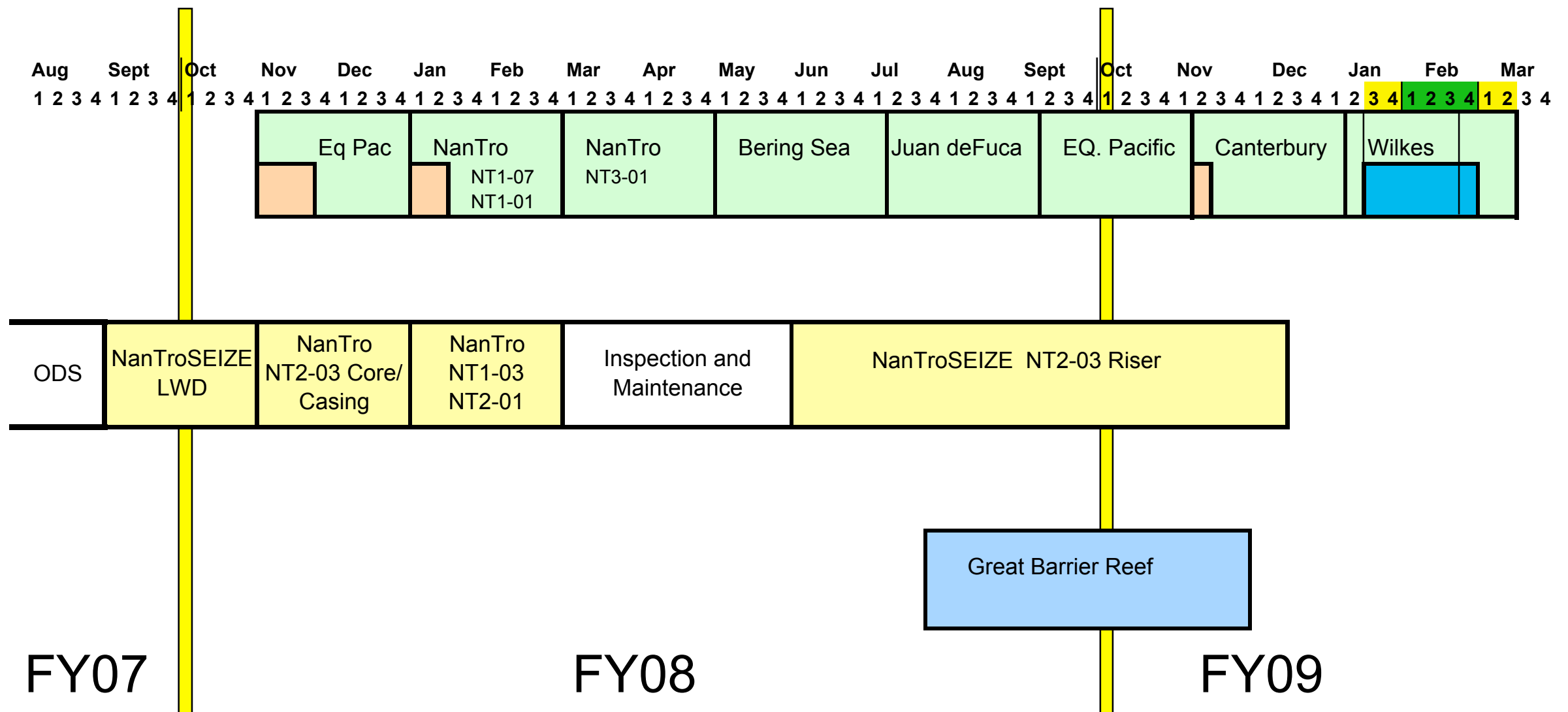


SPC/SASEC Report to STP

Beijing, Aug 2007, K. Becker

1. Update on FY08-09 schedule development, in light of realistic budget projections and start date for JR IODP operations - 3 OTF meetings and 2 major schedule adjustments required since last STP!
2. March 2007 SPC rankings for FY09 + beyond
3. Update from March and June SASEC meeting
4. Update on SAS review by SASEC WG - potential implications for STP?

Summary FY07-09 Schedule as of August SPC



March 2007 SPC FY08 Schedule Adjustment

- In late January/early February, NSF issued FY08 budget guidance to USIO below expectations, and also specified a Jan 1 2008 earliest start date for SODV international operations.
- Operations Task Force (OTF) met Feb 22 and March 2 primarily to develop alternative SODV schedule options in response to NSF financial guidance.
- March SPC SODV schedule consensus on next 2 slides
- SPC also accepted minor schedule adjustments made by OTF to previously approved Chikyu and MSP FY08/09 operations - these are essentially the same from science perspective.

SODV Schedule Adjustment - SPC Consensus (1 of 2)

SPC Consensus 0703-15. The SPC accepts the adjustments recommended by the Operations Task Force to the FY08-09 SODV science operations schedule in response to NSF budgetary guidance for FY08 and other logistical factors. After a January 1 start date to international operations and a short transit, the approved schedule would include the following sequence:

- NanTroSEIZE Stage I coring (Proposals 603A-Full2, 603C-Full; subduction inputs and NT3-01)
- Equatorial Pacific Paleogene Transect I (Proposal 626-Full2)
- Equatorial Pacific Paleogene Transect II, ending with remedial cementing of two Juan de Fuca CORKs installed on Expedition 301
- Bering Sea Pliocene/Pleistocene Paleoceanography (Proposal 477-Full4)
- Spanning the FY transition, a transit to the Southern Oceans with undetermined potential for brief additional science operations
- Canterbury Basin Sea Level (Proposal 600-Full)
- Wilkes Land Paleoceanography (Proposals 478-Full3, 638-APL2)

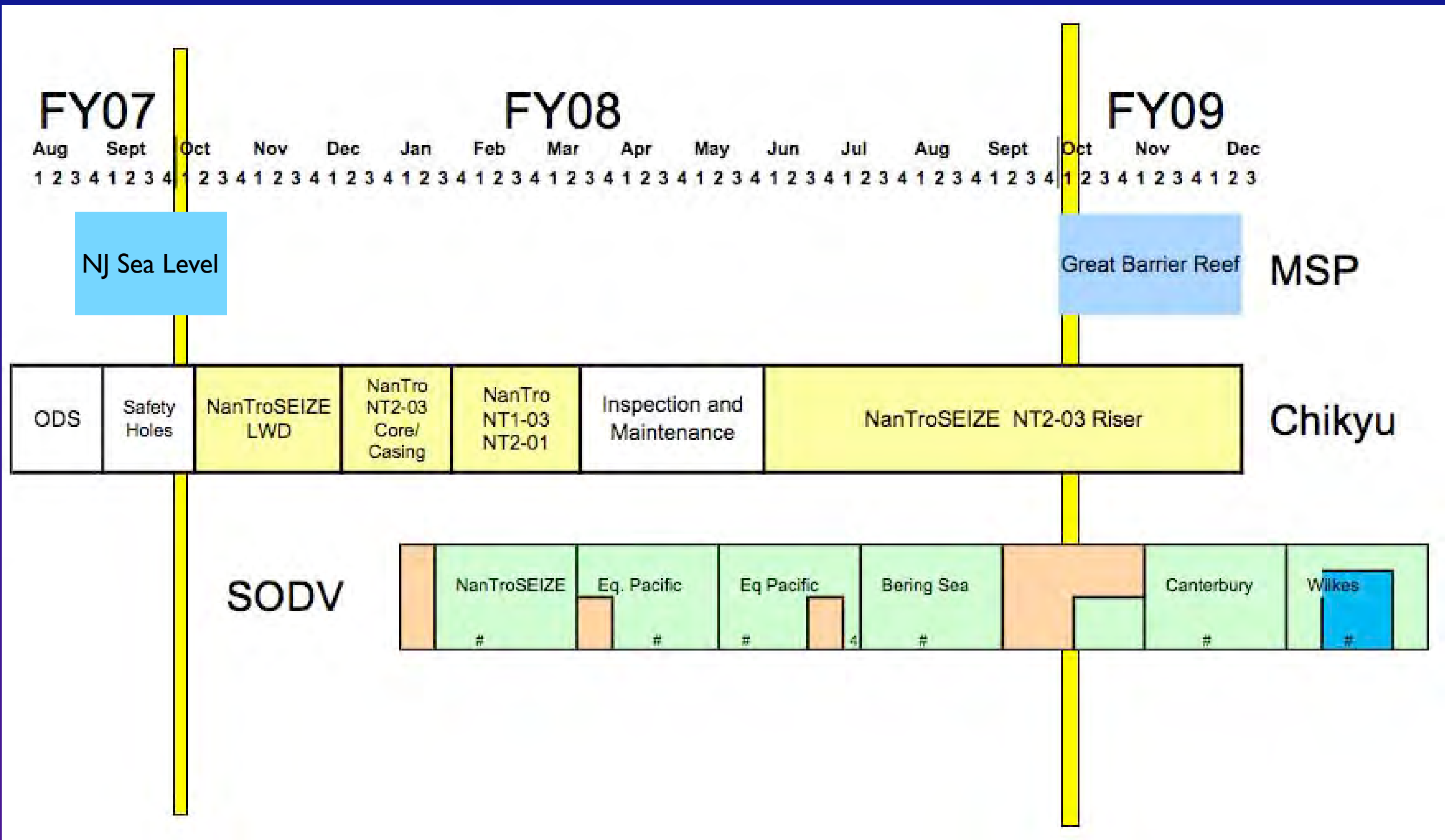
SODV Schedule Adjustment - SPC Consensus (2 of 2)

This adjusted schedule is as close as possible to the previously approved FY08-09 schedule given the budgetary and logistical constraints, except that it does not include an initial NanTroSEIZE observatory and the observatory-intensive second Juan de Fuca IODP expedition.

Nevertheless, it still presents a strong mix of societally-relevant, highly-rated seismogenic zone, paleoclimate, and sea level objectives, early enough in Phase II that the results can be expected to have a significant positive impact on renewal of IODP post-2013.

In the event that NSF, IODP-MI, and the USIO cannot identify the resources to achieve the full sequence of FY08 SODV operations above, SPC recognizes that the fourth FY08 expedition (Bering Sea paleoceanography) would need to be deferred, and that a completely different model for FY09 SODV operations would need to be developed at the June 2007 Operations Task Force and August 2007 Science Planning Committee meetings.

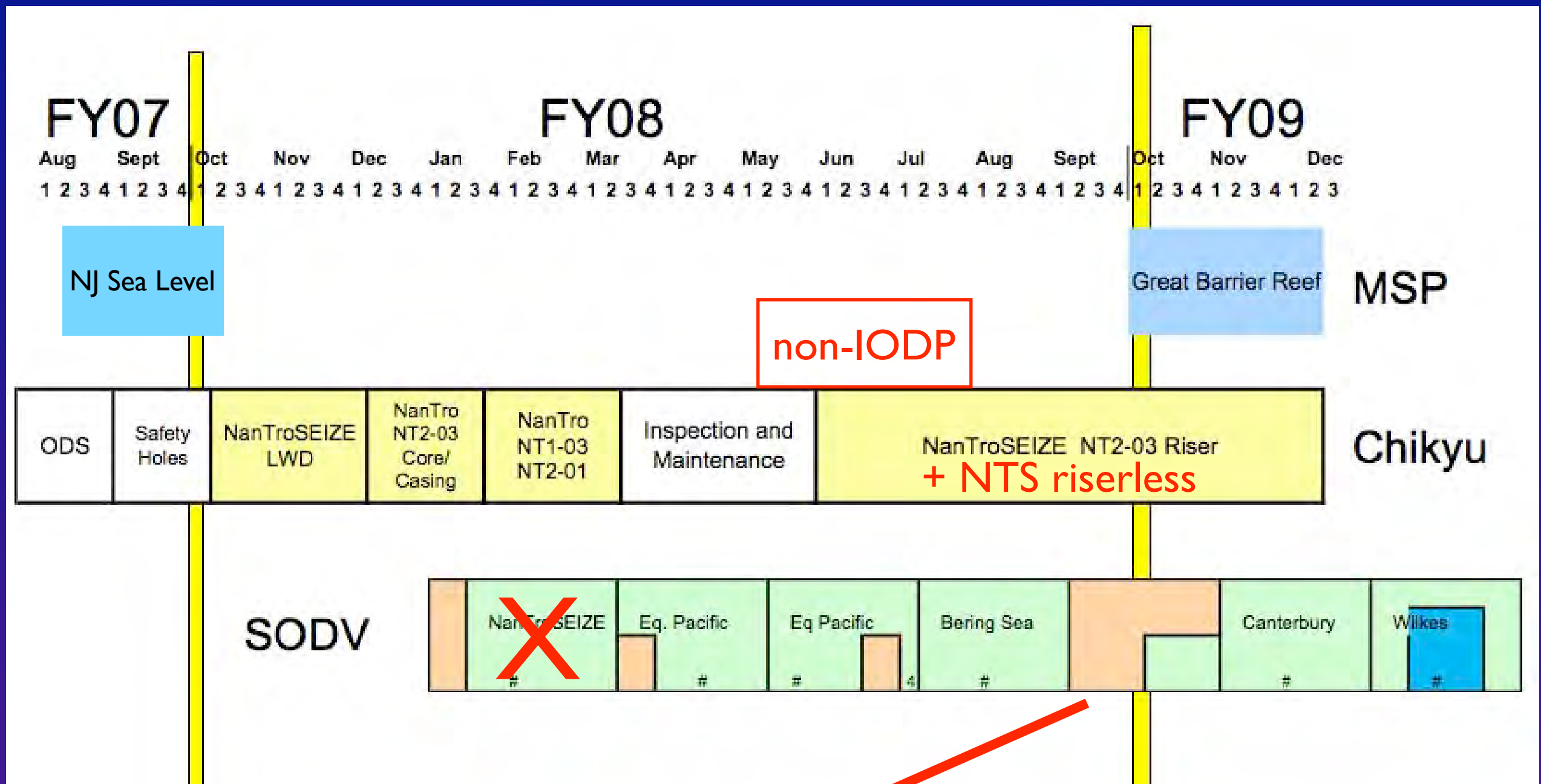
Summary FY07-09 Schedule as of March SPC



June OTF: Further FY08 Schedule Adjustments

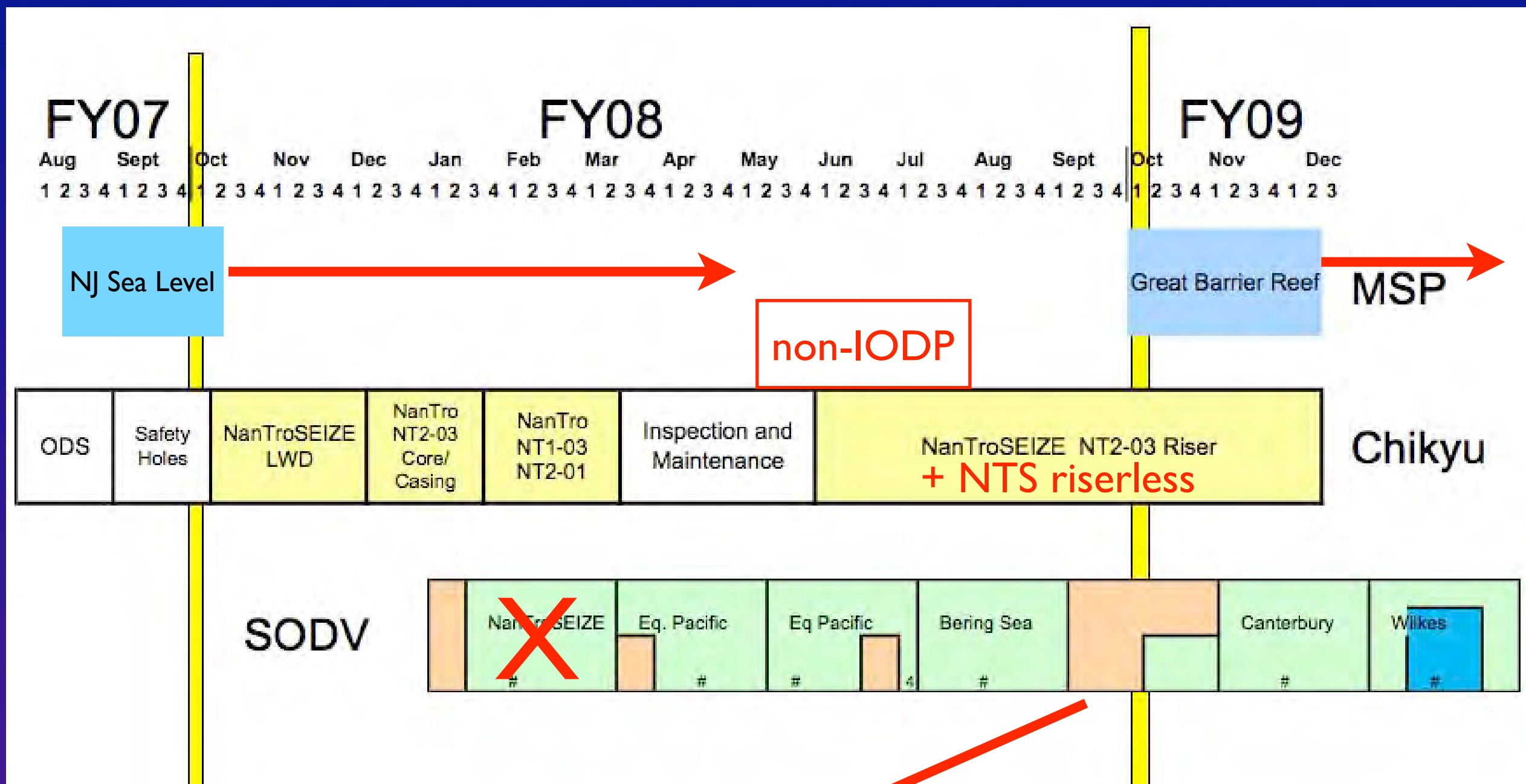
- The initial SODV NanTroSEIZE expedition cannot remain on the schedule because of combination of (a) slippage of SODV shipyard schedule and (b) Japanese fishing union ban on NanTroSEIZE operations March 1 - May 31.
- The adjusted SODV schedule recommended by OTF retains the subsequent three programs in slightly earlier slots, as well as the early FY09 Southern Ocean pair of programs, as in the previously approved schedule and APP.
- OTF agreed that a good part of the deferred NTS riserless work can be picked up by Chikyu during a 2-3 month period of riserless operations in fall of 2008, as proposed by CDEX. Subject to PMT and SPC endorsement, this could include some combination of subduction inputs coring and the Kumano Basin (NT3-01) objectives, hopefully including the initial observatory that was dropped from the SODV FY08 schedule as of March OTF and SPC meetings.
- This means that some NTS Stage 2 riser work will probably be deferred to late FY09/FY10, assuming plan to continue with the NTS program as the top priority for riser work beyond FY09.
- For the August SPC, the USIO is exploring three possibilities for the potential slot on the transit between Bering Sea and Southern Oceans: NTS riserless work, Mariana fore-arc, Shatsky Rise basement.

Summary FY07-09 Schedule as of June OTF



For the August SPC, the USIO is exploring three possibilities for the potential slot on the transit between Bering Sea and Southern Oceans: NTS riserless work, Mariana fore-arc, Shatsky Rise basement. (All have potential typhoon issues.)

Summary FY07-09 Schedule as of July



For the August SPC, the USIO is exploring three possibilities for the potential slot on the transit between Bering Sea and Southern Oceans: NTS riserless work, Mariana fore-arc, Shatsky Rise basement. All have potential typhoon issues.

March 2007 SPC Proposal Review/Ranking

- 18 proposals reviewed
 - 13 from previous SPC review/ranking meetings;
5 newly forwarded from SSEP in last year
 - 1 riser program, 3 MSP, rest riserless
- 3 excluded from ranking (consensus 0703-11)
 - 2 for completion of ongoing site survey data analysis and site characterization; these are expected to be available for review and ranking at March 2008 SPC.
 - 1 for a major expansion of proposed objectives in an addendum, rendering the past reviews inadequate and raising issues of site survey data adequacy; submission of revised proposal requested, with SSEP review.

SPC March 2007 Global Rankings

(excludes 3 reviewed proposals)

Rank			Mean	Stdv
1	505-Full5	Mariana Convergent Margin	5.59	3.36
2	659-Full	Newfoundland Rifted Margin	5.76	3.80
3	633-Full2	Costa Rica Mud Mounds	6.12	3.48
4	552-Full3	Bengal Fan	6.29	4.06
5	644-Full2	Mediterranean Outflow	6.35	3.44
6	654-Full2	Shatsky Rise Origin	6.65	4.00
7	537B-Full3	Costa Rica Seismogenesis Phase B (Riser)	6.94	2.93
8	522-Full5	Superfast Spreading Crust	7.18	4.00
9	661-Full2	Newfoundland Sediment Drifts	7.29	4.13
10	548-Full2	Chixculub K-T Impact Crater (MSP)	8.18	5.04
11	612-Full3	Geodynamo	9.71	5.64
12	581-Full2	Late Pleistocene Coralgall Banks (MSP)	9.94	4.19
13	618-Full3	East Asia Margin (MSP with riser)	10.47	3.79
14	584-Full2	TAG II Hydrothermal	11.35	3.32
15	547-Full4	Oceanic Subsurface Biosphere	12.18	1.94

This is by far the most even ranking on statistical basis, ever since SCICOM began annual global ranking (1997).

SPC March 2007 Rankings - Forwarded to OTF

(blue = Group 1* for FY09 and beyond
yellow = Group 2** for FY09/10 only)

Rank			Mean	Stdv
1	505-Full5	Mariana Convergent Margin	5.59	3.36
2	659-Full	Newfoundland Rifted Margin	5.76	3.80
3	633-Full2	Costa Rica Mud Mounds	6.12	3.48
4	552-Full3	Bengal Fan	6.29	4.06
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14	584-Full2	TAG II Hydrothermal	11.35	3.32
15	547-Full4	Oceanic Subsurface Biosphere	12.18	1.94

* All Group 1 proposals from 2003-2007 to be reevaluated at Aug SPC

** Group 2 to be re-ranked at March 2008 if not scheduled in FY09/10

SPC Perspective on June 20 OTF Meeting

- In the current budget situation, it seemed clear that the best way for the USIO to afford programs with any special expenses (long casing, observatories, etc) is to conduct “off-contract” work to pay some proportion of annual fixed costs, banking the savings for the next fiscal year.
- Thus, only simple, inexpensive SODV expeditions are possible for FY08-09; FY10 is the earliest possible time for expensive observatory/casing programs, assuming that the USIO can find off-contract work in FY09.
- OTF explored a range of hypothetical scheduling approaches for coordinated scheduling of IODP and off-contract work. No single model was adopted, but there was general agreement it could be worked out on an ad hoc basis with appropriate approaches.
- Initially, the best potential for USIO off-contract work seems to be in Gulf of Mexico and Atlantic (North Sea and West Africa), possibly Indonesia or India.
- The Gulf of Mexico/Atlantic prospects are consistent with a critical mass of OTF programs in Atlantic/E. Pacific, which would allow for reasonable scheduling options to accommodate both.

So how bad is the financial situation?

- CDEX projects to be able to conduct IODP operations 14 months of every two years.
- USIO projects to be able to conduct IODP operations ~7-9 months/year (3-4 expeditions?).
- Options for remaining time include: (a) idle time in port, (b) IO-solicited “off-IODP-contract” work, or (c) co-funded work of IODP interest.
- MSP operations are very expensive in current industry climate.
- Flexibility will be required, but to what degree?
- SPC chair personal opinion: the situation is difficult, and flexibility is indeed required, but IODP science principles must remain paramount.
- SASEC and Management Forum endorsed mix of high-priority IODP economical programs and ambitious (expensive) programs, as opposed to option for scheduling only less expensive programs in order to maximize platform operating time.
- Implication: Rigorous SAS science review is even more important. The best IODP science should still be scheduled, but SAS will need to be even more selective in review process.

August SPC Review of OTF proposals (I)

Currently at OTF are about 25 “Group I” proposals from the 2003-2006 SPC rankings. The original plan discussed at the March SPC meeting was to review these in August on an ISP thematic basis, and then prioritize them on the same basis. However, given the difficult budget situation, we are intending instead to review them in groups according to three main issues:

1. Just over half include observatories, only a few of which seem possible before renewal. SPC will review these as a group and prioritize them, perhaps deactivating some (unless proponents raise external funding?).
2. Two are major riser programs, when at best only one more riser program besides NTS can just be started before renewal. SPC will review and prioritize the two riser programs.
3. The MSP programs at OTF are very expensive, with one exception that will still cost >\$5M. Also, there are not many MSP programs coming through SSEP, particularly inexpensive MSP programs. SPC needs to decide how to handle the very expensive proposals, and SPC/SASEC may need to do something to encourage more MSP proposals.

August SPC Review of OTF proposals (2)

- The remainder of OTF programs are mostly riserless programs with reasonable costs, distributed globally. They should probably be left at OTF to allow USIO and CDEX flexibility in scheduling riserless programs, especially as off-contract work might become available in any ocean.
- One special case for SASEC advice: Monterey Bay Observatory. This was forwarded by SPC in June 2004 not on the basis of a science ranking, but for the engineering/test-bed aspects. The last statement from SAS was a strong endorsement with qualifications from SPPOC (June 2005) that highlighted the need for a test facility. However, an EIS for Monterey would be very expensive, and really cannot even be considered until the proponents develop a detailed science and operations plan for the instrument testing. When SPC forwarded the engineering part in 2004, the science aspect was known to be weak so the proposal was not ranked. Given budget and operational realities, SASEC rescinded the earlier SPPOC endorsement.

Highlights of March SASEC Mtg

- SASEC formally approved Jim Mori as next SPC chair.
- SASEC received interim recommendations of SAS review WG and asked for final report at June 2007 SASEC meeting, including reduced SAS scenarios if required by budget situation.
- In light of IODP budget shortfalls, SASEC endorsed IODP-MI pursuit of mutually beneficial collaborative relationships with industry to utilize IODP platforms, with flexibility as long as scientific integrity of the IODP program is preserved.
- SASEC also endorsed exploration of ICDP-IODP mutual core curation and proposal evaluation efforts.
- SASEC took nominations for editorial board to update ISP, at the same time recognizing the need to prioritize among ISP objectives.
- SASEC reviewed 7 workshop proposals for FY08 and prioritized ultra-high resolution paleoclimate first. SASEC also endorsed FY07 co-sponsorship of ICDP-IODP sea level workshop.

Highlights of June SASEC Mtg

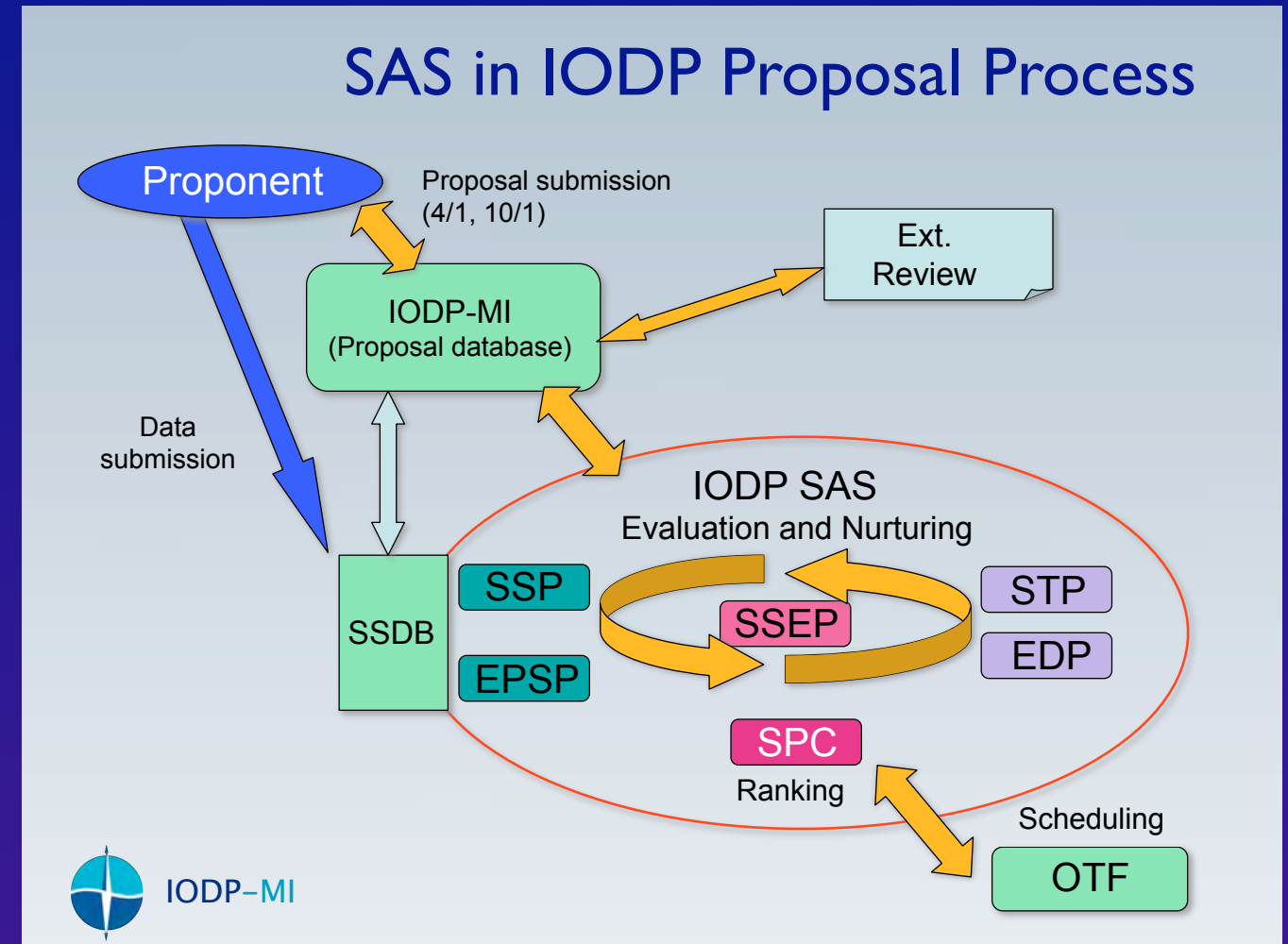
- SASEC was unable to issue formal approval of the FY08 program plan because of the rescheduling uncertainties.
- SASEC rescope and advanced the timeline for its plan to update the ISP. The plan is now to reaffirm the basic ISP science themes and initiatives, but focus on selected subjects through Phase 2 before 2013 IODP renewal.
- SASEC accepted the report of its WG to review SAS (later slides).
- In light of IODP budget shortfalls, SASEC endorsed two specific avenues for pursuing outside funding sources for IODP platform operations: (1) a purely non-IODP option and (2) a hybrid model with quick SAS evaluation of “Complementary Project Proposal.”
- SASEC reviewed 7 workshop proposals for FY08 and prioritized ultra-high resolution paleoclimate first. SASEC also endorsed FY07 co-sponsorship of ICDP-IODP sea level workshop.

SAS Working Group Report - Background

In July, SASEC formed WG to review SAS and recommend “any changes to optimally configure its activities as IODP enters Phase II” or “any changes in structure necessary to integrate missions into the IODP proposal review process.”

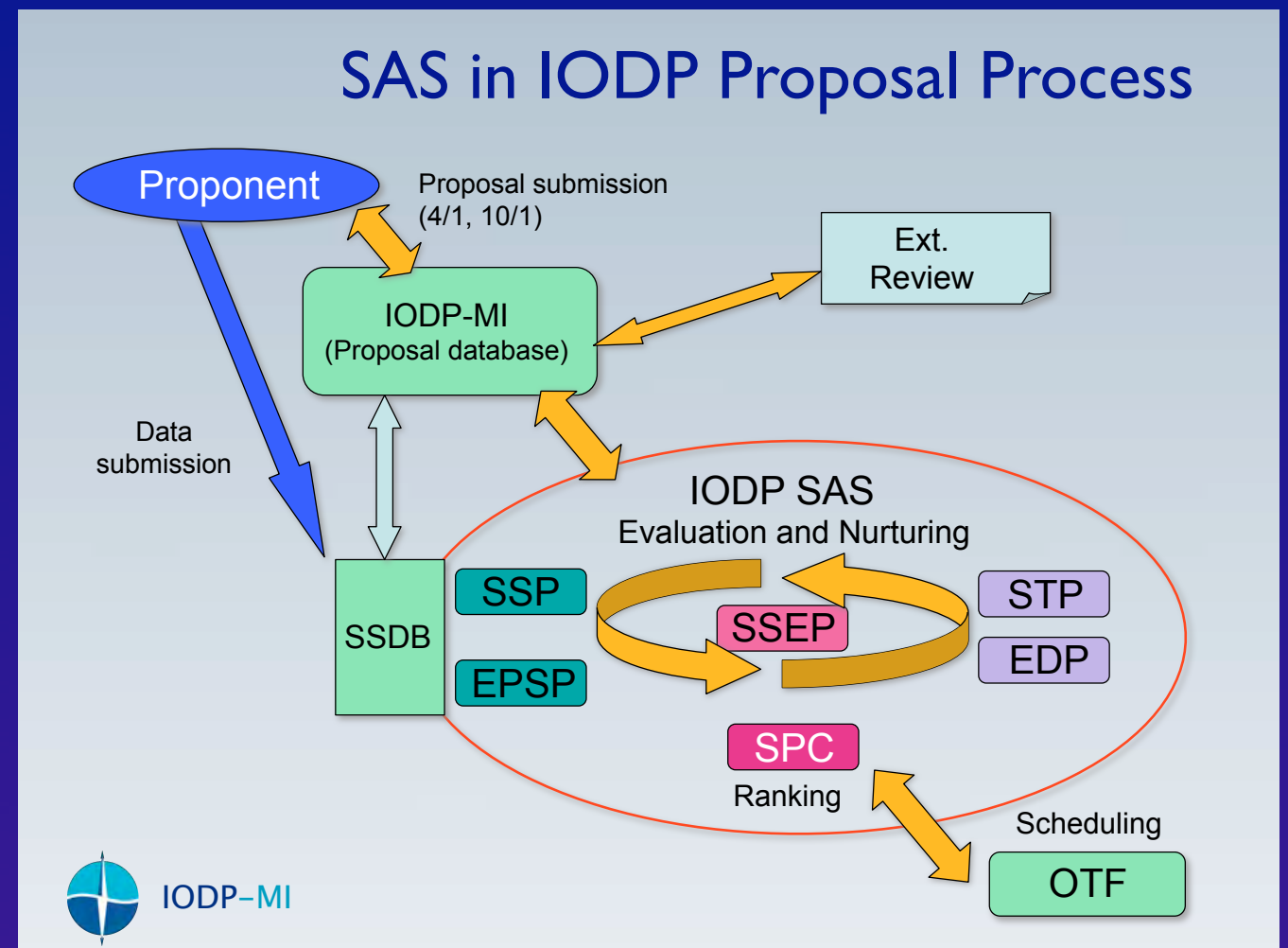
After FY08/09 budget shortfalls came to light in January, March SASEC asked WG to also look at reduced SAS for cost savings.

As discussed at Nov SASEC meeting, WG findings are based on an “internal” review, with IODP community input via responses through Feb 28 to the WG questionnaire distributed in Dec.



SAS Working Group Report - WG Perspective

Overall WG perspective and interim recommendations honor the clear statements of role of SAS in ISP (2001), IODP Principles (2002), and IODP Memoranda (2003). All three define a proposal-driven process for developing annual IODP science plans, with SAS providing the integrated proposal review and the recommended science plans to the CMO.



The WG recommendations preserve the core SAS proposal review process (SSEP/SPC), but identify significant efficiencies and cost savings in terms of reduced panel memberships and technical panel meeting frequencies. WG did not consider in depth the potential for joint ICDP/IODP evaluation of all IODP and ICDP proposals, but agreed that a coordinated process is needed for “amphibious” projects involving both IODP and ICDP drilling.

SAS issues raised in questionnaire responses or by WG

(✓ = one key issue described in this presentation)

- ✓ Panel sizes and terms of membership - issues of (a) corporate memory vs new blood as well as (b) budget limits
- Proposal review process and SAS “corporate memory”: Shortening/simplifying the process to reduce proposal residence times and possibility of inconsistent reviews
- Focusing technical/engineering/survey advice better
- Need for more proactive long-term planning by SPC and SASEC
- SAS communication - between panels, among panels/IODP-MI/IO’s, and among panels/PMO’s
- Relationships between SAS panels and corresponding IODP-MI task forces
- Disconnect between site survey recommendations and funding process
- Need for earlier EPSP previews of proposals with likely safety concerns

Panel sizes and terms of membership

- WG: Voluntary reductions in technical panel membership levels (STP, EDP, SSP, maybe EPSP) - smaller “core” memberships augmented by expert advice as needed at one of two annual meetings.
 - ▶ Panel chairs agreed, assuming better interaction with PMO’s for expertise and activity level of members. SPC and PMO’s tentatively agreed on reductions of US and Japanese membership, but not ECORD, for 5/5/3(I)/I model rather than current 7/7/3(I)/I (which is not actually mandated).
- Similar reduction being implemented by PMO’s for SSEP but not SPC
- WG, SPC, and PMO’s: standard term of 3 years but allow flexibility for 3rd and 4th years of membership at PMO discretion upon request from SAS through IODP-MI.
- Depending on implications of budget reductions for panel work loads, consider reducing service panel meeting frequencies depending on careful assessment of need for meetings, i.e., no mandate for two annual meetings.
- The reductions in membership levels, in some panel meeting frequencies, and potentially in #’s of observers should result in ~30-40% cost savings in SAS, largely for US and Japan.

If further SAS reductions are needed to save costs, what might be the effect on STP?

- Addendum to WG report explored 4 scenarios for further reductions in SAS if demanded by budget shortfalls... but did not recommend any of them at present.
- One of those scenarios was for the case that there is minimal or no program funding through 2013 for engineering development and shipboard technology improvements.
- In that case, it would be logical to consider two possibilities:
 - combining STP and EDP
 - keeping two panels but restricting meetings to one annual meeting
- Before adopting such a change, WG recommended first consulting with SAS itself. EDP might think ahead to envision how it thinks it could best function on a reduced basis.

QA/QC Taskforce Update

STP Meeting, Beijing

August 2007

Taskforce Team

- IODP-MI: Kelly Kryc/Tom Janacek
- CDEX: Kan Aoike and Philippe Gaillot
- ESO: Timothy Brewer and Ursula Roehl
- USIO: Sean Higgins, David Houpt, and Trevor Williams
- STP: Mike Lovell and Clive Neal

Taskforce Vision

The IODP QA/QC Taskforce seeks to establish policies to ensure that the highest quality data possible are produced on all IODP platforms and associated shorebased facilities.

These policies will define guidelines for traceability of measurements, documenting procedures, recording results, and determining uncertainty for all data generated by IODP.

Mandate

The Quality Assurance/Quality Control (QA/QC) Taskforce establishes the framework for QA/QC procedures for measurements made on all IODP platforms and shore-based facilities and the SAS structure + IOs monitor the success of the implemented QA/QC framework.

Mandate

The Task Force also defines the QA/QC guidelines for at least the IODP minimum and standard measurements across the full range of disciplines (e.g., geochemistry, petrophysics, microbiology, core description, logging, etc.) including, but not limited to:

- Establishing general policies for capturing all relevant QA/QC data and metadata;
- Establishing general policies for ensuring quality of data across all IODP platforms and expeditions and including shore-based laboratories (e.g., that all data generated by IODP platforms/labs are traceable);

Mandate

- Establishing a general policy that, where practical/appropriate, reference materials be used and their data captured;
- Establishing general policies for data transfer and integrity protocols to ensure quality control of the IODP databases; and
- Recommending that the IOs develop and implement protocols for calibration, determining uncertainty, and traceability in all IODP measurements, and that the IOs report these protocols to STP for review.

Charge to STP Working Groups

- In breakout sessions, discuss the draft QA/QC report;
- Suggest changes - Task Force members will be available to clarify issues that come up in your discussions.
- Working Group chairs report back by Wednesday.

Sato-san is back on STP!



Welcome back, Sanny

The emails below and the attached documents from UISO, CDEEX and ESO were sent to IODP-MI for distribution to the panel; but their delivery to IODP-MI failed on two occasions for unknown reasons. Consequently they were unavailable to the panel prior to the STP meeting in Beijing.

From: Lovell, Prof M.A.
Sent: Fri 17/08/2007 02:21
To: science@iodp-mi-sapporo.org
Subject: FW: IO presentations at the August STP meeting

Your message did not reach some or all of the intended recipients. Subject: FW: IO presentations at the August STP meeting Sent: 17/08/2007 02:21 The following recipient(s) could not be reached:

science@iodp-mi-sapporo.org on 19/08/2007 02:26
Could not deliver the message in the time limit specified. Please retry or contact your administrator.
<saffron.cfs.le.ac.uk #4.4.7>

From: Lovell, Prof M.A.
Sent: Wed 15/08/2007 15:05
To: IODP-MI Science
Subject: RE: IO presentations at the August STP meeting

Your message did not reach some or all of the intended recipients. Subject: RE: IO presentations at the August STP meeting Sent: 15/08/2007 15:05 The following recipient(s) could not be reached:

IODP-MI Science on 17/08/2007 15:11
Could not deliver the message in the time limit specified. Please retry or contact your administrator.
<saffron.cfs.le.ac.uk #4.4.7>

From: Hans Christian Larsen [mailto:hclarsen@iodp-mi-sapporo.org]
Sent: Wed 04/07/2007 09:36
To: ddivins@joiscience.org; Evans, Dan; ataira@jamstec.go.jp
Cc: Keir Becker; Lovell, Prof M.A.; Thomas Janecek; science@iodp-mi-sapporo.org; Jeff Fox; Y.Kawamura; Manik Talwani
Subject: IO presentations at the August STP meeting

Dear Asahiko, Dan and David:

This is to inform the IOs that IODP-MI and the SAS would like you to

present, initially to STP, your considerations regarding options for program savings (SOCs and related POCs, if any) that could be obtained from reduced shipboard services with respect to scientific measurements and core processing. In order for SAS to provide timely input on IODP analytical measurement principles and priorities in this new fiscal climate, it is important to start explain to the science community, through SAS, what options exists, and the technical and fiscal consequences of these options, if implemented.

In the current fiscal state of the program, all options, in principle, must be considered. The spectrum of options, therefore, should cover the original IODP goals of a high level of scientific measurements on one end, to a simple core recovery model without shipboard core splitting and core description on the other end. To this very basic level of operations, the following steps (for guidance) can be added increments as they appear practical for efficient implementation:

1) Ephemeral measurements on whole cores (by minimum technical staff). By ephemeral measurements we mean measurements conducted on cores/samples that change over time (e.g., color, water content). Measurements that cannot be obtained once you leave the site (such as logging or downhole temperature measurements) should not be considered as ephemeral measurements but classified separately.

2) Whole core scanning (e.g., MST type) measurements

3) Core splitting and core description (i.e., science party participation as required) with measurements limited to ephemeral measurements.

4) As (3) but with minimum measurements (as per STP definition) and full science party

5) As (4) but including standard measurements

6) Level as used for original FY08 planning

The steps above are for guidance only. The breakdown may naturally fall into somewhat different steps as dictated by staffing details.

For the most basic models, the shorebased cost of core splitting, core descriptions, and minimum/standard measurements should also be presented with a breakdown showing expenses to IO staff and services and the cost of scientists traveling and staying on location.

We request you to report on this issue at the upcoming STP meeting in Beijing, China, August 20-23. Let us know if you have any questions.

Best regards,

Hans Christian Larsen & Tom Janecek

--

Hans Christian Larsen
Vice President of Science Planning
Head, IODP-MI Sapporo Office

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Ph. home: +81 (0)11 709 0550
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E-mail: hclarsen@iodp-mi-sapporo.org

INTEGRATED OCEAN DRILLING PROGRAM MANAGEMENT INC. (IODP-MI)
Washington D.C. & Sapporo

>-----Original Message-----

>From: Lovell, Prof M.A. [<mailto:mtl@leicester.ac.uk>]

>Sent: 10 July 2007 09:20

>To: Hans Christian Larsen; ddivins@joiscience.org; Evans, Dan;

>ataira@jamstec.go.jp

>Cc: Keir Becker; Thomas Janecek; science@iodp-mi-sapporo.org; Jeff Fox;

>Y.Kawamura; Clive Neal

>Subject: RE: IO presentations at the August STP meeting

>

>Dear All

>

>This item will form a major and most important part of the STP meeting
>in Beijing, with the STP Report then being forwarded to SPC the
>following week for discussion. Later this week we will be finalising the
>agenda for the meeting.

>

>To enable participants to digest the responses of each IO it would be
>helpful if you could submit your reports prior to the STP meeting. I
>appreciate that the timeline is short for this work, and that each IO
>will be stretched in delivering to IODP-MI's request, but delivery of
>your report one week prior to the meeting would certainly enable STP to
>fully consider and discuss all aspects of the proposed program savings
>(SOCs and related POCs, if any) that could be obtained from reduced
>shipboard services with respect to scientific measurements and core
>processing.

>

>Consequently I ask that each IO submit an initial report to the IODP-MI
>office for circulation to attendees, no later than Friday 10th August.

>

>Best wishes

>

>Mike Lovell

>STP Chair



USIO

**USIO Budget Outlook and
Operational Model Comparison Report
for the
Scientific Technology Panel (STP)
Beijing, 20-23 August 2007**



USIO

Outline

- USIO Budget Outlook for FY08 and Beyond
- USIO Summary of IODP-MI Potential Operational Models



FY08 Program Planning

USIO

- USIO has met the NSF/ IODP-MI budget target for FY08 of \$50.8M
 - SIC/POC: \$37.0M; SOC: \$13.8M.
- This was possible due to several extraordinary measures:
 - Covers costs of operations for January - September 2008.
 - SODV project covers costs into 2008.
 - Significant support through “buy-down” with FY07 funds.



Beyond FY08 Operational Planning

USIO

- NSF guidance for FY09+
 - Expect essentially flat to modest increases in funding above FY08 level of ~\$51M (essentially augmented by inflation).
 - USIO allowed to reduce operations to ~70% of time (~4 expeditions per year).

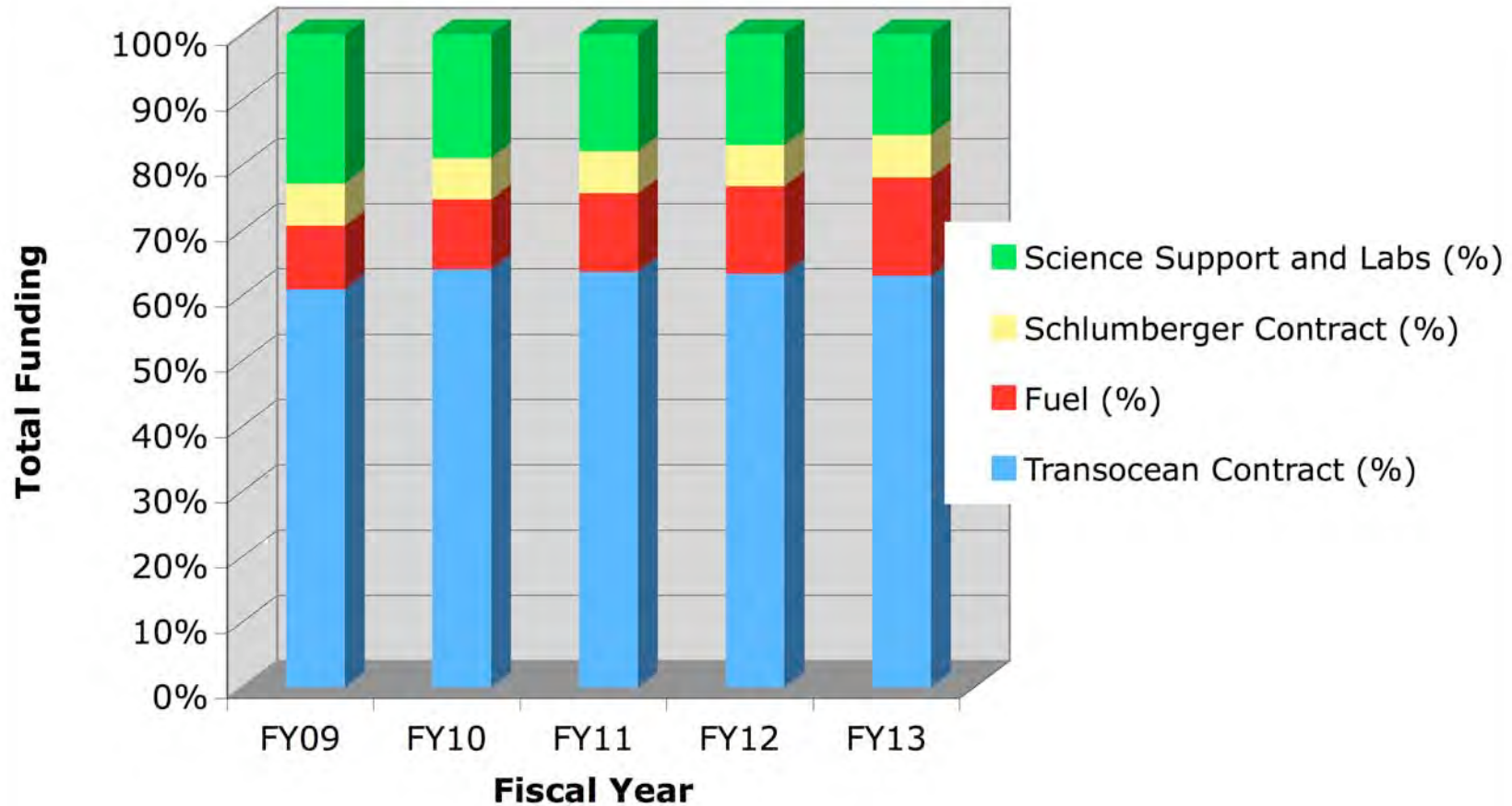
Major Operational Constraints

- USIO Program costs will be increasing due to higher ship rates, fuel costs, etc.
- 30% of time considered “Non-IODP” will need to be factored into planning, scheduling, and all aspects of IODP.



USIO

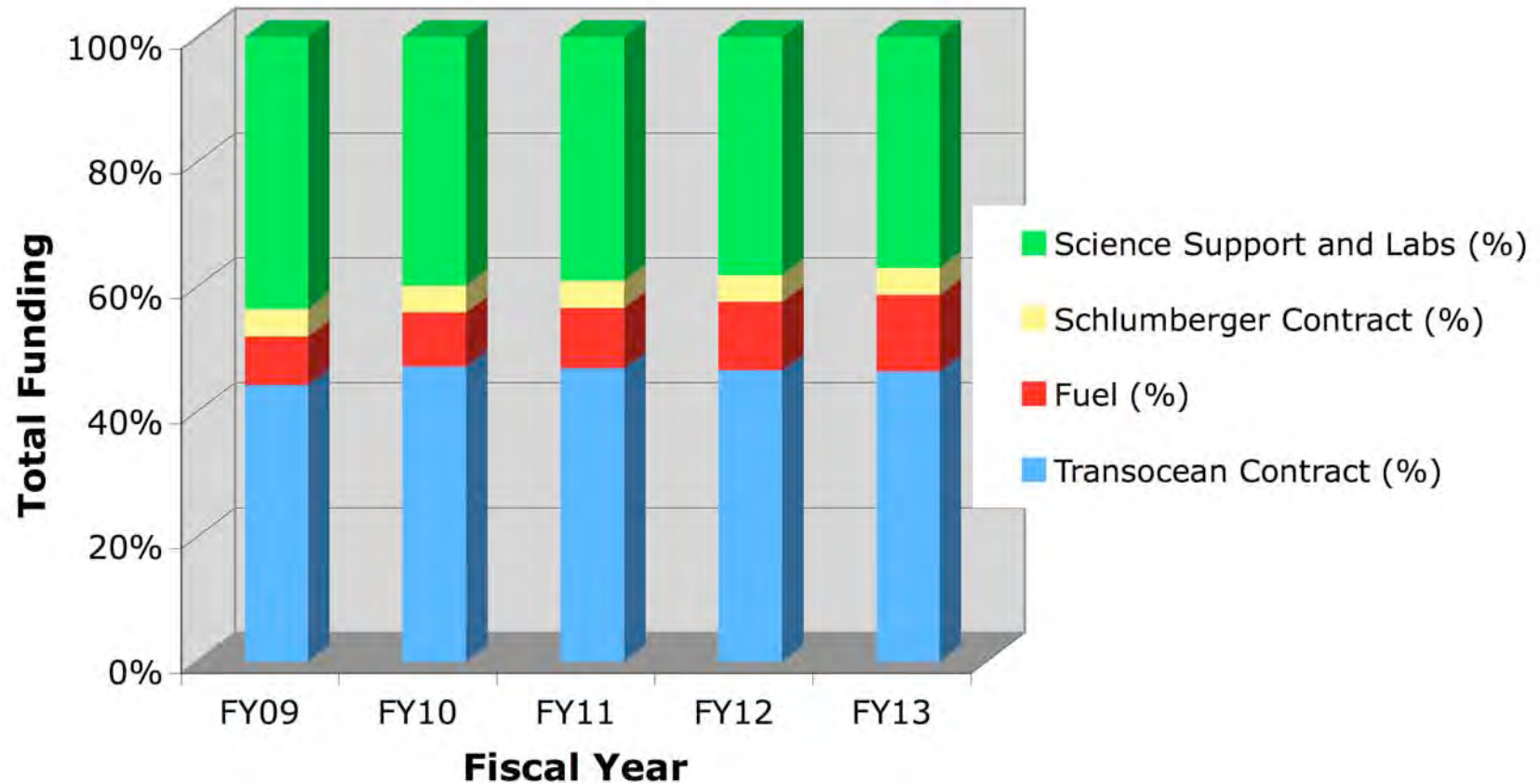
FY09+ Planning Based On 12 Month Ship Cost





USIO

FY09+ Planning Based On 8 Month Operations





IODP-MI Suggested Service Options

USIO

IO's were asked to consider the following options:

- Baseline: No shipboard core splitting, no core description
 1. Add ephemeral measurements on whole-cores
 2. Add whole-core measurements
 3. Add core splitting, core description, ephemeral measurements
 4. Add all minimum measurements and full science party
 5. Add standard measurements
 6. Services used for original FY08 planning



USIO

USIO Model Comparisons

Analysis of the IODP-MI potential options yields 3 basic models:

1. Core Recovery Only Model
(Includes IODP-MI Baseline, plus Options 1 and 2).
2. Ephemeral/ Minimum Measurements Model (Adds Options 3 & 4).
3. FY08 Baseline Program Plan Model (Adds Options 5 & 6).

Note: Downhole Logging is considered ephemeral measurement and is included in all 3 models.



USIO

Core Recovery Only Model

Model Assumptions:

1. Whole round cores are simply returned to core repository, stored with no description or core photo.
2. Only shipboard analyses would be whole round ephemeral (e.g., pore waters), safety, and whole round track measurements.
3. Limited or No Shipboard Science Party.
4. Limited USIO operational support for data management, publications, and analytical services.



USIO

Ephemeral/Minimum Measurements Model

Model Assumptions:

1. Cores recovered, split, and described.
2. Ephemeral (including safety), and STP minimum measurements made on cores.
3. Split Cores/Subsampling require significant technical/analytical staff.
4. Reduced Shipboard Science Party.



USIO

Baseline FY08 Program Plan Model

Model Assumptions:

1. Cores recovered, split, and described.
2. Ephemeral (including safety), and STP Minimum measurements made on cores.
3. Split Cores/Subsampling require significant technical/analytical staff.
4. Full Shipboard Science Party.
5. Support for standard measurements.



USIO Model Cost Analysis

USIO

- Established four expedition models for cost analysis:
 - Paleoceanography
 - Igneous
 - Hydrate
 - Observatories
- For all expeditions, effort requirements by both USIO and Science Party members was assessed to evaluate impact on overall science delivery.
- USIO analysis of shipboard sampling and analytical effort and cost.



USIO Shorebased Analysis Options

USIO

Shorebased options that complement operation models are being evaluated by USIO.

Preliminary conclusions to date:

- Full-scale science program onshore would be much more expensive for the same science services provided shipboard. Emphasizes importance of Shipboard Science Party.
- ESO “MSP-style” offers only reduced measurements on typically a few hundred meters of core and not full-scale science delivery on kilometers of core.
- Core Recovery model currently provides only for return of whole rounds to repositories. Repositories not currently set up facility-wise to deal with whole round cores.
- Responsibility for post-cruise science would probably fall on individual scientists.
- There are still significant unknowns with all options and all would require further analysis and input from science community, IODP-MI, and NSF.



FY09 Operational Model Cost Comparison

USIO

- Total USIO Baseline Model for FY09 and Ephemeral/ Minimum Models for 12 months with 4 Expeditions are essentially the same (see note below).
- Core Recovery Only Model for 12 months and 4 expeditions would be \$9M to \$10M less than other two models.

Note: USIO-Defined Ephemeral/Minimum model has only max. 2-5% less cost than full service model in FY08 Annual Program Plan. That range has been extrapolated into FY09.



What is Non-IODP Work and Why is it Important?

Non-IODP work is defined as using the *JOIDES Resolution* for work outside our NSF-IODP contract. Planning for finding, negotiating, and scheduling such work are being initiated by USIO.

These “off-contract” activities may include:

- Interagency projects (e.g., DOE-Methane Hydrates).
- Industry work (e.g., Geotechnical investigations, Casing Install.).
- Technology development(e.g., Testbed, Equipment).
- Industrial - Science Collaborations.
- Other possibilities.

This Non-IODP work will require that expedition planning by USIO and IODP-MI will have to become more flexible, coordinated, and have clearly defined priorities as we move forward.



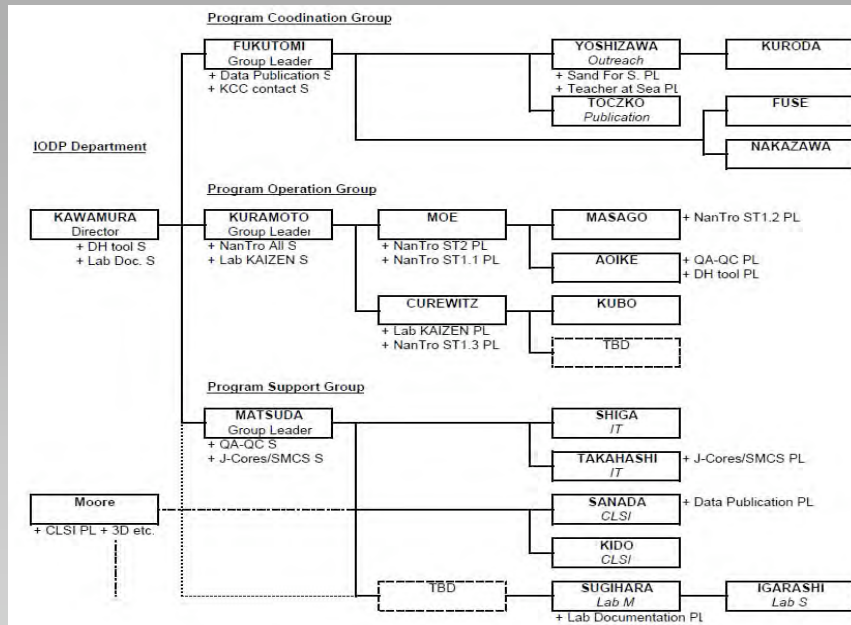
USIO Budget/Model Analysis Conclusions

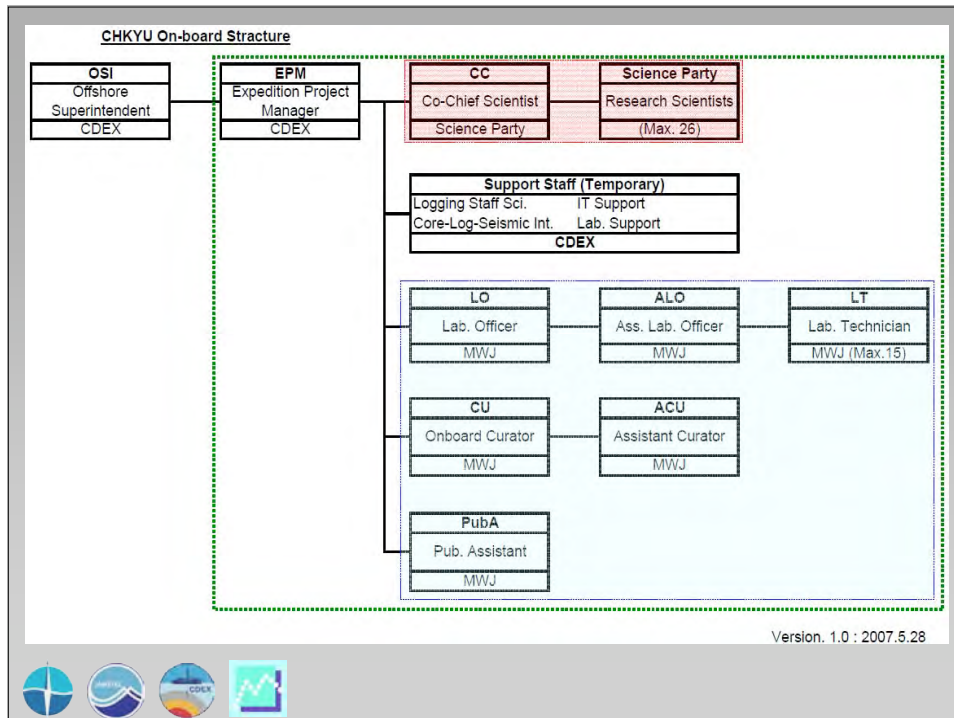
USIO

- USIO **recommended** operational model is the FY08 Baseline service model. Simply eliminating non-ephemeral/ non-minimum shipboard measurements saves only 2-5% of our budget. Once core is split on ship, measurements must be/should be made.
- Contributions from **Science Party** in making shipboard measurements are **crucial and important** elements for successful Science delivery, IODP legacy, and overall efficiency of IODP.
- Core Recovery Model is **not the preferred option** for USIO or NSF. NSF has made a major investment in building shipboard laboratories via SODV funding and every expectation is for us to make use of these resources.
- NSF FY09+ Operational Budgets **will require** an estimated 4 months of non-IODP funding. This will make available additional funding for science operations support for a 4 expedition/yr model moving forward.
- Additional 4 months of non-IODP funding will require **greater flexibility** in planning and implementation processes. Coordination of this “off-contract” work will require **clearly defined priorities and deliverables** between the USIO, IODP-MI, and the USIO.

CDEX Budget Outlook and Operation Model Analysis

- STP (Scientific Technology Panel)
- 2007 .8.20 - 23
- Beijing





FY08 Program Planning

- **SOC target : \$12.1M**
 - **Plan at Aug/07 : \$11.6M**
 - Expedition/Lab Support
 - Logging (LWD)
 - Engineering Development (LTBMS)
 - Core Curation (KCC)
 - Other
- **POC target : \$62.5M**
 - Five months Riserless Operation
 - Purchasing long-lead items



Beyond FY08 Plan

- **MEXT/LAs Guidance**

- **POC : \$80M average**
- **SOC : \$10M excluding E&D**
 - Expecting 5 months Riser Operation & 2 months Riserless average

- **Operation Constraints**

- Increasing any costs related to Oil Industry
 - Operator Crew
 - Fuel
 - Steel (Casing, Drill Pipe, Well head etc.)
 - Subcontractors' services (logging, mud, cement etc.)



IODP-MI Science Planning Suggestion (Model Analysis)

1. Ephemeral measurements on whole core
2. Whole-Core measurements (MSCL-W)
3. Core splitting, Core description
4. Minimum measurement
5. Standard measurement
6. FY08 plan



CDEX Model Analysis

- **Cost Impact Factors**
 - **Lab Service level = Lab Technician Numbers**
 - If provide some services on-shore, additional the technician will be required.
 - **Logging is considered as ephemeral service: wider range**
 - Introduction of new technology : LWD, large diameter tools



CDEX Model Analysis *cont.*

- **Option 1**
 - 3 technicians per shift (total 6 on board)
- **Option 2 & 3**
 - 5 technicians per shift (total 10 on board)
 - Core description by Scientists (small party)
- **Option 4**
 - 7 technicians per shift (total 14 on board)
 - Full Science Party
- **Option 5 & 6**
 - 9 technicians per shift (total 18 on board)
 - Full Science Party



Model Analysis Conclusion

- **SOC variation for lab support per Year**
 - Maximum : \$3.5M
- **CDEX opinions:**
 - ***Integrated on board science party activities are key/heart for IODP***
 - Reduction on services does not make big impact on total operation cost
 - **Reduction on services affects more on IODP science results**
 - Fluctuation of service level may increase maintenance cost



Fiscal implications for reduced IODP scientific services for MSPs

A report to the IODP Scientific and Technology Panel by the ECORD Science Operator

August 2007

1. Introduction

It is stressed that this document does not represent a proposal from ESO but has been produced in response to a request from Hans Christian Larsen of IODP-MI and the Chair of STP, Mike Lovell, to report to STP on 'reduced shipboard services with respect to scientific measurements and core processing'. The request was to indicate the cost savings that would be associated with incremental decreases in service from the present full model to a simple core-recovery model. For MSPs this has been taken to include the onshore science party that is key component of expeditions.

To provide indicative costs we have taken the original FY08 Annual Program Plan costs for MSPs services as the full service model, and then identified incremental reductions in the costs as a series of options. This can therefore be considered as a case study, and is not in all respects representative of every MSP expedition. The FY08 APP was based on both an onshore science party and an offshore operation, but only the Technical Engineering and Scientific Support and Data Management costs have been quantified in this exercise. Some comments on the cost implications for Management and Administration are provided in the text below.

It is important that the percentage figures provided here should be treated merely as broad indicators of possible cost reductions, for this report is based on a brief study of only one year's MSP plan. A more-detailed assessment can be made in due course for any specific suggestions in service reduction that may be proposed by the SAS. Each incremental step in service reduction decreases the science that can be achieved for an expedition; ESO do not advocate service reductions but can respond to SAS's definition of the service that can provide an acceptable level of scientific output. SAS should also consider any influences of reductions on the nature of an IODP MSP Science Party, and indeed on the structure and viability of the implementing organisation itself.

The full MSP service provides all minimum measurements and selected standard measurements with associated data management. These services involve preparation, the offshore expedition, and the onshore science party. The work carried out offshore is confined to curation, core catcher description, ephemeral geochemistry, microbiology, limited MSCL measurements, and data management.

It is ESO's view that the service presently provided for MSPs meets IODP Minimum Measurement requirements, but that it represents a 'basic but full service' with few if any superfluous options and with minimum staffing. There is no duplication between the work carried out offshore and that undertaken at the Onshore Science Party. Consequently ESO sees little opportunity to reduce its costs without reducing the 'basic but full service' provided.

2. Reductions in the work of the Onshore Science Party (OSP)

Option 1 – No Standard Measurements

This reduction produces very small savings only, for the additional costs over and above minimum measurements at the OSP are usually limited for MSP expeditions e.g., a dozen XRD analyses, or additional inorganic geochemistry proxies.

Option 2 – Limited Onshore Science Party with Core Logging (NGR)

In this option, work at the OSP is restricted to core splitting, visual core description, core imaging, curation of working and archive halves, and natural gamma ray (NGR) core logging. No sub-sampling would be carried out (e.g., primary for “shipboard” analyses including discrete physical properties, inorganic and organic geochemistry, mineralogy and paleomagnetism, but also not for analyses in scientists’ laboratories for their post-cruise projects).

This would theoretically allow reduction in the numbers of both operator staff (salary and travel/accommodation for non-Bremen staff) and scientists (travel/accommodation) and to a lesser degree for consumables, leading to a saving of about 15% of the potential total savings, a significant portion of which is POCs due to reduced scientist accommodation.

If sub-sampling were to be included in this option, there would be a substantial decrease in the cost saving to less than 5% of the potential total.

Option 3 – Limited OSP with no Core Logging (NGR)

As for Option 2 but without the NGR logger, there is a further aggregate reduction of c.8% due primarily to the requirement for less operator staff as the workload decreases, and no NGR logger equipment costs.

Option 4 – No Onshore Science Party

This would mean that once offshore work is completed, the cores would not be split but directly archived in the Core Repository to await sub-sampling and further work funded outside IODP operator’s budget. There would be reduced costs for operator staff, consumables or scientist accommodation and consumables, and reduced requirement for data management, leading a reduction in the region of 16% in potential total SOC savings.

At this stage there would also be some reduction in the Management and Administration budget, and a reduced publication workload at the USIO.

3. Reductions in offshore work

Option 5 – No offshore MSCL

In this FY08 model, cutting out MSCL measurements from offshore work would result in significant SOC reduction amounting to about 9% of the total SOC savings due to reduced ESO staff requirements and no equipment or container transport costs.

Option 6 – No ephemeral measurements

The SOC savings associated with no pore-water geochemistry or microbiology are comparable with those of Option 5. No containers would be required to be transported, no geochemists would participate in the work offshore, there is a lesser call on data management and less consumables are required.

Although no POC savings are indicated in the Table, there is in this option a decreased requirement for deck space as there are no petrophysics or microbiology/geochemistry containers, and also less offshore personnel are needed. Consequently there could be the potential in some cases, such as the lift boat for New Jersey, to use a smaller platform at lower day rates thus making large POC savings.

Option 7 – No logging

New contracts are let for logging work on each MSP expedition, and the costs vary considerably depending on the nature of the requirements, driven by the science. In this case study, the option of having no logging contract or associated ESO staff costs presents by far the largest single saving for both POCs and SOC.

Although logging is a SOC cost, the savings noted for POCs is largely due to the ship-time saved (assumed to be about 6 days in this case).

Option 8 – Curation only

With no scientific work being carried out, SOC are now small and the POCs are reduced due to minimised staffing and victualing. Management and Administration costs would also be cut to the absolute minimum required to contract a vessel and collect core.

Option 9 – No temperature measurements

This option leads to almost no SOC savings, but the POC savings in ship time could be significant, and are assumed to be 2.5 days in the Table.

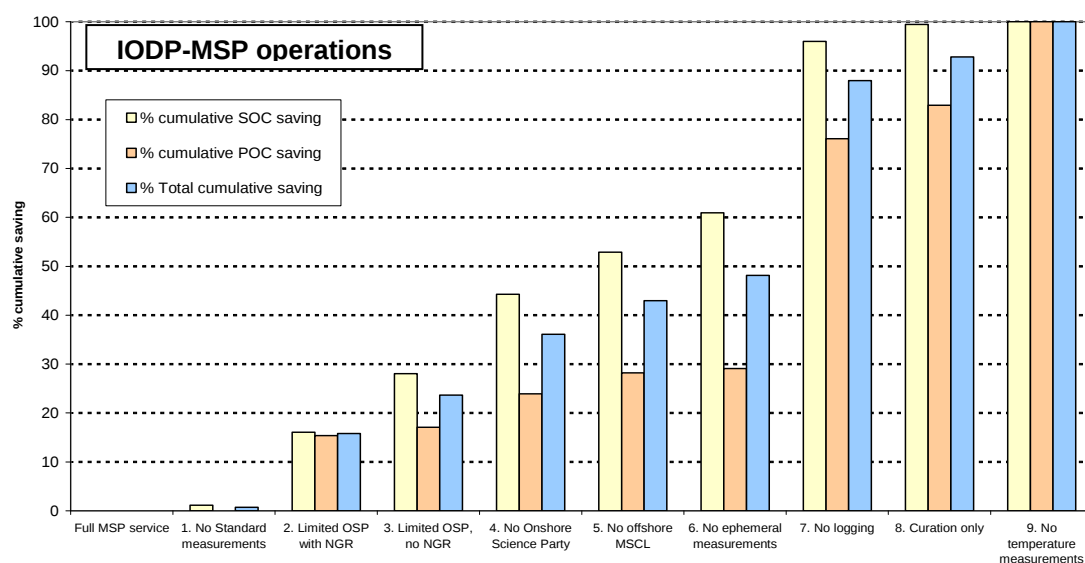


Table. The percentage cumulative savings (POCs, SOC's and Total) from the full MSP service through Option 1 ("No standard measurements") to Option 9 ("No in situ temperature measurements"). Costs for the Onshore Science Party assume a high-core-recovery expedition with a relatively long OSP; lesser recovery reduces the costs.



IODP Measurements

IODP-MI
June 29, 2006
Version 1.0

IODP Measurements

Categories of IODP Measurements

- Minimum measurements
- Standard measurements
- Supplemental measurements
- Safety measurements

This document provides an overview of IODP measurements that each IO is fully responsible for collecting during IODP operation.

The list of measurements as posted was reviewed by SAS in January 2006. It is subject to change and updates responding to technological developments and SAS review.

IODP Measurements

IODP Minimum Measurements

Defined as measurements that shall be conducted in all boreholes and on all cores in IODP.

Measurement	Comments
Biostratigraphic	done on JR, done on MSP, Chikyu
Visual core description	done on JR, done on MSP, Chikyu
Smear slides Thin sections	done on JR, done on MSP, Chikyu (Smear Slide this time)
Split-core digital photography (section line-scan and/or table layout)	done on JR, done on MSP, done on Chikyu w/ line scan)
Core logging • natural gamma ray • gamma ray attenuation • magnetic susceptibility	done on JR, most done on MSP done on Chikyu
Temperature profile	
Moisture and density/porosity (discrete samples)	done on JR, done on MSP, done on Chikyu
Downhole logging: • natural gamma ray • spectral gamma • density • porosity • resistivity • sonic • borehole imaging	done on JR, done on MSP, planned on Chikyu

IODP Measurements

IODP Standard Measurements

Defined as standard measurements that shall, whenever practicable and appropriate, be carried out across all platforms and/or shore-based labs).

Core Petrophysics

Measurement	Comments
Natural remnant magnetism (NRM) with step-wise demagnetization	done on JR done on Chikyu
Core logging: P-wave velocity	done on JR, done on MSP, done on Chikyu
P-wave velocity (on split cores)	done on JR, done on MSP (onshore) , done on Chikyu
P-wave velocity (discrete samples)	done on JR
Thermal conductivity (both whole core and pieces)	done on JR, done on MSP (onshore), ready on Chikyu
Electrical resistivity	New
X-ray fluorescence (XRF) scanner	New, done on Chikyu
X-ray diffraction (XRD)	done on MSP (onshore), ready on Chikyu
X-ray CT scanning	New, done on Chikyu
Whole round core digital surface photography	done infrequently on JR
Color reflectance	done on JR, done on MSP (onshore) , done on Chikyu
Close-up and micro-imaging	done on JR, done on MSP (onshore)
Core orientation and structural measurements	Core orientation (also on splited cores) only available with APC in soft sediments Structural measurements better by 3D Xray scan

Downhole Petrophysics and Sampling

Measurement	Comments
Vertical seismic profile or checkshot	done infrequently on JR
Downhole pressure	currently 3rd party: done on JR
Open-hole temperature	done on JR
Magnetic susceptibility	3 rd party replacement
Magnetic field	done infrequently on JR

Note: For MSPs, downhole minimum/standard measurements may be dependent on the size of the borehole.

IODP Measurements

Microbiology and Geochemistry

Measurement	Comments
Pore water chemistry (nutrients, pH, alkalinity, sulfate, chloride, major and trace elements)	done on JR, done on MSP, ready on Chikyu
Whole rock major and trace elements	done on JR, done on MSP (onshore), ready on chikyu
Microbiology (phospholipids and cell counts)	New
Bulk Carbon-Hydrogen-Nitrogen-Sulfur (CHNS) analyses	done on JR, done on Chikyu
Contamination testing	done when requested on JR
Carbonate analyses	done on JR, done on MSP (onshore), ready on Chikyu

Rig Floor

Measurement	Comments
Weight on bit	done on JR, done on Chikyu
Penetration rate	done on JR, done on Chikyu
Mud pressure	done on JR, done on Chikyu
Mud density	
Driller depth	
Pumping rate	
Rotation rate	
Heave compensation	
Mud logging	Done on Chikyu

IODP Measurements

IODP Supplemental Measurements

Defined as measurements that if are needed to satisfy expedition objectives should be made available to IODP. Some of these techniques will undoubtedly be 3rd party tools or require single expedition leasing of a tool. Some are also still under investigation by STP, EDP, and/or the IOs. Over time the successful supplemental measurements that start to become routine will likely move to Standard Measurements.

Downhole Petrophysics and Sampling

Measurement	Comments
Logging While Drilling and Measurements While Drilling	infrequently done on JR; measurements are same as in minimum downhole list but done <i>in situ</i> with no borehole contamination
Logging While Coring	under investigation/development
Permeability through packer tests	done on JR; involves some 3rd party tools
High resolution gamma	Tool under development
Nuclear magnetic resonance	currently limited by tool diameter
Formation testing	New
Pressurized core sampling	done infrequently on JR
Downhole sidewall sampling	New
Pressurized fluid/gas sampling	done infrequently on JR
Spontaneous potential (SP)	new, standard in industry and perhaps well-suited to Chikyu operations

Core Petrophysics

Measurement	Comments
Anhysteretic Remanent Magnetization (ARM) and Isothermal Remanent Magnetization (IRM) with step-wise acquisition and demagnetization	New, ARM on Chikyu
Permeability on discrete samples	under investigation/development
Vp and Vs, anisotropy and attenuation	under investigation/development
Vs	under investigation/development
Thermal imaging of core with infrared	Done on JR for hydrate legs
Nuclear magnetic resonance	New
Particle size analyzer	New
Penetration strength	Done infrequently on JR, done on MSP (onshore), done on Chikyu
Shear strength (i.e miniature vane	Done infrequently on JR, done on

IODP Measurements

method)	Chikyu
Non-contact resistivity	under investigation/development: insufficient information available to make it standard at this time, done on chikyu, data is under investigation

Geochemistry and Microbiology

Measurement	Comments
Laser ablation Inductively Coupled Plasma-Mass Spectrometer (ICP-MS)	under investigation/development
DNA and biomarker microbiological analysis	under investigation/development

IODP Measurements

IODP Measurements for safety

Expedition specific and implemented by IOs following advice from the Environmental Protection and Safety Panel (EPSP).

QA/QC :

Group consensus indicates that the primary message of the QA/QC report is implementable

However, we have some concerns that can be addressed by modifications to text ‘draft1’

- We suggest to divide the document into two layers:
Framework - relationship of taskforce to IOs.
General Policies - for the IOs.

Procedures - for technicians – how to carry out the policy, e.g. calibration data in the initial report may be addressed in distinct documents
- Replace ‘measurements’ in text with ‘observations and measurements’
- Add ‘dictionaries (e.g. micropaleontology, lithologic terminologies, time scales...)’ in guidelines for traceability (p. 1). Because dictionaries are living documents, references to the version of dictionaries used must be explicit.
- The critical sample handling processes (curation processes, e.g. time stamps of core splitting or sampling ; core sample status (e.g. wet or dry) ; magnetic environment...) should be handled the same way as observation events for QA/QC (to be added in point 1).
For example, for paleomag measurements, there is a coring-induced overprint, and a lack of shielded room. Therefore, measurements of magnetic environment may be included in QA/QC procedures.
- IOs should report to STP how the highlighted successes and problems from QA/QC expedition reports and review procedures are used to improve the quality of data and QA/QC procedures.

We also have concerns with issues related to QA/QC :

- Establishment of dictionaries (taxonomic, lithologic classifications, time-scales) is critical to QA/QC because it reduces uncertainty in the following observations (biostratigraphy, core description). As part of QA/QC procedures, these dictionaries have to be provided prior to drilling legs.
- Although the IOs are responsible for maintaining dictionaries, a scientific oversight of their content is also an important issue. We recommend that IOs collaborate on consistency of these dictionaries. This can be facilitated by creation of working groups such as the Paleontology working group. Progress on this topic should to be reported to STP.
- We want to have a definition of traceability, and to make sure that capability exists across all platforms and databases.

Further comments that we want to be sure to be addressed, clarified or more explicitly explained in the QA/QC document :

- Include QA/QC in the method chapter of the Initial Report (p. 2)
- Make QA/QC available with data (ex. 1b p. 2). Actually QA/QC data is captured in JCORES but must be requested separately. We need more information.
- as part of QA/QC of management, STP would like as part of QA/QC of management a time table from the Ios for implementation of QA/QC guidelines
- QA/QC can also apply to drilling procedures. Minoru Ikehara and Fumio Inagaki to write a paragraph describing the need to address drilling fluid contamination testing (for organic geochem. and microbiology).

Number	Title	Ref Summary	Link	Reference	Status	Note	ADDITIONAL COMMENTS FROM MIKE LOVELL
0507-01	Addition to STP mandate	SPC	STP R 0507-06	STP R 0507-06 SPC 0510-05 SPPOC 0601-04	SPPOC approved Closed		
0507-02	Core description WG recommendations	SPC	SciMP A 0502-06		VCD WG		
0507-03	Recommendation for QA/QC task force	SPC	SciMP A 0502-11	STP R 0507-04 SPC 0510-07	QA/AC TF		
0507-04	Standard reference on the JOIDES Resolution		SciMP A 0502-11 STP R 0507-03		QA/AC TF		
0507-05	Four representatives for Observatory Task Force		SciMP A 0502-09	SPC 0510-08	The SPC receives and recommends including two STP members on the Observatories Task Force.		ongoing and part of the STP/IODP-MI process - but effectively closed
0507-06	STP proposal review process		STP R 0507-01	STP R 0507-01 SPC 0510-06	IODP-MI implement -ongoing-		
0507-07	Integrating microbiological sampling into expedition sampling plans	SciMP	SciMP A 0502-08		STP will re-visit IOs?		
0507-08	Paleontologic taxonomic/stratigraphic reference standard			SPC 0510-09	SPC asks STP to clarify involvement of MRCs, return with new recommendation		
0507-09	Depth correlation data to support core-to-core seismic integration	IODP-MI			DMCG		STP Palaeontology WG now part of IODP-MI PALAEO coordination group?
0507-01	SODV Logging RFP procedures		SciMP A 0502-10		Closed		
0507-02	Modular lab set-up for MSPs				Closed		
0507-03	IODP Imaging Report				Closed		
0507-04	IODP Management Forum Document & Mission Concept				Closed		
0507-05	Prioritization for STP recommendations	IODP-MI			Closed		
0507-06	Magnetometer tool usage in IODP				Closed		
0507-07	STP chair and vice-chair selection				Closed		
0507-08	Thanks to departing panel members Sean Gulick & Clive Neal				Closed		closed; part of mandate and good panel management
0507-09	Thanks to meeting host Heinrich Villinger				Closed		
0507-01	Shipboard laser ablation ICP-MS facility	STP CDEX		STP A 0601-07 STP C 0601-02	Closed	Medium	
0507-02	STP review of three proposals	STP			Closed		
0507-03	Required STP panel expertise	STP	STP0612-09		in progress		
0507-04	Definition of IODP minimum measurements	STP		STP R 0601-06	deadline 15 Aug. 05- Closed	High	
0507-05	Methods for measuring Vp & Vs under pressure	STP		STP R 0601-03	deadline 31 Dec. 05	High	
0507-06	Report on downhole T & P tools	STP		STP R 0601-08	deadline 1 Feb. 06	High	
0507-07	CLSI workshop attendance	STP			Closed		
0507-08	Third Party Tools policy	STP	SciMP A 0502-04		Closed		
0507-09	Oscillating plasma on a moving platform	CDEX	SciMP A 0502-13		deadline 1 Feb. 06	CDEX	
0507-10	Scientific laboratory design on U.S. SODV	STP	SciMP A 0502-14		Closed		
0601-01	ESO survey of temperature tools	ESO		STP C 0601-05	deadline 26 Jun. 06	ESO	
0601-02	Investigation of T/P-controlled physical properties measurements	STP			deadline 26 Jun. 07	STP	
0601-03	Incorporate IO suggestions to draft third party tool policy	STP		SPC 0603-27	Closed		
0601-04	Database enhancement by inclusion of IO post-cruise data	STP			ask Database WG?		
0601-05	Guidelines for accuracy & precision of T/P measurements	STP			ask QA/QC TF?		closed until CHIKYU reports back further at later date; no soefic date set closed - input to SODV
0601-06	Tracking developments & tool status on all platforms	STP CDEX ESO USIO			ask IOs? -Closed-		
0601-07	Chikyu evaluations of Laser Ablation ICP-MS capability	STP CDEX		SciMP A 0502-12 STP A 0507-01	deadline 26 Jun. 07	CDEX	
0601-01	Larger Drill Pipe Diameter			STP C 0606-14 SPC 0603-11	ask USIO? Large Drill Pipe is a Contingency item for SODV if funds are available	USIO	
0601-02	Importance of LA-ICP-MS instrument		STP A 0507-01	STP C 0606-15 SPC 0603-12 STP C 0612-08	Closed		
0601-03	Open hole VSP - request for EDP advice	EDP		SPC 0603-13	Pending	EDP input?	
0601-04	STP panel expertise			STP 0606-05		IODP-MI/STP	
0601-05	New Jersey Transect Measurements Plan		STP R 0601-07 STP A 0601-01	SPC 0603-14	Closed		
0601-06	Thanks to panel member Kenji Nanba				Closed		closed; comments about maintaining expertise
0601-07	Thanks to meeting host Iwao Watanabe				Closed		
0601-01	Common Framework for Depth Scales	IODP-MI CDEX USIO ESO			Data Mtg group Closed. Depth Scal report was issued 9/27/06	IODP-MI	
0601-02	Recommendation on SODV magnetometer			SPC 0603-06	Closed		
0601-03	Vp & Vs at elevated pressures for the riser vessel	IODP-MI	STP A 0507-05	STP C 0606-08 SPC 0603-07	ask IO?	IODP-MI IO?	
0601-04	Seismic sources for IODP platforms	IODP-MI		STP R 0606-01 SPC 0603-08	ask IO?	IODP-MI IO?	
0601-05	Cross-platform QA/QC coordination	IODP-MI		STP R 0606-04	closed	IODP-MI	
0601-06	IODP Measurements	IODP-MI	STP A 0507-04 SPC 0510-07		QA/QC TF? Closed - IOs have implemented this.	IODP-MI	
0601-07	Temperature Measurements for ESO Operations	ESO		STP C 0601-05	deadline 9 Dec. 06 - ESO reported back to STP Dec06, STP recommending ESO update temperature tool prior to New Jersey	ESO	closed but will revisit this Beijing meeting
0601-08	Temperature and Pressure Tools report	IODP-MI SPC	STP A 0507-06	SPC 0603-09	Closed	IODP-MI	
0601-09	Digital taxonomic dictionaries	IODP-MI SPC	SPC 0510-09	SPC 0603-10	in progress		
0601-10	Improved seafloor visualization for SODV USIO			STP C 0606-10	ask USIO? Closed. This is a contingency in the SODV improvement plan.	USIO	
0606-01	Seismic source requirements	IODP-MI IOs	STP Recommendation 0601-4	SPC Consensus 0603-8	ask IOs? In progress. Cross-platform compatibility is being stressed for future developments	High	SODV input; closed
0606-02	Cross-platform copatibility for downhole T&P Tools	IODP-MI IOs			ask IOs?	High	

0606-03	Post-expedition results in expedition database	IODP-MI IOs SPC	SPC Consensus 0608-12	IODP-MI, IOs and STP work together and report to SPC	Medium	
0606-04	QA/QC Task Force mandate changes	SPC QA/QC TF DMC		Closed	High	
0606-05	STP Panel Expertise	PMOs	STP C 0601-04	Closed	IODP-MI	
0606-06	SODV review - design and analytical facilities	IODP-MI SPC USIO		Closed		
0606-07	SODV review - computers	IODP-MI CDEX ESO USIO DMCG		Closed		
0606-08	Measurements at High Pressure and Temperature	IODP-MI CDEX	SPC Consensus 0603-7	STP Recommendation 0601-03	ask USIO? Active Heave Compensation will not be added to SODV at this time. The passive heave compensation is being refurbished / upgraded.	
0606-09	Heave compensation for SODV CORK installations	IODP-MI USIO SPC			ask USIO? This is a contingency in the SODV improvement plan.	SODV input
0606-10	SODV seafloor visualization	IODP-MI USIO SPC	STP Recommendation 0601-010		ask USIO?	SODV input
0606-11	ESO Temperature Tools	IODP-MI ESO	STP Consensus 0612-03		STP Consensus 0612-03	
0606-12	Meeting participants for uniform depth models meeting				Closed	
0606-13	Resolution, accuracy & calibration of T/P measurements	IODP-MI CDEX ESO USIO			IODP-MI did not circulate the report, STP Consensus 0612-07	
0606-14	SODV - Larger Drill Pipe for Enhanced Well Logging	IODP-MI SPC USIO	SPC Consensus 0603-11		ask IOs? Large Drill Pipe is a Contingency item for SODV if funds are available	SODV input
0606-15	Importance of LA-ICP-MS	CDEX	SPC Consensus 0603-12	STP Consensus 0601-2	STP Consensus 0612-08	
0606-16	CAB nominations			STP Consensus 0606-16	Closed	
0606-17	VCD/Lithology Meeting Participants				Closed	
0606-18	Digital Taxa Dictionaries Meeting Participants				Closed	
0606-19	STP Vice Chair recommendation			SPC Consensus 0608-13	Closed	
0606-20	Thanks to Chris House for presentation on SODV conversion				Closed	
0606-21	Thanks to panel member Masanobu Yamamoto				Closed	
0606-22	Thanks to panel member Roy Wilkens				Closed	
0606-23	Thanks to panel member Tim Lyons				Closed	
0606-24	Thanks to panel member Liz Screaton				Closed	
0606-25	Thanks to panel member Kevin Mandernack				Closed	
0606-26	Thanks to panel member Makoto Okada				Closed	
0606-27	Thanks to meeting host Annakaisha Korja				Closed	
0606-28	Short- and long-term strategic aims of the STP	IODP-MI	STP0612-09		closed	
0612-01	VCD/Lithology recommendations	IODP-MI			in progress	
0612-02	CDEX report on feasibility of Measurements at High P & T	IODP-MI CDEX IOs		STP Consensus 0606-08	due next STP meeting	
0612-03	ESO Temperature Tool	IODP-MI SPC ESO	STP Consensus 0606-11		SPC reaffirm SPC 0410-20, 0603-14	
0612-04	Uniform depth scale	IODP-MI			Closed, forward to IODP-MI	
0612-05	Depth scale as a minimum measurement	IODP-MI			Forward to IODP-MI Closed	
0612-06	Digital taxonomic dictionary	IODP-MI		PALEO-3	Sep 07 meeting?	
0612-07	Temperature and pressure resolution, accuracy and calibration	IODP-MI IOs	STP Consensus 0606-13		due next STP meeting	
0612-08	Further testing of LA-ICP-MS system on Chikyu	IODP-MI CDEX	STP Consensus 0606-15		CDEX reports at future STP meeting	
0612-09	STP Mandate	SPC	STP Consensus Statement 0612-12		Closed	
0612-10	STP Working Group Reports	SPC			in progress	
0612-11	Operations Review Task Force	IODP-MI SPC			VP Sci. Ops will report annually to STP	OTF
0612-12	STP Meeting Format	SPC			SPC chair agreed	
0612-13	Larger Drill Pipe for SODV	IOs	STP Consensus 0606-14		Large Drill Pipe is a Contingency item for SODV if funds are available	SODV input
0612-14	Technical Support for Minimum and Standard Measurements	IODP-MI IOs				
0612-15	SODV Report				Closed	
0612-16	Chikyu Shakedown Cruise Report				Closed	
0612-17	Local Crustal Structure – New Technology	IODP-MI IOs			Monitoring of its development	
0612-18	Core Splitting Techniques	IODP-MI IOs			due next STP meeting, IODP-MI reports	
0612-19	Thanks to departing member Junzo Kasahara				Closed	
0612-20	Thanks to departing member Annakaisha Korja				Closed	
0612-21	Thanks to departing member Tatsushiko Sakamoto				Closed	
0612-22	Thanks to departing member Heinrich Villinger				Closed	
0612-23	Thanks to departing member Sean Higgins				Closed	
0612-24	Thanks to ex-science coordinator Jeff Schuffert				Closed	
0612-25	Thanks to meeting host Geoff Wheat				Closed	
0612-26	Third Party Tools.	STP	Agenda item 24		Closed (documents on the web)	
0612-27	Time stamp for measurements & procedures	STP			due next STP meeting	due next STP meeting
0612-28	STP Geochemistry and Microbiology WG report Geochemistry and Microbiology	STP			due next STP meeting (IODP-MI should investigate too)	
0612-29	Effects of riser drilling on cores	STP			due next STP meeting	
0612-30	Core Description WG	STP			due next STP meeting	
0612-31	Legacy Samples	STP			due next STP meeting	
0612-32	Stable Isotope Measurements	STP			due next STP meeting	
0612-33	Major element rock analysis problems aboard IODP Platforms	STP CDEX			due next STP meeting	
0612-34	Laser Granulometer	USIO			due next STP meeting	

STP rotations

07-08	07-12	08-07	08-12	09-07	09-12
Ahagon	Ge	Castillo	Nonoura	Colwell	Brueckmann
Basile	Suzuki	Christensen		Ikehara	Gorin
Okada		Lovell		Johnson	Masuda
Wheat				Lee	Naruse
				Sakurai	

Member (*co-chair)		Petrophysics									Biology & Chemistry					Core description														
		Physical Properties	Downhole Logging	Palaeomagnetics	Downhole Measurements	Seismics	Underway geophysics	Hydrogeology	Observatories	Microbiology	Biochemistry	chemical oceanography	Sediment geochemistry	Organic geochemistry	Igneous geochemistry	Micropalaontology	Structural geology/tectonics	Stratigraphic Correlator	Sedimentology	Igeous petrology	database	other - please suggest								
Ahagon, Naokazu	J												X			X			X						06-12	07-06	07-12	08-06	08-12	09-06
Basile, Christophe	E		X														X													
Bruckmann, Warner	E	X																												
Paterno Castillo	U														X					X										
Beth Christensen	U															X		X												
Colwell, Rick	U									X																				
Ge, Hongkui	C	X	X		X																									
Gorin, Georges	E					X								X			X		X											
Ikehara, Minoru	J													X																
Johnson, Paul	U																													
Lee, Youn-Soo	K			X													X													
Lin, Weiren	J	X																				X								
Lovell, Mike *	E	X	X																											
Naruse, Hajime	J																		X											
Neal, Clive*	U														X					X										
Nunoura, Takuro	J									X																				
Okada, Makoto	J			X																										
Sakurai, Shinichi	U																													
Suzuki, Noritoshi	J															X														
Wheat, Geoffrey	U		X		X			X	X			X																		
JAPAN		7																												
USA		7																												
ECORD		4																												
CHINA		1																												
KOREA		1																												
blue indicates Beijing is last meeting																														

blue indicates Beijing is last meeting

Investigate the use of a laser
granulometer or other
granulometer in routinely
measuring grain size and shape in
soft sediment

Hajime NARUSE (Kyoto Univ.)

Tats SAKAMOTO (IFREE/JAMSTEC)

STP Action Item 0612-34: Laser Granulometer

STP will investigate the use of a laser
granulometer or other granulometer in routinely
measuring grain size and shape in soft
sediment.

Priority: High

Date/Timeline: Next meeting

Leads: Basile, Sakamoto

- *Background to STP Action Item 0612-34: New technology may benefit future IODP Expeditions and STP requests appropriate further information to enable discussion by the*

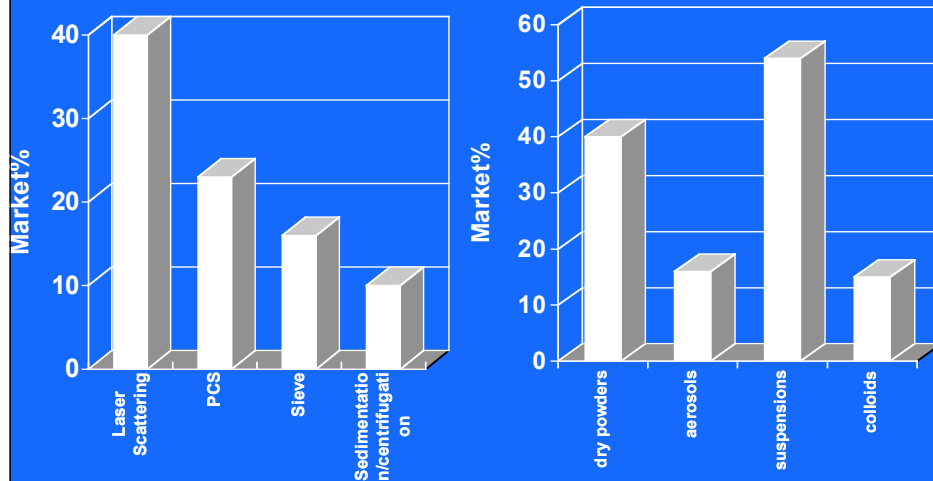
Significance of measuring grain-size routinely

- Providing consistent result on VCD lithology
 - Ex. Clayey silt or Silty clay
- Quantifying components of sediments
 - Ex. fraction of nannofossils can be determined
- Characterizing physical property of rocks
 - Ex. Characterization of fault-related rocks
- Estimating hydraulic conditions at their deposition

Particle Sizing Methods

- Microscopy(0.001-1000 μ m)
- Sieves (>10 μ m)
- Sedimentation (or centrifusion) (0.01-1000 μ m)
- Light-based methods (0.001-3000 mm)
 - Laser-diffraction (0.1-3000 μ m)
- X-ray emission
- Acoustic (0.1 μ m-10 μ m)
- Chromatography (0.0001-2 μ m)

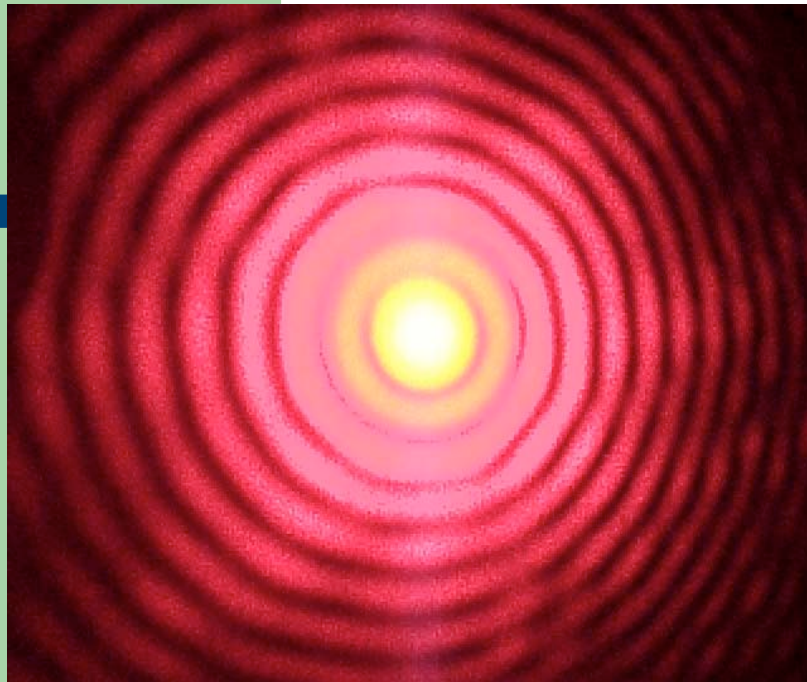
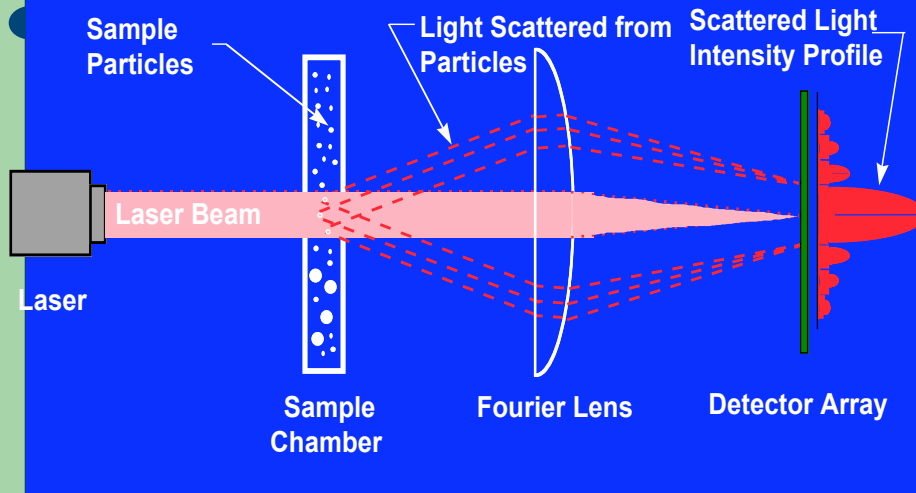
Market Shares of Methods and Applications



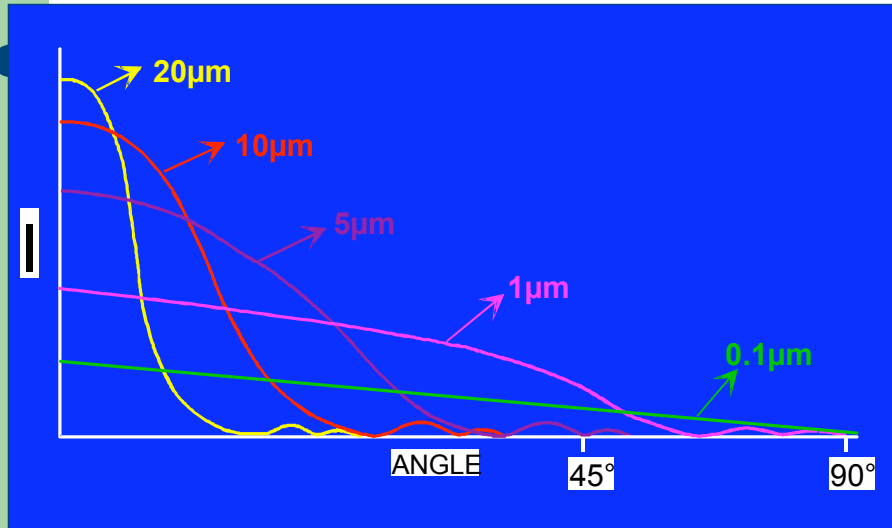
Light Based Methods (0.001mm-3000mm)

- **Scattering and Diffraction (0.1-3000m)**
- Optical Microscopy (1-1000μm)
- Optical Particle Counter (0.1-1000μm)
- Photon Correlation Spectroscopy (0.001-5μm)

Principle of Light Scattering Particle Size Measurement



Angular Scattering Pattern of Spheres



Grain size analysis in I/FREE

Laser Diffraction Particle Size Analyser: Beckman Coulter LS230
 Principle: Fraunhofer and Mie theories of light scattering with PIDS technology
 Range : 0.04 - 2000μm
 Unit : Vol %
 Reproducibility : 1 %

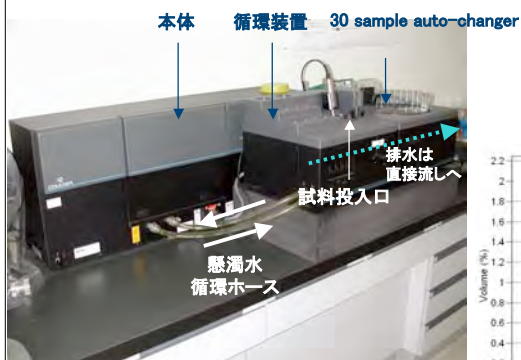


写真1. Beckman Coulter LS230,
 Valuable Speed Module Plus,
 Auto Prep Station

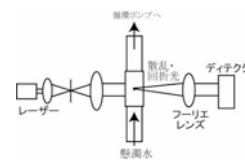


図1. 粒径測定部の模式図

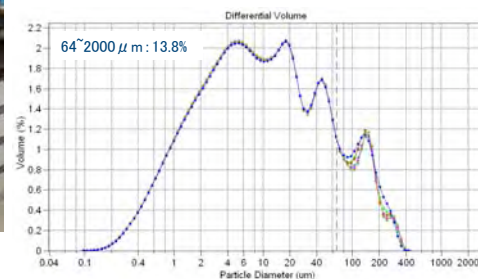
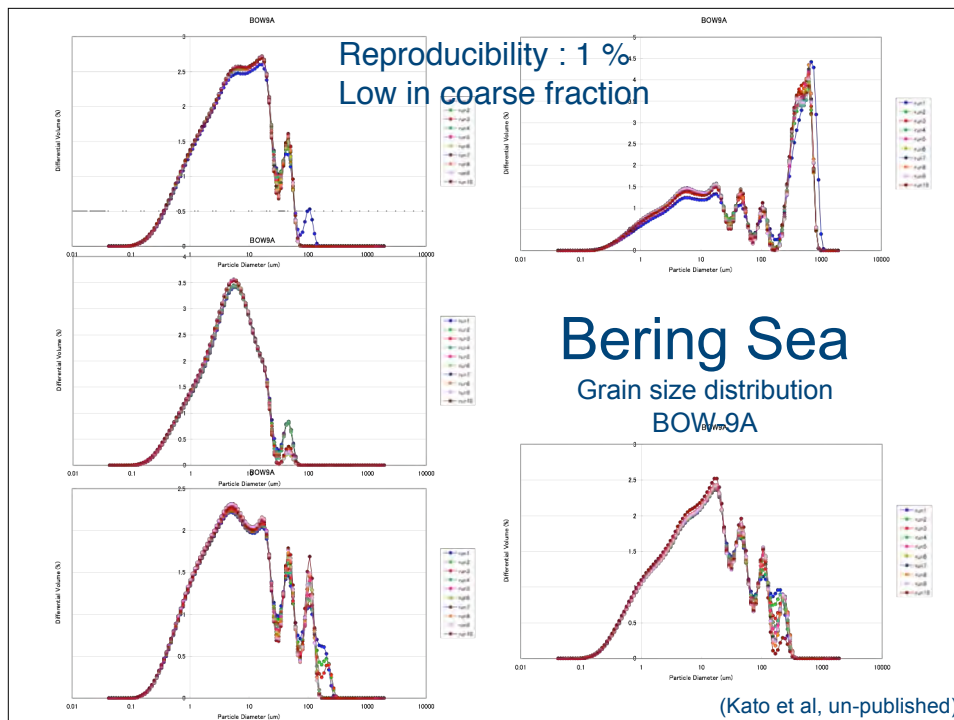


図2. 粒度分析例: MD01-2412 Sec37 Cycle1 No.A (オホーツク海)



Evaluation of Laser-diffraction in routinely used onboard

- Quick and easy to measure
 - Procedures are almost automated
- generally 1~2 minutes, need only 1~5 g for each horizon
- Only a process of removal of organic matter by H_2O_2 is necessary for dispersion that will be take 1 night
- Very high reproducibility (~1 %)

Laser-diffraction type high potential to use on board in routinely.

Possible problems in using laser diffraction granulometer

- Light-based granulometer can measure only unconsolidated material
 - Although several methods are available to make consolidated material dispersed.
- Maybe not accurate for materials of mixed-component
 - Refraction factor of the material is needed for measurement
- Influence of vibration onboard is unknown
 - The manufacturer (Horiba) suggested that 10-30 Hz and 0.3 m/s² is OK.
- Expensive to purchase (about \$70,000), but inexpensive to maintain

STP Action Item 0612-34: Laser Granulometer

STP will investigate the use of a laser granulometer or other granulometer in routinely measuring grain size and shape in soft sediment.

Background : New technology may benefit future IODP Expeditions and STP requests appropriate further information to enable discussion by the appropriate STP Working Group.

Granulometers are currently used by sedimentologists working on soft sediments

Grain size is used as a proxy in many settings (lakes, floodplains, continental margins, deep ocean), especially for paleo-climate studies, but not in IODP

Is grain size a minimum/standart IODP measurements?

In fact, hidden in core and smear slide descriptions!
(minimum measurements)

Compare what has been done without and with granulometer for two ODP legs dedicated to paleo-oceanography and climate studies

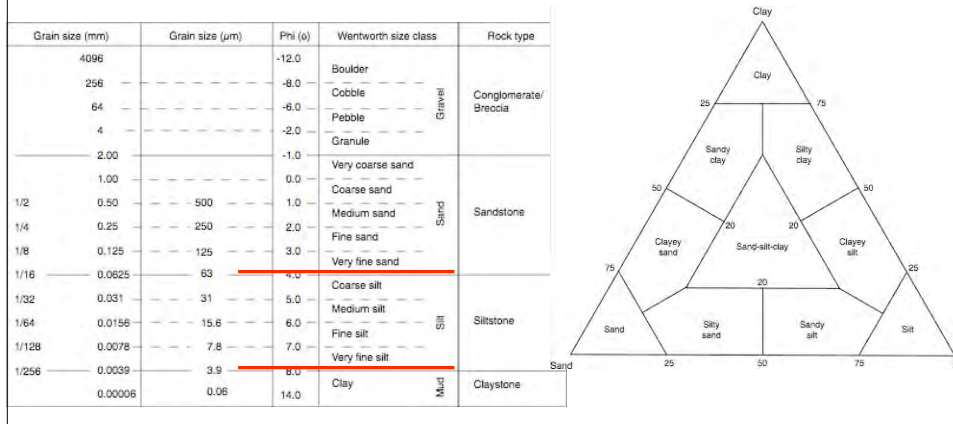
Leg 303 (North Atlantic): IR (2006), without granulometer

Leg 184 (South China Sea): SR (2003), with granulometer

How grain size is measured, and for what purpose?

Proc. IODP, IR, 303) Methods:

« Size divisions for siliciclastic grains are those of Wentworth (1922) (Fig), with 10 major textural categories defined on the basis of the relative proportions of sand, silt, and clay (Fig); however, **distinguishing** between some of these categories **is difficult** (e.g., silty clay versus clayey silt) **without accurate measurements of grain size abundances**. »



Smear slide preparation:

« Once fixed, each slide was scanned at 100x-200x with a transmitted light petrographic microscope using an eyepiece micrometer to assess grain-size distributions in clay ($<4 \mu\text{m}$), silt ($4-63 \mu\text{m}$), and sand ($>63 \mu\text{m}$) fractions. »

« Relative proportions of each grain size and type were estimated by microscopic examination. »

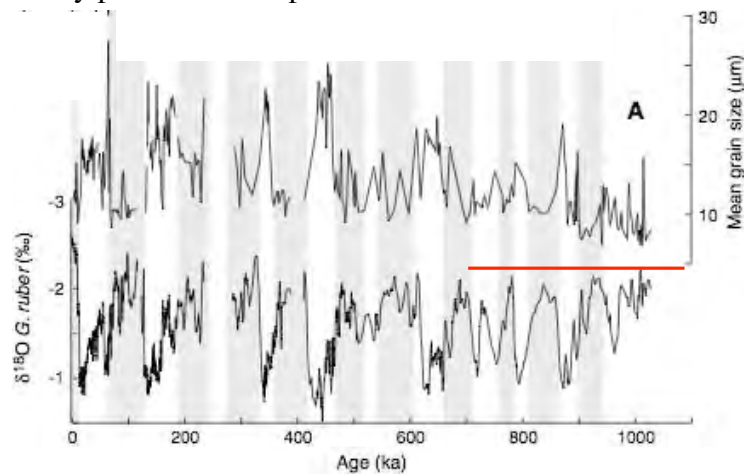
(Proc. IODP, IR, 303)

Results:

distinguish fine-grained vs coarser-grained

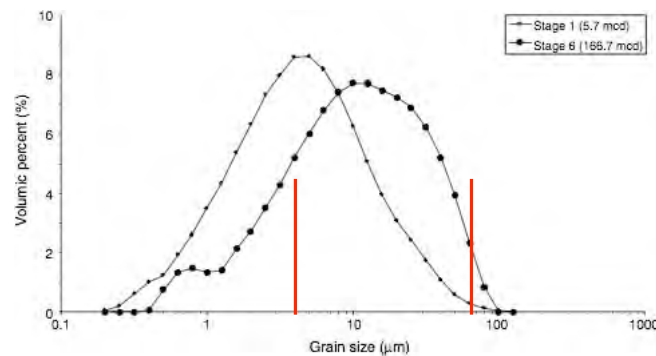
no grain size measurement in this IR (only gravel counts)

Laser granulometer: based on the diffraction pattern (of a laser beam) created by particles in suspension.



$\delta^{18}O$ record and mean grain size variations of the siliciclastic fraction vs. age.

Modified from Boulay et al., Proc. ODP, SR, 184 (2003)



Volumic percent of each grain size class of interglacial and glacial samples. From Boulay et al., Proc. ODP, SR, 184 (2003)

Grain size is directly related to the physical processes of sediment transport and deposition.

Together with composition, it controls the main other continuous records (gamma-ray, density, reflectance...)

Granulometer: onboard need or onshore measurement?

Size: may not be a problem onboard



Granulometer: onboard need or onshore measurement?

Size: may not be a problem onboard

Time: need limited tech or scientific time (multi-sample); save scientific time on smear slides

Money: expensive to buy, unexpensive to use

At sea: ??

Granulometer: onboard need or onshore measurement?

Size: may not be a problem onboard

Time: need limited tech or scientific time (multi-sample); save scientific time on smear slides

Money: expensive to buy, unexpensive to use

At sea: ??

Scientific value: high for sedimentological processes and whatever can be related to these processes. In a way similar to ICP-MS vs modal composition for igneous petrologists.

Granulometer: onboard need or onshore measurement?

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At sea: ??

Scientific value: high for sedimentological processes and whatever can be related to these processes. In a way similar to ICP-MS vs modal composition for igneous petrologists.

Operational value: may be high if provide a time frame, or for specific sedimentology studies, but restricted to paleo-oceanographic legs (soft sediments)

Granulometer: onboard need or onshore measurement?

Size: may not be a problem onboard

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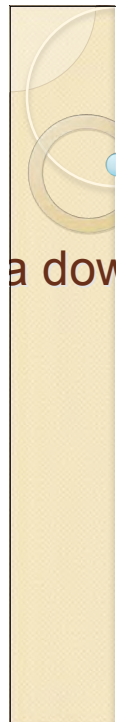
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Operational value: may be high if provide a time frame, or for specific sedimentology studies, but restricted to paleo-oceanographic legs (soft sediments)

Conclusion: It should be great! (in an other world...). In this world, is it possible to make a test during a paleo-oceanographic leg?



Feasibility investigation for an application of a downhole measurement for drilling practice to scientific purposes

Weiren LIN
STP #5 Meeting, Beijing
Aug 2007

1

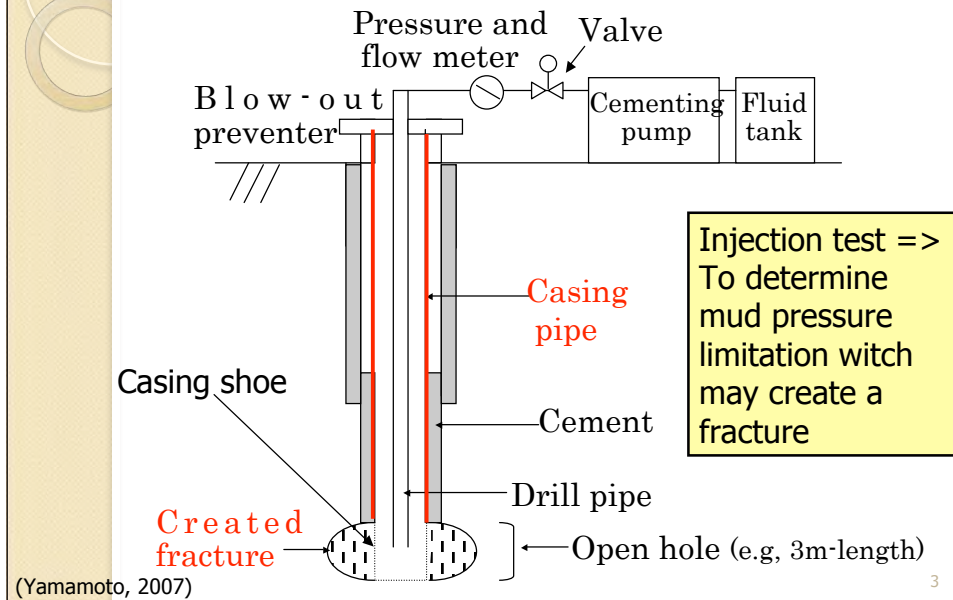


What downhole measurement? (Rig floor test)

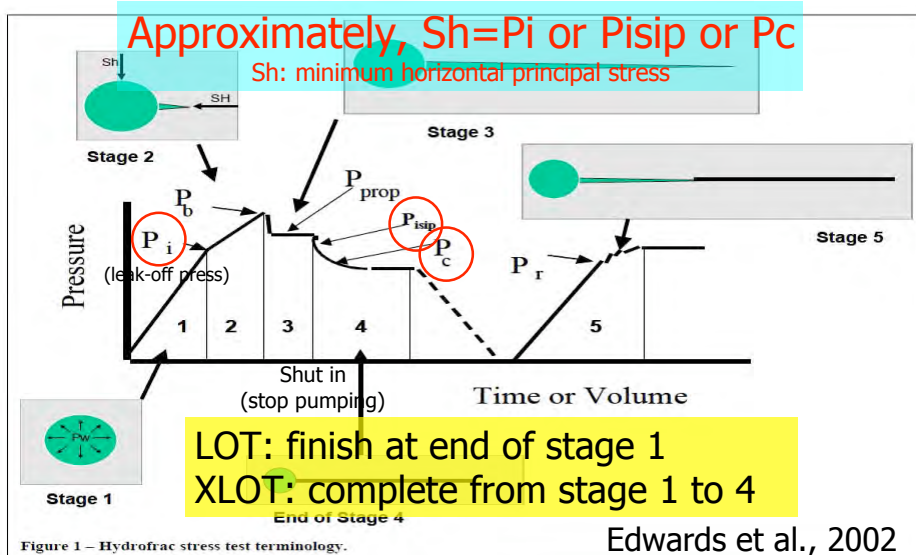
- It is called “LOT” or “XLOT”
 - LOT= Leak-Off Test
 - XLOT= Extended Leak-Off Test
- for determining mud pressure as a drilling practice parameter
- in case of riser drilling (and continental drillings)
- The measurement results can also be used for scientific purposes
=> to determine *in-situ* stress

2

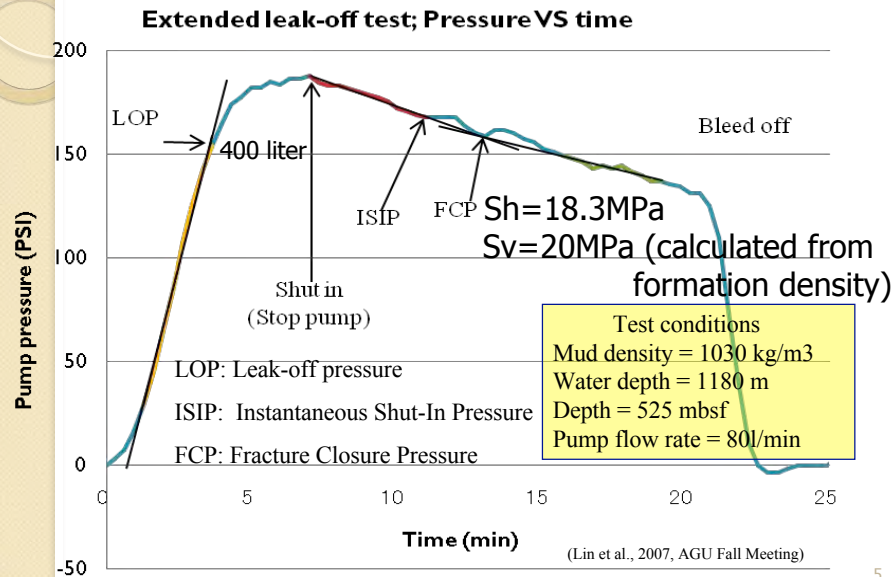
Schematic diagram of LOT/XLOT



Result of XLOT: Injection pressure vs. mud volume (fracturing process)



An example of XLOT conducted by Chikyu, Shimokita shakedown cruise



5

Importance of knowing stress information for Seismogenic Zone drilling

- Stress is driving force to cause earthquake and to influence rupture propagation mechanism
- Earthquake (fault rupturing) induces stress change
- Stress is a key to understanding earthquake
- Stress (magnitude) determination is not easy and not of high-accuracy for the cases of deep drilling
- XLOT has a possibility to yield minimum horizontal principal stress
- Application of XLOT for scientific purpose is important and effectual
- **Don't need extra drilling cost**

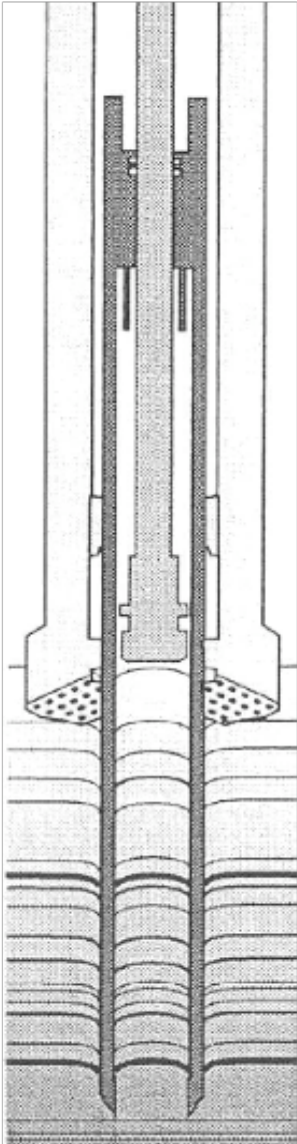
6



My suggestion

- STP should recommend to IODP-MI (CDEX?) to investigate feasibility of using LOT/XLOT data for estimating the minimum horizontal principal stress for riser drilling
- Category: supplemental measurement

Coring induced magnetization

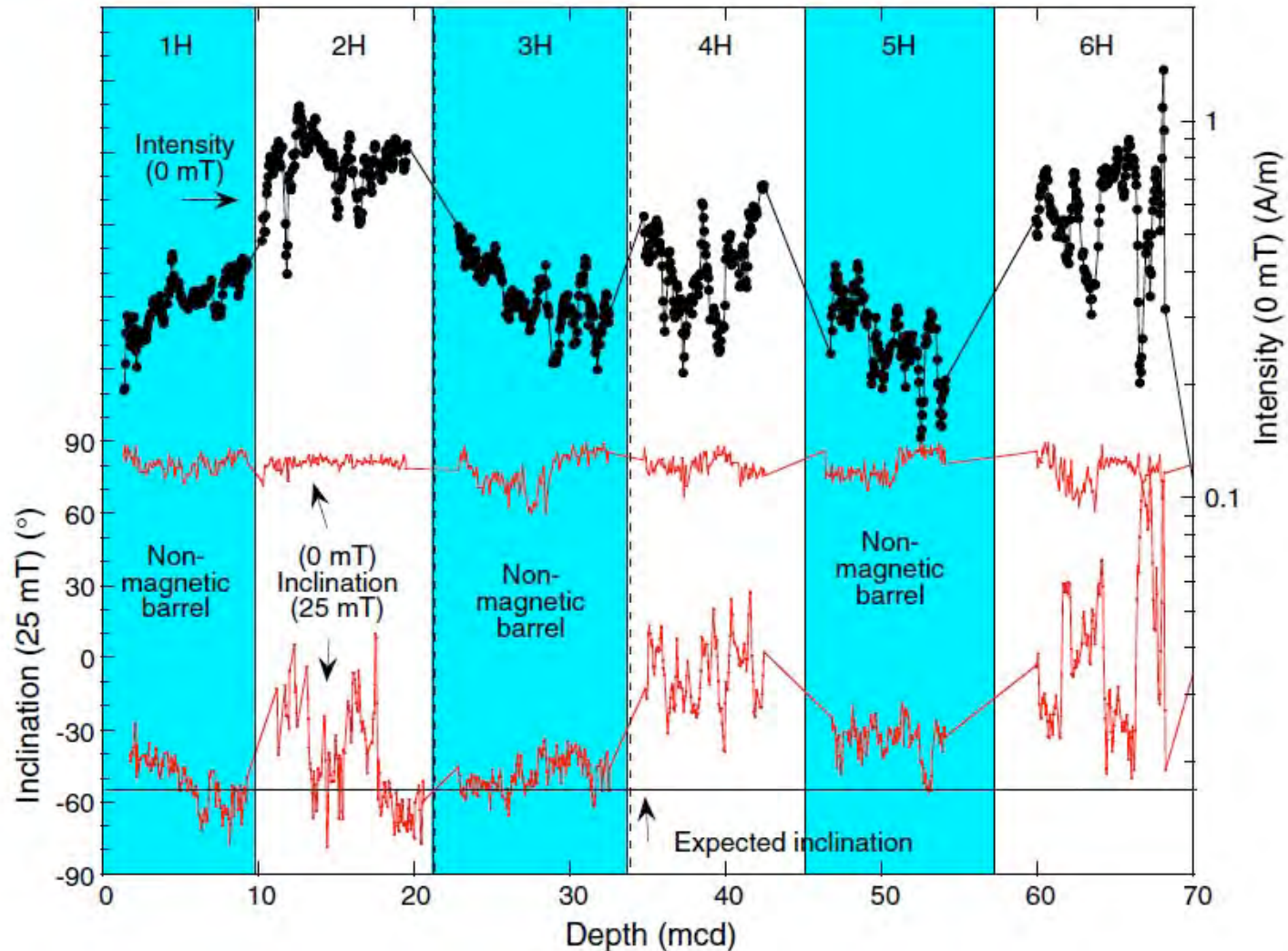


● Deformation

● Magnetic Field (IRM)

● Deformation + Magnetic Field

Use of non-magnetic core barrel reduces coring induced magnetization



siliciclastic silt, Hole 1235C, ODP Leg 202 (Lund et al., 2003)

Status on non-magnetic core barrel



SciMP recommendation 0406-12

Use of non-magnetic core barrel for all IODP APC coring



SPC Consensus 0410-23

Accepts with the caveat of merely **recommending** and not requiring the use of non-magnetic core barrels for all APC coring



Joides Resolution

1st non-magnetic core barrel: Leg 174B ->

2nd non-magnetic core barrel: Leg 205 ->



Chikyu

Introduction of non-magnetic core barrel is considered



It is advisable to prepare at least two non-magnetic core barrels ready for paleomagnetically important expeditions