

Final Minutes

1st Meeting of the IODP Scientific Technology Panel (STP)

July 11-13, 2005

**University of Bremen
Bremen, Germany**

Attendees

STP

Ahagon, Naokazu	Japan, Hokkaido University
Ge, Hongkui	China, China Earthquake Administration
Guilick, Sean	US, University of Texas
Kasahara, Junzo	Japan, Tonou Geoscience Center
Korja, Annakaisa	ECORD, University of Helsinki
Lovell, Mike (co-chair)	ECORD, Leicester University
Lyons, Timothy	US, University of Missouri
Mandernack, Kevin	US, Colorado School of Mines
Nanba, Kenji	Japan, Fukushima University
Neal, Clive	US, University of Notre Dome
Okada, Makoto (co-chair)	Japan, Ibaraki University
Sakamoto, Tatsuhiko	Japan, JAMSTEC
Screaton, Elizabeth	US, University of Florida
Suzuki, Noritoshi	Japan, Tohoku University
Villinger, Heinrich	ECORD, University of Bremen
Wilkins, Roy	US, University of Hawaii
Yamamoto, Masanobu	Japan, Hokkaido Univeristy

Note...missing members are Wheat (USA) and Basile (FR)

Liaisons and Guests

Blum, Peter	JOI Alliance, TAMU
Brumsack, Hans	SPC, ECORD
Delius, Heike	ESO
Higgins, Sean	JOI Alliance, TAMU
Janecek, Thomas	IODP-MI Vice-President
Kryc, Kelly	JOI Alliance, JOI
Kuhlmann, Holger	ESO, Bremen Core-repository
Kuroki, Kazushi	CDEX
Lazarus, David	MRCs
Röhl, Ursula	ESO, Bremen Core-repository
Schuffert, Jeff	IODP-MI Science Coordinator
Stoll, Johannes	Borehole magnetometers

EXECUTIVE SUMMARY

The STP forwards the following recommendations, consensus statements, and action items to the SPC or the IODP-MI as appropriate for distribution to the IOs. Brief overviews are provided where appropriate in italics.

Recommendations

STP Recommendation 0507-01: STP mandate

The STP recommends the following addition (underlined text) to its mandate:

STP recommendations shall be sent to the SPC. The STP shall provide advice on scientific measurements made onboard IODP platforms, within and around boreholes, and on samples collected by the IODP and associated programs.

The STP shall develop guidelines concerning said measurements and shall furnish advice about scientific measurements, equipment, and on certain policies and procedures in the IODP. Specific responsibilities for the panel shall be advice on databases, sample handling, curation, computers, shipboard equipment usage and needs, as well as borehole and observatory measurements, equipment, usage, and needs. In addition, STP will give advice to the SSEP regarding specific proposals on an as needed basis as part of the proposal nurturing process.

Background: See STP Recommendation 0507-06.

Vote: 15 Yes, 0 No, 2 absent (Villinger and Lovell)

STP Recommendation 0507-02: Core description working group

The STP recommends that:

- A large-format display with a multi-browsing function is required and one needs to be located near the description table. This will allow the scientist to refer to different types of data simultaneously.
- All microscopic images need to be digitally stored in appropriate formats in IODP databases and be accessible. Images should be linked to smear slide and thin section data, as well as the core descriptions within the databases. Formats whose architectures are publicly open are preferred.
- One uniform integrated digital image color management method be used on all platforms.
- Common reference collections for smear slides and opaque minerals in polished thin sections should be prepared for all drilling platforms and on-land facilities.

Background: This recommendation results from SciMP Action Item 0502-06.

Vote: 15 Yes, 0 No, 2 absent (Villinger and Lovell)

STP Recommendation 0507-03: QA/QC

The STP recommends that an evaluation of QA/QC issues for all measurements across all IODP platforms and shore-based laboratories be conducted through the creation of a task force or other appropriate mechanism. Task force progress will be regularly reviewed by the STP. Task force duties should include, but not be limited to, quality assurance and control on short (daily) and long (monthly) timescales, integration of QA/QC protocols across all IODP laboratories, and assembling these protocols into the IODP databases.

Background: This recommendation results from SciMP Action Item 0502-11. The work done since then has demonstrated the magnitude of this vital and important issue that can impact the science that IODP produces. Therefore, in order to give this subject the attention it

deserves, a task force should be created that will be dedicated to QA/QC issues across all IODP platforms.

Vote: 16 Yes, 0 No, 1 absent (Lovell)

STP Recommendation 0507-04: Standard reference on the *JOIDES Resolution*

The STP recommends that during the last few months of the *JOIDES Resolution* operations it is important that the existing standard reference materials be analyzed by each of the shipboard labs and the resulting data should be stored and made available for later QA/QC use and cross-platform correlation.

Background: This recommendation is an outgrowth of STP Recommendation 0507-03 and SciMP Action Item 0502-11 from the Kona meeting and requires a change in thinking for the way data are reported in the database by the science operator. However, it is important to have a snapshot of data quality on the Phase 1 platform prior to the design and commissioning of the new SODV such that the performance of equipment that will be common to both can be evaluated and that the practice of, for example, storing calibrations and standard reference material data in the database can be implemented.

Vote: 16 Yes, 0 No, 1 absent (Lovell)

STP Recommendation 0507-05: Observatory Task Force

The STP recommends that it have four representatives assigned to the Observatory Task Force. The STP recognizes that all representatives may not be able to attend each meeting, so by having a pool of four representatives, at least two may attend each task force meeting. STP representatives = Villinger, Wheat, Kasahara, and Sreaton.

Background: This recommendation results from SciMP Action Item 0502-09.

Vote: 15 Yes, 0 No, 2 absent (Villinger and Lovell)

STP Recommendation 0507-06: Proposal review

The STP recommends that proposals forwarded to this panel be accompanied by the SSEP review, which specifies why the proposal has been referred to the STP. In addition, the proposals should be forwarded to the chair at least two weeks prior to STP meetings so that the entire panel can properly discuss them.

Background: This meeting was the first where proposals (three) were sent to the STP by the SSEP for our input. The process was not optimal for us to give detailed input and have discussion during the meeting in Bremen. Hence the process needs to be optimized such that the STP can give full consideration during its meeting of any future proposals sent to it by the SSEP. See also STP Recommendation 0507-01.

Vote: 15 Yes, 0 No, 2 absent (Villinger and Lovell)

STP Recommendation 0507-07: Microbiology

The STP recommends that microbiological sampling be integrated into expedition sampling plans (e.g., with pore water analyses). STP further recommends that microbiological total cell counts be conducted by Acridine Orange and SYBR Green II staining. Standard phospholipid assays (PPLA) will serve to spot check viable cell counts. For viable counts LIVE/DEAD (Molecular Probes) is a good candidate. Although a routine DNA-based measurement is not currently possible, these techniques are advancing rapidly and the STP will re-visit quantitative polymerase chain reaction (PCR) at a later time.

Background: This recommendation results from SciMP Action Item 0502-08.

Vote: 16 Yes, 0 No, 1 absent (Lovell)

STP Recommendation 0507-08: Micropaleontology

To ensure continued effective use of DSDP-ODP legacy sites, as well as to improve IODP's own paleo data resolution and reproducibility, a paleontologic taxonomic/stratigraphic reference standard is required across all platforms. This should include digital taxonomic dictionaries for microfossil taxa, linking DSDP-ODP and current taxonomic concepts. The STP recognizes that without IODP involvement, these dictionaries will not be completed, which will adversely impact IODP science. The STP recommends that appropriate assistance be given to ensure that such dictionaries are available.

Background - Paleontologic data contribute essential information to IODP for chronology, paleoenvironment, and biotic system responses. Taxonomic concepts underlie all paleo data. Uncertainties in these taxonomic concepts - between species and within geographically variable species - currently critically limit the accuracy of paleontologic data and contribute to problems in developing high-resolution chronology. Poorly documented taxa concepts, particularly for non-stratigraphic forms, also reduce the quantity and quality of paleoenvironmental proxies. Lastly, these concepts evolve with time, limiting integration of legacy DSDP-ODP paleo-based data (including age models for holes) into IODP.

Vote: 16 Yes, 0 No, 1 absent (Lovell)

STP Recommendation 0507-09: Core-log-seismic integration

The STP recommends 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 recommends the development of software that can be used across all IODP databases.

Background - 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.

Vote: 16 Yes, 0 No, 1 absent (Lovell)

Consensus Statements

STP Consensus 0507-01: SODV Logging RFP procedures

The STP recognizes the importance of identifying a logging contractor before the SODV engineering design phase begins because of the impact that the selection may have on various

design criteria. These include derrick and laboratory design, IT integration, and safety and hazardous material considerations. Furthermore, since logging tool requirements are often vendor-specific, a single contract for logging infrastructure and data collection promises to be the most efficient approach to preparation for Phase 2 logging operations. STP endorses the RFP plan as presented by the logging IO and looks forward to future discussions of logging operations once the contractor is selected.

STP Consensus 0507-02: Modular labs

The STP is impressed with the modular lab set-up for MSPs as presented by the ESO at the meeting in Bremen. It is evident that the modular lab concept has been well thought out and no further action by the STP is required.

Background: This consensus statement results from SciMP Action Item 0502-10 and subsequent communication between the STP and the ESO about modular labs.

STP Consensus 0507-03: IODP Imaging reports

The STP accepts the IODP Imaging Report as complete and ready for implementation and thanks the IODP Data Management Coordination group for its hard work.

STP Consensus 0507-04: IODP Management Forum Document

The STP applauds the efforts of the management group to investigate mechanisms to ensure that the IODP initial science plan goals are accomplished and to expand the membership of IODP. The mission style strategy to fulfill thematic needs of the program is intriguing; however, the panel is concerned on issues of site surveys funded purely by IODP, the likely increase in bureaucracy, whether the result will be more inclusiveness or divisiveness, who makes decisions on which missions go forward, who decides what scientists get to be a part of the missions, and the difficulties of getting the program financing and national financing to go completely towards the same goals. One thought from the panel is to bring more bottom-up into the mission idea by issuing RFPs for identified missing thematic areas and develop missions from some of the resulting proposals. Lastly, the STP suggests that to move the program in novel directions, create more funding opportunities, and generate more public interest, we need to use novel technologies operated by highly trained specialists.

Background: The STP was asked by the SPC to comment upon the IODP management forum report, which resulted in much discussion at our Bremen meeting and produced the above consensus statement.

STP Consensus 0507-05: Prioritization for recommendations

Two indicators will, where appropriate, be used on all STP recommendations, consensus statements, and action items: 1) a target date for the item to be handled by IODP; and 2) the priority for IODP as concluded by STP from low to high.

Background: In response to the IODP-MI's request that the STP prioritize its recommendations and action items, STP see the need to highlight items based on two categories: deadlines and priority to IODP. The intent is to place flags along side of each recommendation, consensus statement, and action item where appropriate to assist SPC and IODP-MI in proper handling of items forwarded by STP. A temporal indication in the form of a deadline will assist SPC and/or IODP-MI in determining which of STP's items require more immediate attention. The ranking of items in terms of priority for IODP from low to high will assist SPC and IODP-MI in determining which items should be given higher priority in discussions and budgetary considerations. One likely method of ranking items will be conducted by a blind vote tabulated by the IODP-MI representative.

STP Consensus 0507-06: Magnetometer tool

The STP wishes to thank Dr. Johannes Stoll for his presentation on the long-term prospects of magnetometer tool usage in IODP. The development of a downhole tool that yields information about magnetic inclination and declination is important for IODP science and STP suggests continued IODP support of these types of tools. As part of this we also suggest that the EDP closely follows the progress of such a tool's development.

STP Consensus 0507-07: Chair and vice-chair selection

The STP nominates Okada as chair for the next two meetings, with Lovell as vice-chair. After that time, STP nominates Lovell to be chair for two years. A new vice-chair will be nominated at the summer 2006 STP meeting.

STP Consensus 0507-08: In a moment of unified gratitude, the STP thanks Sean Gulick and Clive Neal for their extraordinary service to the STP. Sean, you have captured our muddy thoughts in your crystalline notes and shed light on the most complex and—from a geochemical perspective—most esoteric geophysical details. Clive, you kept us awash in your wit during the most tedious of discussions and dazzled by your geochemical prowess, and you have taken our livers to territories heretofore untraveled. The STP and IODP are deeply in your debt for years of dedication. However, should this not be your last meeting as members of the STP; ignore the kind words above, and the next round is on you. Cheers, your STP colleagues and thirsty friends.

STP Consensus 0507-09: With full appreciation of the difficulties inherent in arranging any meeting of this scope, the STP expresses its sincerest gratitude to Prof. Heinrich Villinger and his secretary Mrs Speichinger, Dr. Ursula Roehl and Dr. Holger Kuhlmann, the students (Monika Trümper and Martin Heesemann) of the University of Bremen who gave so generously of their time for their superb logistical arrangements and assistance, a great hotel and meeting facility, full internet connectivity, and for their remarkable hospitality, with what one STP member noted was the “best-catered STP meeting” he or she had ever attended. The painting in the front of the Marum building was so nice. The icebreaker was particularly enjoyed, as was the Monday evening reception at the Marum 3rd floor.

Action Items

STP Action Item 0507-01: Laser Ablation ICP-MS

Priority: Medium

Date: Next meeting

The STP will continue to explore the potential of laser ablation ICP-MS as a shipboard analytical facility. Current investigations have shown that this facility has great potential because of easy sample preparation and rapid sample throughput (see report in Appendix XXX) and we will work with the laser ablation instrument manufacturer New Wave Technology to test the system on a moving platform.

Action by: Neal and Kuramoto.

STP Action Item 0507-02: Proposal Review

Priority: High

Date: 15 August 2005

The STP will give a consensus response to each of the three proposals it has been asked to review by the SSEP. These responses will be transmitted to the IODP office no later than 15 August 2005.

Action by: Wilkens (574), Villinger (635), Lyons (637)

STP Action Item 0507-03: Panel Expertise**Priority: Medium/High****Date: 15 September 2005**

The STP will develop a list of specialties needed by the panel in order to efficiently and effectively discharge its mandate.

Action by: chair and vice-chair

STP Action Item 0507-04: Minimum measurements**Priority: High****Date: 15 August 2005**

The STP recognizes the importance of defining a set of minimum measurements for IODP. The draft list defined at the Bremen meeting will be discussed remotely by the panel members. Resolution of this issue will be completed by 15 August 2005.

Action by: STP, Gulick to lead.

STP Action Item 0507-05: VpVs measurements**Priority: High****Date: 31 December 2005**

Study methods available to measure Vp and Vs under the pressure. Determine the need and feasibility for velocity measurements under pressure on board and/or in IODP shore-based laboratories. Study the importance of velocity anisotropy in IODP samples and examine the possible methods to measure shear wave anisotropy.

Action by: Kasahara, Wilkens, Gulick, Korja, Ge, and Sakamoto.

Background: The identified STP members will seek to answer the following questions and explore the following issues:

-Can we determine the velocity for zero porosity using porosity for all cases?

-Do we need velocity measurements on sediment and/or hard rock?

-Anisotropy of P and S waves

-Effect of pore pressure

-Other physical properties that might benefit from measurements under pressure: electrical conductivity, thermal conductivity, permeability, magnetic susceptibility

-How easy is it to measure?

-On board or onshore?-> Importance of on board measurement

-Importance of S-wave measurements and its S-wave splitting

-Estimate of the temperature, pore pressure effect and evaluation of those effect without measurements.

STP Action Item 0507-06: Downhole temperature and pressure tools**Priority: High****Time: Next meeting**

The SciMP petrophysics working group and IOs will complete their report on downhole temperature and pressure tools. This group will also provide input to CDEX on downhole pressure and temperature acquisitions, where requested.

Action by: Sreaton, Villinger, Wheat, Blum, Delius, Kuroki.

Background - The existing downhole tools working group report identified a need for further details on pressure and temperature downhole tools. This will include: (a) a description of the current status of downhole tools and software, (b) input on calibration, software, database needs, and minimum level of data processing and necessary skill level for the processing across all drilling platforms, and (c) consideration of database needs, including deployment data, instrument data (including sensor characteristics), and QA/QC data.

STP Action Item 0507-07: CLSI workshop**Priority: High?****Date: Next meeting**

CDEX will hold a CLSI workshop on 3-4 October 2005, in Tokyo before the Society of Petrophysicists and Well Log Analysts (SPWLA) symposium. STP members relating with CLSI will attend the workshop, and report to the STP meeting. See attachment letter. Sakamoto will be a member of the steering committee from the STP. See appendix.

Action by: STP, Sakamoto to lead, Gulick will attend.

STP Action Item 0507-08: Third Party Tools policy**Priority: High****Time: 15 August 2005**

Wilkins, Kasahara and Villinger with input from IOs give progress report by mid-September (prior to EDP meeting). Final report will be voted on at the next meeting. This is a continuation of SciMP Action Item 0502-04.

Action by: Wilkins, Kasahara and Villinger

STP Action Item 0507-09: Oscillating Plasma**Priority: Medium****Time: Next meeting**

In investigating the potential problem of an oscillating (moving) plasma when using a quadrupole ICP-MS on a moving platform, SciMP was informed that CDEX has installed an ICP-MS on the Chikyu, which will be tested within the next year. The STP asks that CDEX report to the STP on the results of this testing. This is a continuation of SciMP Action Item 0502-13.

Action by: Kuramoto

STP Action Item 0507-10: US SODV Briefing Book**Priority: High****Time: Ongoing**

The STP will undertake ongoing and iterative liaison with JOI with regard to the design of scientific laboratories on the US drill ship (SODV). The STP will provide advice on lab design, priorities, and sample/core flow and will bring in other experts as needed. The STP recognizes the urgency of this issue and Clive Neal for STP and Kelly Kryc for the JOI Alliance are the contact persons. This is a continuation of SciMP Action Item 0502-14.

Action by: Neal and Kryc, with input from panel members.

FINAL MINUTES

The first meeting of the Scientific Technology Panel (STP) of the IODP occurred from July 11th – 13th, 2005, at Bremen, Germany, with panel member Heinrich Villinger serving as host. The meeting agenda is shown on Appendix 1. In these minutes, the Recommendations, Consensus Statements, and Action Items are not repeated in detail. Please refer to the Executive Summary for the full text of each, as indicated.

Monday, July 11, 2005

1. Welcome and Logistics

Villinger welcomed all participants to Bremen, and outlined the logistics of the meeting. Lovell thanks Villinger for arranging meeting.

2. Introductions of Members, Guests, and Liaisons

Lovell requested each continuing and new member, guest, and liaison to briefly introduce themselves.

3. Review and Approval of Agenda

Neal moved to approve agenda, Gulick seconded.
All present in favor, except for absent member (Wheat and Basile).

4. Review and Approval of Minutes from previous SciMP meeting

Wilkens moved to approve Kona meeting notes, Neal seconded.
All present in favor, except for absent member (Wheat and Basile).

5. Conflict of Interest Policy; Roberts Rules of order

Lovell introduced Conflict of Interest Policy. Important to be aware that conflicts will arise.
During discussions, all members can participate. Expertise needed. Members must make conflicts clear. Schuffert emphasized that COI must be reported in minutes, and that SPPOC asks for an annual report of how SAS panels have dealt with COI. To make this easier the minutes of each meeting should identify COI in a separate section.
Lovell presented a reduced set of Robert's Rules of order (Millard's Rules). Basically, one item at a time; one motion pending at a time; one member has floor at time; no member speaks twice until all members have a chance to speak; keep discussion to issues; address issues through co-chairs. Rule by majority but protect the minority.

6. STP mandate

Lovell opened discussion on the panel expertise distribution which is needed to fulfill the STP mandate.
Janecek commented -Don't be shy to ask IODP-MI for bringing in expertise
Neal asked- Wouldn't it be good to formalize advice from the panel to the National agencies (USSAC, etc.).
General agreement that that would be good idea.
Schuffert commented - This panel will likely always be lacking some expertise due to the breadth needed
Lovell raised a plan to create list of expertise needed by the end of the meeting to send

to IODP-MI through Schuffert.

See STP Action Item 0507-03.

7. Brief report concerning STP issues from recent SAS meetings

a. Review of SPC Lisbon meeting – Lovell

Lovell made a brief report from the last SPC meeting.

Lovell asked - Mechanism for forwarding questions/info to IOs?

Gulick added - Info goes to IODP-MI who give it to the IOs?

Schuffert responded - Maybe make recs as you always do-SPC chair and vice-chair decide what they will discuss and what will go to IODP-MI.

Janecek commented - Need priorities among the items if at all possible.

b. Review of SSEP-STP communications – Proposals- Lovell

Neal and Gulick commented - Proponents need assistance understanding what is standard and what is non-standard [*Possible Action Item*]

Lovell responded - Need method within STP for dealing with Proposals that are forwarded

IMI and IOs reports

8a. IODP-MI Update – Schuffert

Note: Barry Zelt is new science coordinator at IODP-MI in Sapporo-Will interact with SSP and SSDB

Neal asked -To clarify, do we need to come up with a formal evaluation of these proposals at this meeting?

Schuffert answered - At this meeting or later, we will need reviews and these will need to be sent to SSEP as a consensus of the panel.

Neal asked - I think we can handle them fairly quickly.

Schuffert responded - Needs to get this evaluation to the proponents.

Gulick asked - Is the mechanism to get our evaluation to the SSEP watchdog to forward to the proponents?

Schuffert answered - Get it to the IODP-MI office and we will get it to the proponents.

Presumably IODP-MI is aware that the QA/QC issue is an ongoing action item for STP

Blum commented - We may need a task force to handle these issues and it is necessary to discuss QA/QC along with metadata

Memo from Data Management Coordination Group to STP circulated.

A member asked - SSDB data is available to everyone?

Janecek answered - Certain levels of proprietariness depending on the standing on the IODP expedition (proposal, etc.).

Neal asked - How does the data get to the SSDB and who evaluates it?

Schuffert answered - Online submissions.

Gulick commented - Site Survey data is evaluated by SSP.

8b. IODP-MI Update Continued-Janecek

Lovell commented -We need to decide now who our rep should be to go onto Task Force for Observatories. Candidates are Villinger, Wheat, Sreaton, Kasahara

COI issues may be not a big deal on this as it is to define generics not specifics

about particular expeditions. Note: this came up due to Wheat being involved with MARS and Sreaton with NanTroSEIZE.

See STP Recommendation 0507-05.

Neal asked (on the issue of Prioritizations) - How will our prioritizations be handled by IODP-MI?

Janecek answered - What we need are timeframes on when implementation would need to occur.

Lovell commented - Different ways to prioritize: Ranking, Ease for IOs, Fiscal implications or not, etc.

Blum commented - We also don't want to wait for next budgeting cycle to allow IOs to go forward on information gathering tasks.

Higgins asked - What drives the agenda for this panel.

Janecek answered IOs will bring some, IODP-MI will bring some, SPC will bring some, and STP will bring some themselves. Important point is flexibility and a good balance.

Gulick will work on a consensus statement for a prioritization method.

See STP Consensus 0507-05.

9. CDEX Report- Kuroki

Kuroki reported a current state of laboratories on Chikyu.

Mandernack commented - Microbio Core Processing recs would be helpful to you.

Lovell commented - Appendix 22 from Boston

Neal asked - Procedures for sample prep and flow in place?

Kuroki answered - Not yet, but will be working on it.

Lovell commented - Our next meeting is tentatively planned for Kochi in order for STP to see the Kochi Repository

10. USIO Report- Blum

Villinger asked - When does the demob start and when will the new ship be available?

Blum answered - December is demob, new ship is not yet known.

11. ESO Report, Tahiti Expedition- Delius

Neal asked - DHT on the list for Tahiti?

Delius answered - Yes.

Neal asked - Glove bag for microbio if mud is cored?

Rohl answered - In progress.

Neal asked - Porous problem and loss of pore waters?

Wilkins answered - Going to be flushed with seawater anyways.

Lovell summarized - SciMP was just highlighting the issue so that it could be thought about.

STP reports

12a. Proposals general (From Action Item 0502-05) - Lovell

Lovell leads discussion of how to handle the existing 3 that are currently in STPs hands.

Schuffert commented - Timing of when STP would get proposals is 1-2 months after SSEP meeting which means just before or even just after STP meeting.

Villinger commented - What about having 2 members review and present it to the panel

Korja suggested that reviewers make a short powerpoint presentation and circulate that.

Lovell responded - So consensus is to assign 2 people to spearhead review and submit to whole panel.

Korja commented- Whole panel has to see proposal in order to unanimous vote for our review.

Neal commented- The reviewers could pass along both the proposal and the review to the rest of the panel.

Schuffert suggested- Electronic reviews leave something to be desired. We can endeavor to get the proposals to you earlier

Higgins asked- What would STP review?

Schuffert answered- Review the proposals as related to STPs mandate.

Schuffert commented- Would it be helpful for STP to have the SSEP review to go along with the proposal.

Screaton/Mandernack commented- If SSEP provided what they wanted STP to review it would be helpful.

Schuffert reads 3 sentences from SSEP review of one of the proposals that specific highlights the technological challenges.

Korja/Neal commented- Not an independent review just a help to the SSEP.

Lovell summarized- Relevant text from review is needed and co-chairs will identify the STP members to conduct the review. The review comes back to the panel for approval. Where possible, this will be done at an STP meeting.

Schuffert commented- IO presence at the meeting may be helpful due to tool readiness, etc.

Korja commented- System is needed for these proposals if we see them more than once to have corporate memory.

Neal will write rec to change our mandate to include proposals.

*See **STP Recommendation 0507-01.***

12b. Proposals specific-Neal

Lovell asked COI issues for the three proposals, and then no one on STP was aware of any conflicts of interest on any of the three proposals being discussed.

General discussion of Hydrate Ridge Proposal (635-Full2):

Highlighted were SCIMPI, permeability measurements, and microbiological measurements. Fastest this proposal can go to scheduling is 12 months (from Janecek) and another 12 months to get drilled.

Wilkens asked- Is USIO using or exploring the use of SCIMPI?

Blum/Janecek answered- USIO examined its use for MARS.

Villinger, Screaton, Mandernack, Nanba will review 635-Full2

General discussion of Hydrothermal Field proposal (574-Full2):

Issues of high-temp measurements. Discussion of SSEP highlighting why they forwarded a proposal but supplemented by reading the SSEP review to look for other STP type issues.

Mandernack commented- Still concerned about a redundant review.

Neal commented- What if they have missed something, we need a full reading.

Lovell commented- We should just be plugging the big measurement and technology holes.

Delius commented- IOs need to know way ahead of time about upcoming measurements and this panel gets the chance to read these proposals and not about what's being proposed.

Janecek commented- The big holes are proponents not knowing about drilling technology, downhole tools, or microbio. Important that specific methodologies are described.

Kuroki commented- Clearance issues also sometime come up...please highlight them. Wilkens, Yamamoto, Nanba will review 574-Full2

Brief discussion of 637-Full2 Hydrogeo on New Jersey:

Technical areas identified are coring into sands and sample in situ stable isotopes/noble gases in sands.

Gulick and Lyons will review 637-Full2

Discussion was continued to the third day.

13. Third Party Issues- Wilkens

Villinger asked- Who owns the data?

Blum/Janecek answered- Governed by both Funding agency and by IODP.

Kasahara suggested- Need to discuss this issue relative to observatories.

Janecek responded- If generated on the ship then IODP observatories needs to be discussed.

Janecek commented- On issues of operator saying that it can't be deployed and developer saying it should be, it's the operator call as they have the liability issues.

Higgins commented- Important to make sure that that is implicit and also that the data is made available from third-party tools.

Janecek commented- Add-ons to any program now go through IODP-MI which is a buffer that did not exist in ODP. There is ~9 month time in which anything can be added in terms of tools from ranking through budgets being assigned.

Blum commented- Issues that are the most difficult are ones that involve money and ones that change staffing or the standard equipment.

Lovell commented- We can go two ways...general principles (Document that Schuffert reminded panel of that it sent to SPC from Kona meeting) or guidelines (Revision of ODP third-party tools document that is currently being discussed).

Janecek commented- Certain level of details are important and even more important there need to be set guidelines. We are looking to finalize the tool list 12-18 months prior expedition.

Discussion that perhaps development plans for third-party tools need to be submitted along with proposal. For those in the system already, STP can recommend to have a development plan submitted for third-party tools.

Lovell suggested- Seems like we have more work to do on this.

Wilkens commented- Merging of general principles to be like the executive summary and the specifics in appendices.

Janecek commented- How big does something have to be in terms of the science of an expedition before it falling off the table is detrimental to the program.

Screaton asked- How does a developer get testing time on a platform?

Brumsack/Janecek responded- Gets put forth as part of a package from SPC.

Wilkens and Villinger with input from IOs will give progress report by mid-September and final report to be voted on at the next meeting.

See STP Action Item 0507-08.

17. Modular Lab Concept- Rohl

Neal suggested that this is done and we can just have a consensus statement in support of what ESO has done.

Neal will write this up.

See STP Consensus 0507-02.

28. Executive Meeting to discuss Chairing of panel- Lovell

Guests and Liaisons leave with the exception of Schuffert

Schuffert commented- Looming mass extinction problem of 9 members leaving after next summer and 2 members after this meeting.

Gulick asked- Less than 2 years 2 years is okay for now?

Lovell responded- So current idea is Okada would be chair this meeting and next and Lovell would start up as chair next summer for 2 years.

Villinger asked- Would you like for time to be shortened?

Lovell answered- I don't mind next summer or after next meeting.

Plan that if anyone has different opinion that Okada as chair until end of next summer's meeting and then Lovell as chair for 2 years.

See STP Consensus 0507-07

Tuesday, July 12, 2005

21. Laser Ablation- Neal

Wilkens asked- What is the turn around time on this technique?

Neal answered- 10 min sample prep and 5 min to take the measurement.

Wilkens asked- Are there plans to test this on a moving platform?

Neal answered- Believe there are plans to test on a tilting table.

Kuroki responded- We are discussing whether we can do a demo on Chikyu labs; do a comparison test between land and sea use of the instrument.

Lyons asked- Can we use this for ratios in soft rocks?

Neal answered- Sure Rb/Sr Mg/Ca, etc.

Villinger asked- How much?

Neal answered- \$100K

Plan is to keep a watch on this and visit it after the test on the Chikyu

See STP Action Item 0507-01.

14/15. Core Description WG and Imaging Report- Sakamoto

Villinger asked- X-CT scanning routine or not?

Blum answered- We would like on the SODV to make it available but expedition dependent and not a minimum measurement.

Lovell suggested- If everyone has seen imaging report from IOs and then Sakamoto goes through the recs from this which is Appendix 1

Kryc asked-What is precise splitting technique?

Sakamoto answered- Roughness of split surface < 1 mm.

Blum commented- Certainly desirable to have as smooth as possible but its very lithology dependent.

Blum commented- From a data management perspective, we would not put data capture and data viewing in the same basket.

Lovell suggested- We go through each rec and manipulate them to a final form.

First rec (LCD display of data at VCD table)

Screaton commented- Take out non-destructive so that perhaps porosity, water, etc., could be included.

Second rec (multi-function browsing)

no comments

Third rec (digital formats)

no comments

Fourth rec (image quality and size)

Neal commented- Should this be re-written as a consensus statement in support of IO report

Fifth rec (integrated color management)

Blum/Lovell commented-Should be a consensus statement that IOs continue working on this.

First rec of App 1 (core splitting) re-write

Janecek commented- Needs to be tied into minimum measurements to be useful

Higgins commented- This doesn't give us a way forward

Gulick commented- It gives us a goal (<1 mm roughness).

Screaton commented- We have to get these recs out there so that we can then prioritize and define minimum measurements.

Blum commented- Needs to be integration to develop a roadmap for implementation.

Lovell- Plan would be to finish up these reports in order to revisit all the WG reports under the framework of minimum measurements and prioritizations.

Third rec of App 1 (smear slides)

Neal commented- Generic statement that we need ref collections and these can be purchased.

Gulick/Lovell/Okada suggested- Just recommend that these refs should be available for all expeditions as appropriate.

Need rec that IOs imaging report be adopted as a starting place

Neal volunteers to help Sakamoto turn this report in concrete recs and statements

See STP Recommendation 0507-02 and STP Consensus 0507-03.

16. Temperature and Pressure downhole measurements- Screaton

Kasahara asked- What is the accuracy of the TP on the DVTP-P and T2P and the response time?

Screaton answered- These information are some of the things that need to get into the archive. Data itself not just interpreted final values needs to be in archive/database.

Villinger asked- DVTP is described in the literature. DVTP-P status is less certain. If its an IODP tool than the IOs need to provide the manual if third party, than the developer would.

Kasahara/Korja commented- Need to include the range of measurements, accuracy, response time, type of sensors in QA/QC for the community.

Blum commented- Need to distinguish between archive versus accessible online.

Villinger commented- Would be helpful if STP recommended that some of these tools become standard.

Ge aksed- How do you know what layer you are in?

Screaton answered- Probes you know as well as you know your drilling depth.
Villinger commented- Delivery system of the DVTP-p and T2P needs an upgrade.
Should be sent to EDP.
*Concrete recs to be presented next meeting along with min measurements and QA/QC.
See STP Action Item 0507-06.*

18a. QA/QC Plan – Neal

Villinger commented- Database QC should be included
Korja commented- There should be some sort of measurements done on the JR while its still working to be compared with the new labs and platforms.
Blum responded- True QA/QC program never existed but some QA/QC was done in some labs. Elements of QA/QC is present in the archives and we are working to compile this into the database. We have started to list the QA/QC methods for each measurement but it's a big job.
Kuroki suggested- Lets prioritize such that QA/QC of minimum measurements instead of by lab or WG.

18b. Lab Info Mngmt Sys – Blum

Lovell asked- How can we make sure that the JR data will be comparable to future data?
Blum asked- Completing the QA/QC survey is the most important.
Korja- Crucial point that the calibration data into the database.
Wilkens/Blum commented- Huge amount of work that may not be possible in phase 1.
Neal commented- For reference materials just call it a sample so that it gets into the database.
Schuffert commented- However, get refs into database may only tell you about these last few legs.
Blum commented- Getting a list of the current QA/QC protocols is what is vital.
Lovell/Gulick commented- A specific rec is needed to capture what is occurring on the JR in prep for new vessel.
Delius commented- Also will need to get scientists to spend time on QA/QC as it sometimes costs science time.
Blum commented- Other cost therefore of QA/QC program is science time.
*Korja, Lyons, and Gulick write rec on QA/QC in general but also USIO specific rec to get a snapshot of QA/QC currently happening
See STP Recommendation 0507-03 and STP Recommendation 0507-04.*

22. SODV Update- Kryc

Villinger asked- So planned start of operations is when?
Kryc answered- Sept, 2007.
Discussion of where deadline came from to STP (Aug 15th).
Neal commented- A draft of required measurements from this panel will be a starting place.
Kryc responded- Comments will be considered seriously.
See STP Action Item 0507-10.

23a. Logging Update on SODV- Higgins

Janecek commented- There is a limited number of respondents. By tying the infrastructure to the vendor are limiting future flexibility.

Higgins commented- You can't really separate it because derrick/winch/infrastructure design must match the tools we plan to use. We want to have the menu of tools as large as possible based on the cross section of our ship infrastructure and the vendors' capabilities.

Lovell summarized- So selection of logging tools is lower priority right now but endorsement of the process is needed.

Wilkins will write up this supporting the Logging RFP plan.

See STP Consensus 0507-01.

23b. Minimum measurement discussion

Gulick/Neal commented- We have already defined minimum measurements in the WG reports.

Blum suggested- Need very clear definitions.

Lovell responded- We have been defining the measurements from 2001.

Kryc commented- Couple of labs by the 15th may be enough for now.

Janecek commented- You want at least cat 1 and 2.

Kuroki suggested- What we need is the list of measurements not tools.

Discussion of getting categories correct. WGs for this purpose: Chemistry, Microbiology and Petrophysics.

24. Paleontology WG report- Suzuki

Suzuki explained a background for the Paleo WG recommendation.

Dr. Lazarus made a presentation explaining what are MRCs and what they need. *Details are in Appendix 2 of these minutes.*

Neal asked- Can we recommend actions to IODP-MI?

Janecek answered- Yes.

Neal commented- We can't recommend a budget.

Suzuki responded- That's why the recs don't mention a budget.

Lazarus commented- Importance is to input the taxonomic dictionaries into IODP database.

Neal commented- I am confused by the budgets in the report and I don't want people further up the chain to be confused. He asks that it be revised for clarity

Lazarus commented- Need to figure out who MRCs report to and how to differentiate Paleo WG from MRCs and prevent COI.

Schuffert commented- No formal relationship exists between IODP and the MRCs.

Gulick suggested- We can recommend the problem to be solved but not the implementation.

Schuffert commented- Remember the relationship with MRCs recommendation was only received.

Janecek commented- Recommendations need to be that IODP do something...not IODP-MI.

Gulick suggested- One rec not two and it can say recommend completion of task and use across all platforms.

Suzuki will construct the recommendation.

See STP Recommendation 0507-08.

25a/b. Core-log-seismic integration (CLSI)- Sakamoto

Discussion for CLSI workshop

Blum commented- Comment that there was not a lot of communication about this workshop and not enough time for lots of participation.

Higgins commented- I think there will need to have an IO based workshop at a later date on this topic.

Villinger asked- Who prepares this table?

Blum answered- IOs will prepare the database to include this information. The filling in of the table is a combination of info from the drillers and scientists.

Blum/Higgins/Delius/Gulick commented- General agreement of IO reps and CLSI folks that this is important and that the IOs welcome doing this.

Gulick commented-We don't need rec 5 (checkshots) as we have already done this.

See STP Action Item 0507-07.

Discussion of origin of SAGAN/SPLICER

Gulick commented- Don't necessarily need to say all the implementation

Janecek commented- Leave the implementations issue to IOs and IODP-MI just recommend the needs

Higgins commented- SPLICER and SAGAN should have this capability by the end of the summer.

Neal commented- In light of what we have heard we just need to put in our needs and don't need to propose the software itself.

Sakamoto and Gulick can rewrite recs 1 and 2 into one rec, recs 3 and 4 tabled until tomorrow.

See STP Recommendation 0507-09.

20. Micro-bio QA/QC- Mandernack

Neal asked- So for microbio how long between these two phospholothophores (sp?) techniques.

Mandernack answered- 4 hours for the easy one 8-12 for the harder one. Hard rocks are case by case basis.

Neal suggested- We make an abbreviated rec with a background.

Brumsack suggested- Maybe you want to tie this to pore-water chemistry.

See STP Recommendation 0507-07.

26. Velocity at high pressures and Vp/Vs – Kasahara

Ge commented- Not only velocity is needed but you can use in situ stress and direction

Gulick asked- How often would you want to do this?

Kasahara answered- Maybe 2 measurements per day

Wilkens commented- This is difficult to measure

Kasahara responded- No its very easy

Blum commented- Not sure why you would ever do this in sediments...for hard rocks samples could be sent away to labs set up for this.

Ge/Screaton commented- Bringing it to pressure you can learn a lot

Wilkens commented- Not sure its necessary to measure this and it requires lots of training.

No consensus reached and thus Kasahara will write up an action item for further discussion-people Kasahara, Ge, Wilkens, Gulick, Korja

See STP Action Item 0507-05.

EDP Liaison

Wilkens moved that Mike Lovell be the EDP liaison for the first meeting and Sreaton seconded it.

Consensus reached that this is a good idea with understand that Lovell was interested in attending the meeting.

19. IODP Mgmt Forum Report- Neal

SPC charges panels with considering the Report and providing comments on the report.

Janecek introduced- At this forum realized we need a more coherent framework for pursuing the accomplishment of the scientific objectives. So perhaps we cannot completely be driven from the bottom up but 2 or 3 missions would exist that would address major thematic goals along with continuing the bottom up approach.

Blum asked- Did the forum relate this to the way we had thematic panels 15 years ago?

Janecek answered- Similar, but more like the way NASA plans its missions.

Gulick asked- So is this sort the evolution of CDPs?

Janecek answered- Yes, like what has occurred with NanTroSEIZE.

Gulick asked- Who would decide which 2-3 missions?

Janecek answered- The science community via the SAS.

Neal commented- Concerned about IODP paying for site surveys.

Gulick commented- Could be a good thing as it may provide a mechanism for funding the 3-D surveys necessary for many CDP type projects that are quite difficult through national funding agencies

Janecek commented- These are important points that need to be relayed.

Higgins asked- Are you generating a structure with a structure that will require duplication of effort and enormous resources? Can the community absorb a whole other set of responsibilities?

Charge the panel to think about it and discuss more tomorrow to give thumbs up/down, concerns, enhancements, etc.

Prioritization of STP items- Gulick (Sreaton took notes)

Gulick presented consensus statement for this issue.

Neal asked about putting recommendations into the categories defined for measurements.

Sean responded that these categories probably not appropriate for many recommendation.

Discussion of fiscal flag, and time costs.

Decision this information from STP not necessary.

Discussion of number of categories.

Decision to reduce priority categories from 5 to 3.

Discussion of whether priorities attached to action items as well as recommendations and differences between action items and recommendations.

Decision that it should also be application to action items that affect IOs. STP members are in consensus.

Minimum measurements (continued from 23b)- Neal

Brumsack commented- Pore waters should be minimum because otherwise its lost

Rohl added- But in hard rocks you can take plugs

Lyons commented- I support the idea of pore waters being minimum

Villinger commented- Our panel used Supplemental measurements

Discussion ensued of which measurements are minimum...list was: measurements for safety, core characterization, biostrat, vcd, thin sections, ephemeral props, nat gamma, gamma atten., mag sus., moisture, density, p-wave vels. Neal and Gulick will get together the results of the 2 groups. Min and Standard measurements first and then Supplemental to follow. Asterisks on current third-party tools.

Kryc/Higgins commented-SODV budgets, etc., can be driven by need to move third-party tools to standard.

See STP Action Item 0507-04.

Wednesday, July 13, 2005

30. Gyro-based borehole magnetometer presentation- Stoll

Dr. Stoll made a presentation for background and measurements results of the magnetometer on Expedition 305.

Gulick asked- What rocks were being cored into on Expedition 305 (where this tool was used)?

Stoll answered-Basalts

Delius commented- One issue was the possibility of softly magnetized sediments (possibly contaminated by drilling) affecting these results.

Stoll/Delius commented- Non-magnetic sinker bar was added to increase the weight of the tool but it could be there was some magnetic effect on the c-component. More QC needed.

Higgins commented-Considered deploying this on 309 and 312 and didn't on 309 due to issues of measurement uncertainties. Comment from this panel on whether it should be used for 312?

Wilkens asked- How much would it cost for a new one.

Stoll answered-Up to 75 deg then 125K Euros, up to 175 deg then 150K just for the gyro.

Delius commented- Temp limit is 80 deg for the gyros so in 319 is temp measurements show it to be too hot then it shouldn't be deployed. So whoever sailed with it would need a strong paleomag background. Deployment is less difficult than interpretation.

Higgins commented- So from 309 we might find out whether its too hot. From the technical side we need to understand what happened in 305.

Villinger commented- Also there needs to be a push from a PI to keep the development going.

Higgins commented- NSF has funded mag sus tool development and there is a lot of interest in further magnetic tool development in general.

Delius commented- Lots of interest in the science party on 305.

Wilkens asked- Sensitivity in sediments?

Stoll responded- Right now we are only measuring every 10 sec. Also you might need a magnetometer of higher resolutions.

Wilkens commented-Might be worth if the tool is being redeveloped to make it applicable for seds too.

Schuffert commented- Several proposals in the system where figuring out the paleo latitudes of hot spots.

Higgins commented- Mentions another tool from France geared towards sediments...but difficulties in collaboration.

Consensus statement of encouragement to continue development and solve some the issues on the measurement discrepancies for 305. Specs may be included for use by the

IOs. EDP needs to be involved in this. So we should recommend that EDP through interaction with IOs investigate this further.

Okada commented- Use of gyros may be important for other downhole directionality needs in IODP.

A packet will be prepared about this tools and its range of specs by Stoll to be delivered with this rec to SPC and assuming their approval onto to EDP.

See STP Consensus 0507-06.

Proposal review (continued)

574-Full2 discussion

Wilkens commented-Issue of CORKs, third-party tools involved and the PIs may not be aware.

Nanba commented- Description of the microbio is not really microbio, not sure of the instrumentation being discussed. Further analysis is microbio but the instrumentation being discussed is unknown to me. If no one knows about this instrumentation then we would like more information.

Plan is Aug 15th one page summary to get to Schuffert

635-Full2 discussion

Lyons commented- Gut feeling is they are quite aware of issues of sampling sands with pore fluids intact. Likewise aware of the drilling strategies needed.

Screaton commented- May want EDP input on that part.

Plan is dialogue to ensure between Gulick, Lyons, and perhaps EDP. Review by Aug.15th.

637-Full2 discussion

Villinger commented- Must have a development plan for SCIMPI turned in with proposal as expedition depends heavily on this third-party tool. EDP also needs to look at this for problems of a tool sitting loose in seafloor without any sort of hanger system.

Review by Aug. 15th.

See STP Action Item 0507-02.

Forum Mission Concept (continued)

Issues: Site surveys, Bureaucracy, Divisive or Inclusive result? who make decisions on which missions but also who get to be a part of the missions, concerns over program financing and national financing going towards same goals.

Likes and dislikes: Relatively early rejection of proposals that aren't doing well liked.

Blum commented- One idea was to identify proponents and proposals that are heading towards these goals. And to make sure need for site surveys etc doesn't kill good ideas that lead towards thematic needs of the program.

Neal commented- One way to handle this is an RFP for areas that are missing and build missions out of these proposals. (Gets more bottom up in this).

Schuffert commented- One motivator is to have IODP be more different from ODP as well as accomplish the thematic goals.

Wilkens commented- New and exciting is sometimes driven by technology rather and science targets. Right now we are doing things the same old way rather than highly qualified people collecting data for the scientists connected by Internet.

Korja commented- We need to access the interest of funding new technologies more than we are doing now.

Sakamoto commented- Difficult now to form group for site surveys and work with countries outside IODP (Russia for instance).

Neal commented- Idea of introductory member a good one (cheaper way to get foot in the door).

Ahagon asked- Is there a specific country this is targeted at?

Schuffert responded- Not that I am aware of; right now this is just an idea that would have to be approved by BOG, funding agencies, etc.

Gulick will write consensus about the mission idea and introductory memberships.

See STP Consensus 0507-04.

27. Review of Recommendations, Consensus Statements and Action Items- Neal

Recommendations:

STP Mandate (addition of proposals)

15 Yes, 0 No, 2 absent (Villinger and Lovell)

Observatory Task Force

15 Yes, 0 No, 2 Absent (Villinger and Lovell)

Proposal Review

15 Yes, 0 No, 2 Absent (Vilinger and Lovell)

Microbio Sampling

Mandernack commented- If routine sampling for freezing and later analysis is done then we need to advertise to the microbio community.

Major wordsmithing ensued and Mandernack will re-write background to assist in sampling strategy planning for expeditions.

16 Yes, 0 No, 1 Absent (Lovell)

Taxonomic Dictionaries

16 Yes, 0 No, 1 Absent (Lovell)

Depth processing table

16 Yes, 0 No, 1 Absent (Lovell)

Gulick will fix the background.

QA/QC Task Force

16 Yes, 0 No, 1 Absent (Lovell)

Standards Run on JR (ASAP)

16 Yes, 0 No, 1 Absent (Lovell)

Core Description WG recommendation

16 Yes, 0 No, 1 Absent (Lovell)

Action Items:

Laser Ablation Action Item

Agreed Upon

Velocity measurements under pressure/Shear wave measurements

Agreed Upon

Proposals by Aug 15th

Agreed Upon

Measurements discussion online done by Aug 15th and sent to IODP-MI for distribution to USIO for SODV planning and other IOs

Agreed Upon

Temp and Pressure

Agreed Upon

third-party tools continuing in advance of EDP meeting

Agreed Upon

STP attendance at CLSI workshop (Next Meeting)

Agreed Upon

Continuation of CLSI discussions among IOs (Next Meeting)

Agreed Upon

List of Specialties Needed on this panel

Agreed Upon

Consensus Statements:

Support of SODV Logging RFP

Agreed Upon

MgmtForum feedback

Agreed Upon (Sean will fix format)

Modular Labs

Agreed Upon

Magnetometer Tool Usage

Agreed Upon

Thanks to Hosts

Agreed Upon

See STP Consensus 0507-09.

Thanks to Sean and Clive

Agreed Upon

See STP Consensus 0507-08.

Ranking of Recommendations

Determined by blind vote and tabulated by Schuffert.

All ended up Medium except QA/QC and JR measurements which came up High

The resultant ranking is as in the following order.

Recommendation prioritization

STP mandate change

Observatory Task Force

Proposal review

Core Description including imaging

CLSI

Micropaleontology dictionary

Microbiology WG report

QA/QC Task force/WG

Standard reference JR

Consensus for IODP Imaging report

STP accepts the IODP Imaging Report as complete and ready for implementation and thanks the IODP Data Management Coordination group for its hard work.

Agreed Upon

29. Next meeting location and date- Okada

Discussion that led to the first of the three Jan-Feb dates proposed for the meeting in Kochi.

Appendix 1: Meeting Agenda

1st meeting of the IODP Scientific Technology Panel
(would correspond with 4th meeting of IODP Scientific Measurements Panel (SciMP))

June 11th – 13th 2005 Bremen, Germany

Final Draft Agenda (to be approved at start of meeting)

Overview:

Main Meeting Room: MARUM building

Breakout rooms:

Start 08:30

(Note: hotel to meeting room is 40 minutes by streetcar/walking and 20 minutes by taxi)

Lunch at 12.30 -13.30

Afternoon break at 15:00

Day ends at 17:30 (except Wednesday 12:30)

Most urgent business will be completed by end of Tuesday.

Schedule:

Note timings below are approximate:

Monday 11th June 2005

08.30 Welcome and Updates

1. Welcome and logistics
2. Introductions of continuing and new members, guests, liaisons
3. Review and Approval of Agenda
4. Review and Approval of Minutes from previous SciMP meeting
5. Conflict of Interest Policy; Roberts Rules of order
6. STP mandate
7. Brief report concerning STP issues from recent SAS meetings
 - a. SPC Lisbon (**Lovell**)
 - b. SSEP Shanghai (**Okada and Lovell**)

11.00 Reports

8. IODP-MI
 - a. Report (**Schuffert**)
 - b. Receipt of additional report on IODP-MI Task Force (**Action item 0502-09**)
Monterey Boreholes, SciMP/STP (**Janecek**)
 - i. Establishment of the IODP-MI Observatory Task Force
 - ii. The status of "Minimum Measurements"
 - iii. STP-Implementing Organization interaction.
9. CDEX
10. JOI Alliance (**Blum**)
11. ESO

12.30 Lunch

13.30

STP reports

12. From **Action Item 0502-05**: The SciMP should continue to develop a draft checklist of scientific measurements for use by the SSEPs in evaluating proposals. The draft checklist should be presented at the March SPC meeting and discussed with SSEPs. *This was deferred because the new mandates of STP, EDP, SSP, and SSEP include inter-panel liaison to this effect. It was felt the chairs of the new panel should discuss the best way forward. As a result we have to discuss how we will review proposals sent to STP by SSEP.* (Leads: Lovell and Okada)
13. From **Action Item 0502-04**: Discussion of general policy statement on third party tools and instruments [laboratory, downhole, and observatory], both developmental and off-the-shelf. (Leads: Wilkens and Villinger, and Higgins/Blum).
14. From **Action Item 0502-15**: Discussion of “IODP Imaging Report to the Scientific Measurements Panel”. SciMP receives the report and will review this in preparation for the next SciMP meeting. (Lead Sakamoto with input from panel members)
15. From **Action item 0502-06**: Discussion of revised Core-Description Working Group report to include new core imaging techniques and to reflect the Conceptual Design Committee (CDC) report and SODV briefing book for the IODP non-riser drilling vessel. (Lead Sakamoto)
16. From **Action Item 0502-07**: Discussion of report on status of downhole temperature and pressure tools, plans for calibration, software updates, database needs, and the minimum level of data processing and necessary skill level for the processing across all drilling platforms. (Lead Sreaton)
17. From **Action item 0502-10**: Discussion of report on modular lab concept for MSP operations. (Leads Neal and Roehl)
18. From **Action item 0502-11**: Discussion of reports from each working group evaluating QA/QC protocols and recommendations for implementation. (Lead Neal with input from panel and IOs (esp. Blum))

16.30 END of Day 1: Tour of Core Repository and Evening reception (drinks and nibbles).

Tuesday 12th June 2005

08.30

19. Conceptual Framework for Improving IODP – request from IODP Management Advisory Forum.
20. From **Action Item 0502-08**: Discussion of report on feasibility of establishing more reliable “reference calibration standards” for quantifying total and viable bacterial cell counts of sediment and rock samples that should be routinely made on board the ship. (Leads Mandernack and Nanba)

21. From **Action item 0502-12**: Discussion of report on feasibility of making a laser ablation facility (with radiation of 213 nm or less) available on the Riser & non-Riser platforms for interfacing with an ICP-MS. (**Lead Neal**)
22. From **Action item 0502-14**: Discussion of progress on US SODV Briefing Book, STP ongoing and iterative liaison with JOI with regard to the design of scientific laboratories on the US drill ship (SODV). SciMP will provide advice on lab design, priorities, and sample/core flow and will bring in other experts as needed. SciMP recognizes the urgency of this issue and Clive Neal for SciMP and Kelly Kryc for the JOI Alliance are the contact persons. (**Leads: Kryc and Neal**)
23. SODV:
 - a. Logging RFP
 - b. Minimum measurements

12.30 Lunch

13.30

24. From **Action Item 0502-02**: Discussion of two reports from the ad-hoc Paleontology Working Group. (**Lead Suzuki**). Includes short presentation by Dr Lazarus.
25. From **Action Item 0502-03**: (**Leads: Sakamoto and Gullick**)
 - a. Discussion of Core-Logging-Seismic Integration (CLSI) report.
 - b. Discussion of proposal for workshop to discuss CLSI methods with scientists, data managers and programmers (including IOs). CDEX/JAMSTEC and J-DESC would play host to the possible workshop.
26. Short presentation by Dr. Kasahara “Velocity measurement under applying pressure and V_p/V_s measurements” and to have a short report from CDEX (Kuroki) concerning VSP and check shot on Chikyu.
27. Review of Recommendations (**Lovell**)
28. Selection of Chair and Vice Chair; panel membership; rotation of panelists
29. Next meeting location and date

17.30 END of Day 2

Wednesday 13th June 2005

08.30

30. Presentation by Dr J Stoll: **Action Item 04-06-26:** SciMP to invite Dr. Johannes Stoll to present at their next meeting a report on the long-term prospects of magnetometer tool usage in IODP.
31. STP Action Items: breakout groups to plan strategy and deadlines, and discuss issues related to Action Items.

Close of meeting 12.30

Note: From **Action item 0502-13:** Discussion of report on Oscillating Plasma. In investigating the potential problem of an oscillating (moving) plasma when using a quadrupole ICP-MS on a moving platform, SciMP was informed that CDEX has installed an ICP-MS on the Chikyu, which will be tested within the next year. SciMP ask that CDEX report to SciMP on the results of this testing. (**Lead: Kuramoto**) (this item is deferred until data are available)

Micropaleontology Reference Centers Report to the IODP STP

July, 2005

Lead Curator: David Lazarus, Museum für Naturkunde, Berlin. david.lazarus@rz.hu-berlin.de

Summary

The Paleontology Working Group (PWG) of IODP identified several important inputs that IODP will need from paleontology, including biostratigraphy and paleoceanographic proxies, and suggested additional services such as training and public outreach. They also warned that the necessary skills base and other information infrastructure needed to provide these services was weak and becoming weaker. The MRCs may help IODP both in strengthening needed paleo infrastructure, and as a provider of paleo services.

The Micropaleontology Reference Centers (MRCs) were initially begun nearly 20 years ago to document DSDP biostratigraphic materials. They now consist of 8 identical sets of several thousand microfossil slides for major microfossil groups, distributed and maintained, mostly without external funding, by a global network of curators and host institutions. They are currently used for general paleo research (ca. 30-50 researchers & grad students/year), pre-cruise training of paleo specialists (2-3/year), and modest amounts of both K-12 and university teaching. They are among the largest, most broadly distributed sets of marine microfossil samples available, and are uniquely linked and supported by a global network of micropaleontologists. The MRCs have thus become a major DSDP-ODP legacy archive, a community resource for micropaleontology, and a base of materials and networked expertise to maintain future paleo data quality in IODP. Future MRC activities need to concentrate on completing collection sets, improving use of collections in both teaching and research, and in particular, supporting the priority tasks identified by the Paleontology Working Group of IODP.

More accurate taxonomy was identified by the PWG as most critical to both improved future paleo data for IODP, and maintenance of paleo derived data from DSDP-ODP legacy sites. Both the biostratigraphic framework on which Hole age models are based, and the fossil assemblage compositional analysis on which paleontologic paleoceanographic proxies are derived, are underpinned by taxonomic concepts for species. These often shift with time, and in many cases are too poorly, or obscurely documented for a new generation of scientists to use accurately or efficiently. It is therefore necessary before beginning major projects on age-model development or other applications of paleo data to first improve the consistency and access to those taxonomic concepts that provide the basis for this paleo data. Given the rapid loss of expertise as first-generation DSDP scientists retire, it is also important to act quickly to preserve their knowledge for future use. Lastly, it is important for improved paleoceanographic proxy use to synthesise the now substantial body of ecologic data on living species, which currently is scattered throughout the primary literature.

MRC curators, together with many other micropaleontologists, have begun to create digital databases (digital dictionaries) of well documented taxonomy. Several different projects have been begun at the national level in Japan, Europe, New Zealand and the USA. Some of these are linked to other major users of microfossil taxonomy data, such as CHRONOS and PBDB - the Paleobiology Database project. Yet much more needs to be done, as current projects are patchwork, limited in scope, and of mostly a regional nature. Existing projects also need better co-ordination to prevent duplication of effort and incompatible data formats. Integration of these taxonomic dictionaries into IODP's own information systems is also needed.

IODP can most effectively and efficiently make a positive contribution to the development of these taxonomic dictionaries, and insure access for IODP use, by providing modest resources via the MRCs to promote and co-ordinate taxonomic dictionary development with various national agencies and other major scientific users. Direct funding by IODP of dictionary development, a much more expensive proposition, may only be needed at some future point to cover remaining gaps in taxonomic coverage.

The following pages provide a more detailed summary of MRC history, holdings, current and planned activities, including a detailed estimate of needs and costs for community-based taxonomic dictionary development; and a two-year budget for proposed MRC work, covering both sample processing and coordination activities.

Section 1 - The MRC system

MRCs- Description

History

The Micropaleontology Reference Centers were established by Bill Riedel (Scripps) and John Saunders (Basel) in the late 1970s to early 1980s. Their initial purpose was to document with actual fossil material each zonal designation for each DSDP Site, as at that time limited core recovery raised concerns about the long-term availability of material, which could prevent needed revision of a core's biostratigraphic assignments in the future. This effort was supported by DSDP and later ODP via provision of samples, basic Leg documentation and a small annual budget for meetings. Local host institutions provided most of the needed manpower, facilities and supplies, with occasional funding support from national agencies as well. In the 1990s, the initial monolithic collections of all four fossil groups (planktonic foraminifera, calcareous nannofossils, radiolarians and diatoms) were unbundled from the centers that had held them and several individual subcenters, or 'satellites' for single fossil groups were established at other institutions under the curatorship of active micropaleontologists. This had the desired effect of increased general scientific usage of the MRC collections, as the initial need for zonal documentation had largely not appeared.

The Lead Curator responsibility was taken over by Brian Huber (Smithsonian) at the beginning of this transition in 1993. A long standing problem was addressed of more samples being taken than could be effectively processed, which had produced a backlog of >2,000 unprocessed samples. In the next years the 'blanket' style sampling strategy was revised to be more selective and concentrate on smaller numbers of samples, from Sites of unusual value, such as older sediments. Additional satellite centers were established (current locations of all centers are shown in figure 1 and table 1). A database for the collections was begun towards the end of the 1990s by Dave Lazarus in Berlin.

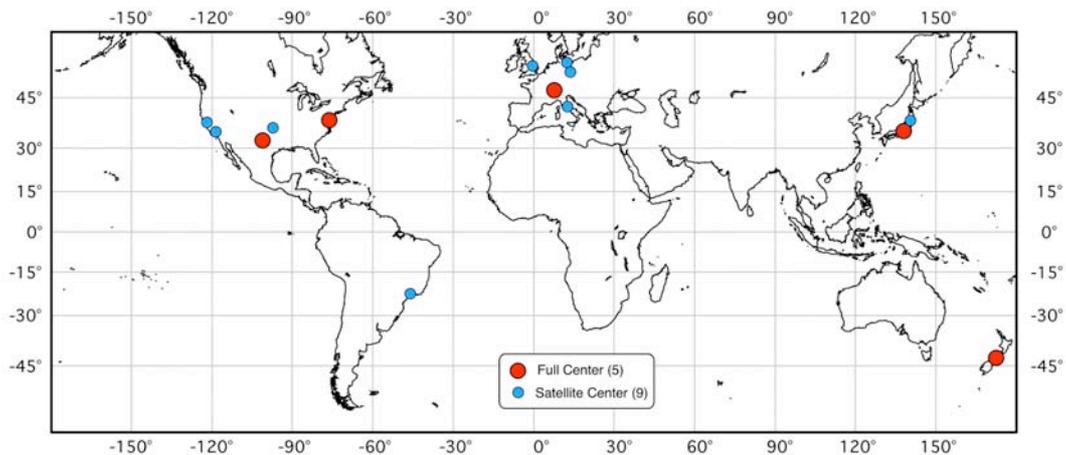


Figure 1- Location map showing distribution of MRC centers.

MRC Location	Type	Curator	Support	Report
Florida State U. Tallahassee	N,D	Wise	NSF, Univ.	Y
Rio de Janeiro, Brazil	F	Rios-Nettos	mix-grants, industry, institute	2003
NHM Berlin, Germany	R	Lazarus	NHM Berlin	Y
NHM Tokyo, Japan	Full+D	Tanimura	NHM Tokyo	Y
Smithsonian NHM, Wash. D.C.	Full	Huber		Y
Univ. Parma, Italy	N	Villa	Univ.	Y
IGNS, Lower Hutt, New Zealand	Full	Strong	IGNS	Y
NHM London	N	Young	NHM London	Y
Basel, Switzerland	Full+F	Knappertsbusch	NHM Basel, Swiss Nat. Res. Grant	Y
Utsunomiya, Japan	R	Aita		Y
Scripps, California	R	Sanfilippo	Facil.-SIO, Womanpower-voluntary (soft \$ position)	Y
ODP Bremen, Germany	R, F	Hale/Donner	ODP	Y
Univ. Nebraska	N,D	Watkins		N
Cal. Acad. Sci., San Francisco	D	Kocielek		N
ODP Texas	Full	Firth	ODP	Y
		Totals		11/14

Table 1- MRC location and support information. Full=all four fossil groups, F=planktonic foraminifera, N=calcareous nannofossil, R=radiolarian, D=diatom. Blank fields indicate no information provided. Brazil report for 2004/5 delayed due to internet problems- 2003 report used instead.

In 2000 Michael Knappertsbusch (Basel) assumed the Lead Curator role. He forged a link between MRC collection work and DSDP-ODP age-modelling work, which had already begun as part of the Neptune database project initiated in the early 1990s by Dave Lazarus at the ETH in Zuerich (and which is now part of the US NSF CHRONOS system). Meeting with the PWG in Washington in early 2004, the curators decided to further reduce the sampling effort to only very high quality, unique Sites, and to fill gaps in stratigraphic/ geographic coverage that the new database system was beginning to identify. Closer integration to the IODP paleo goals defined at the same meeting by the PWG was set as a priority. Dave Lazarus (Berlin) replaced Michael Knappertsbusch as Lead Curator in May 2005.

Collections

Size - The MRCs currently contain nearly 23,000 samples, divided nearly equally between four

fossil groups: planktonic foraminifera (6,263), calcareous nannofossils (5,669), radiolarians (5,336) and diatoms (5,398). Samples are taken approximately every second year in a sampling party, and are sent for processing to those curators volunteering to prepare them. At least 8 identical sets of prepared slides are then distributed to the MRC collection locations world-wide. The large majority of samples have been prepared, but there is still a backlog of nearly 2,000 samples, mostly radiolarian and diatom, that have not been prepared yet, and ca. 3,000 nanno slides which are of poor quality and ideally in need of replacement with new slides. Most prepared slides contain adequately preserved fossils, but ca 10% of the radiolarian and diatom slides prove to be barren, or nearly so.

Documentation - A master database of the MRC collections is maintained by the Lead Curator in Berlin. A simple relational structure links sample information to general information on locations, allowing queries by geography, age, or other Site or sample characteristics.

Age and Geographic Distribution - Almost all MRC samples have been tagged with a standard structured age code based on published reports and/or direct dating of the sample by MRC curators. Samples from a few Holes have also been given numerical ages from MRC developed quantitative age models. Based on this information, it is possible to provide an age and geographic profile of the MRC samples. Because these samples have mostly been taken in direct reflection of DSDP-ODP drilling effort, the results are also a useful, if somewhat rough summary of cumulative deep-sea drilling recovery to date (or at least to 2002, the last year samples were taken). Figures 2 and 3 show the primary patterns. The major features are: 1) a dominance of Neogene (even late Neogene) in total sample numbers, and an even more extreme Neogene dominance when normalised to geologic time interval duration. The recovered record so far looks remarkably like an exponential decay curve with a half-life of <10 my. 2) Spotty geographic coverage in older time intervals, particularly for siliceous microfossils. Despite more than 30 years of deep-sea drilling, we still do not have good geographic coverage of the plankton for many Paleogene, let alone Mesozoic oceans. 3) Differences in the distribution of carbonate vs. siliceous microfossils, due to well known differences in preservation between ocean basins (particularly the Pacific).

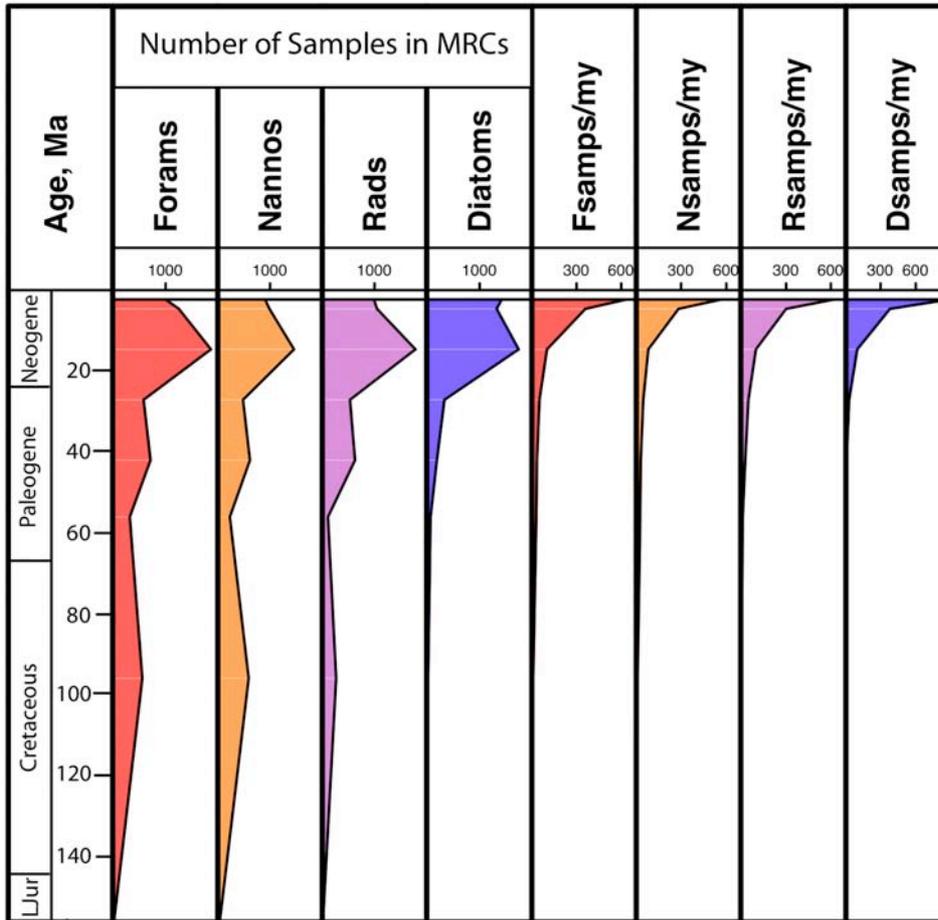


Figure 2- Stratigraphic summary of MRC samples, showing total sample numbers for each fossil group by age interval on left, and normalised to age interval duration on right. Data extracted from MRC database, ages primarily from Initial Reports.

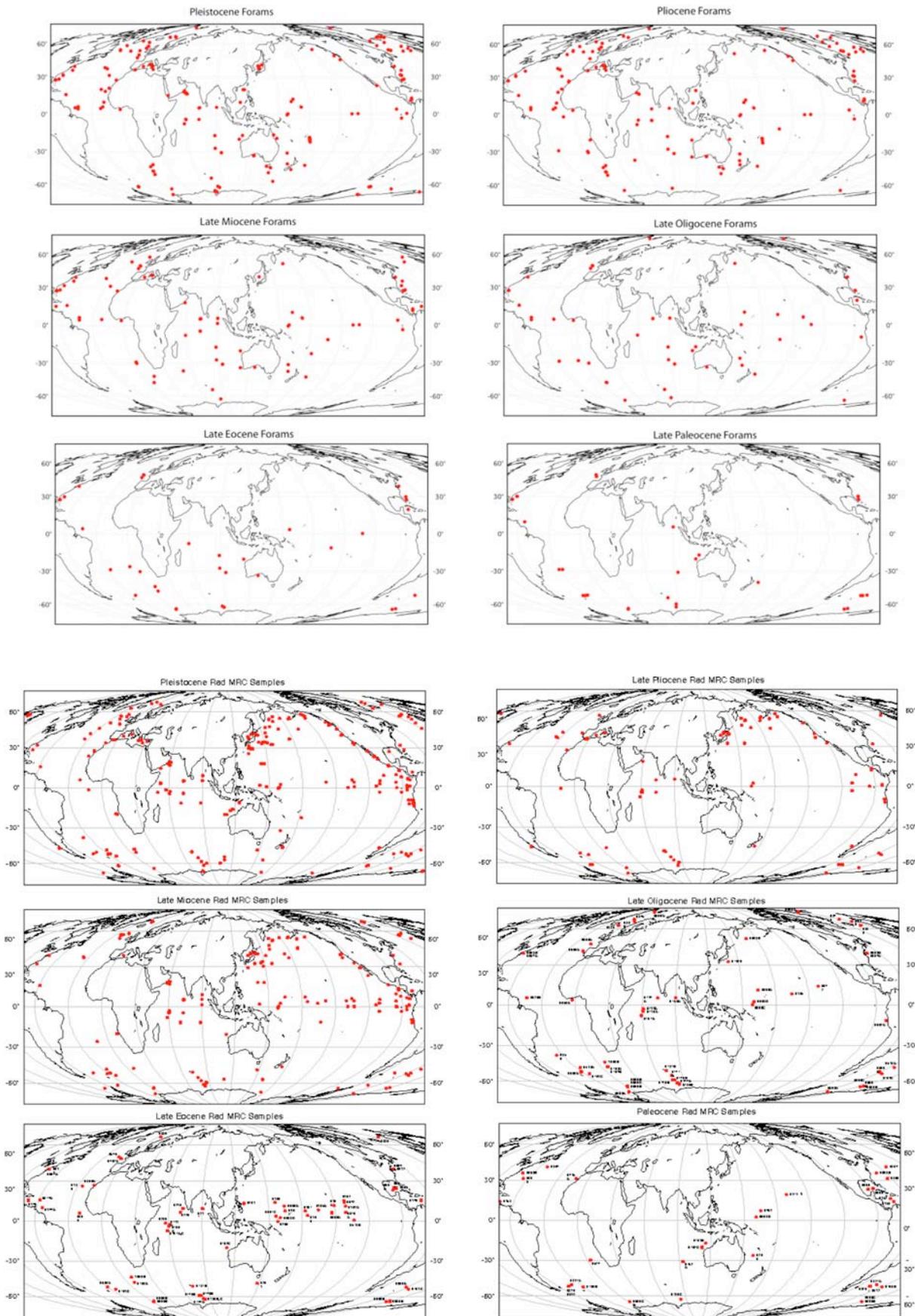


Figure 3- Geographic distribution of selected subsets of MRC samples by time interval. Upper set of maps show distribution for planktonic foraminifera, lower set for radiolarians. Distribution patterns for calcareous nannofossils and diatoms not shown but closely resemble those for forams and rads, respectively. Data from MRC database, map created with Panmap program.

Use

MRC usage has gradually grown over the years, due to better advertising of the project, better documentation of holdings via the database, and in particular, to the distribution of collections to curators themselves active in microfossil research. Although yearly totals fluctuate significantly (see table 2 for latest 2004-5 numbers), generally 30-40 scientists or their students make use of MRC collections each year for research purposes. MRCs are also used at a few universities for teaching, and there is a small amount of K-12 teaching and public outreach education as well. Not all collections are equally well used. Those stored at ODP core repositories specifically have not been used much, and placement of satellite collections has mostly, but not always, increased collection usage. Although in recent years new policy has allowed MRC slides to be loaned out by qualified users, this is still rare.

Center	Total Res. Users	Sample Prep	Db/Cat alogs	Research		Teaching		Public Outreach	Cruise training
				External	Own	Uni	K-12		
Tallahassee	12		Y	2	10		Y		1
Rio	5			2	3				
Berlin	5	100	Y	2	3	Y	Y		
Tokyo	5	300	Y	3	2				1
Wash. D.C.	5		Y	4	1				
Parma	4	140	Y	2	2				
N.Zealand	4			2	2				
London	3		Y	1	2				
Basel	2		Y		2	Y	Y	Y	
Utsunomiya	1	70	Y		1	Y		Y	1
Scripps	1				1				
ODP Bremen	0								
Nebraska	0								
Cal.Acad. SF	0								
ODP Texas	0					Y			
Totals:	47	610	6	18	29	4	3	2	3

Table 2- MRC use and activities, 2004/5, ranked by total research users. Sample prep=number of samples prepared (8 or 9 slides per sample); Db/Catalogs=contribution to MRC database content or taxonomic catalog activity; Research=Ph.D. scientists and graduate students; teaching-university including undergraduate; K-12=primary school (either visits to MRC or provision of material to schools); public outreach=lectures or exhibits for general public; cruise training=use of MRC material by shipboard scientist prior to cruise.

Value

The MRC system's value has several different aspects.

The MRCs represent a unique, important legacy archive of deep-sea drilling. This value will primarily only become apparent in the (possibly far) future, when drilling has long since ceased and primary core material has become depleted or otherwise unavailable. To insure this archival aspect however at least some parts of the MRC collections must eventually have permanent status in an appropriate institution (such as a Museum) which can guarantee long-term (decades to centuries) care of materials.

MRCs are gradually becoming a significant source of material for paleontologic research. Although the sample resolution of MRC holdings is too low for detailed paleoceanographic work, sample stratigraphic density, and in particular excellent geographic coverage, are well suited to basic work on taxonomy and evolution. The former subject has been identified by the PWG as an issue of importance for IODP, while the latter is an important science theme not only for IODP but also other major research efforts such as the PBDB.

The MRCs have a large, but mostly untapped potential for teaching at all levels from K-12 through graduate training, and for use in general public education. Many collections are based in museums and universities, and thus are already located in appropriate institutions that could develop this potential.

Lastly, MRCs are a large, established network of micropaleontologists, who themselves represent a considerable resource of expertise that can be tapped by IODP to address problems and projects related to paleontology in IODP's program.

Planned MRC Activity in IODP

MRC activities can be divided into two parts - one, long term development of MRC collections and their use in research, teaching and public education; and two, specific projects in response to needs defined by IODP or other major organisations. Currently one such specific project is foreseen - assistance in the development of digital taxonomic dictionaries for IODP data quality assurance. This project is presented, with general cost estimates, in Section 2 below. Listed here are the other regular MRC activities that are planned for the next few years.

Sampling and Slide Preparation

Over the next ca. 3 years, the primary MRC own collections goal will be to finish preparing samples already taken. A backlog of nearly 1,500 radiolarian samples exists, which is currently being processed by two labs (Utsunomiya and Berlin) at approximately 200-300 samples (ca 1,800-2,700 microslides) per year. A much smaller backlog of ca. 300 samples for nannos also exists, which is relatively quickly being eliminated by similar sample prep work (140 samples last year in Parma). It is important to eliminate this sample backlog as soon as possible. Radiolarian sample processing rates in particular need to approximately double, either at those labs already contributing, or by participation of other labs.

The last major set of samples taken for the MRCs was in 2002, and covered up to Leg 189. Several important Holes have been drilled in the interim (particularly with Paleogene and Mesozoic sediments) which should be sampled, at least for those microfossil groups not still burdened with a backlog of prior samples. A sampling meeting should be held in the near future to determine sampling strategy and select samples.

Co-ordination, Documentation and Databasing Work

The MRC database is currently functional and holds the most essential data needed to locate and select MRC slides, including ages for cores taken from Initial Report chapters. However, the majority of slides/samples do not yet have specific zonal estimates, or even basic estimates of fossil group abundance and preservation. Adding this information should be an important goal for the next years, and be actively supported by the entire MRC curator group.

Data management for the collections, as well as access to collection information by users, would be considerably simplified if the MRC database were accessible as a website. The existing database is technically capable of this, and thus should be put online as soon as possible.

Education and Public Outreach

A concept for use of MRCs in general education, including outreach, must first be developed before any more concrete plans, or actual proposals can be prepared. The MRCs should discuss ideas, locate and take advice from appropriate educators and develop this theme in the next couple of years into one or more specific project proposals. Costs and possible sources of funding need also to be identified at this time.

Section 2 - Digital Taxonomic Dictionaries

Introduction

Of the various paleo products and services for IODP proposed by the PWG, the most basic, and one most critical for all other services is a set of accurate, comprehensive taxonomic catalogs (a.k.a. dictionaries). All other biostratigraphic and paleoceanographic data and services are built on this information, as are most analyses of biotic response to environmental change (e.g. biodiversity), a recurrent theme in IODP's Initial Science Plan, as well as the COSOD and COMPLEX reports. This section provides an overview of the scope and approximate cost of creating these dictionaries, as well as a suggested role for IODP in insuring their development.

Scope

The microfossil groups most important to IODP for age and paleoenvironmental information are planktonic foraminifera, calcareous nannofossils, radiolarians and diatoms. Other groups such as benthic foraminifera and dinoflagellates are also important but provide either limited age information or are found in only restricted facies. Previous attempts to synthesise taxonomic information for ODP use were mostly restricted to small numbers of well described, mostly low-latitude stratigraphic markers. Future research however will require increased use of larger numbers of taxa: for high latitude and higher resolution biostratigraphy; for paleoenvironmental analysis of entire fossil assemblages; for carbonate-poor facies. For this type of research we need accurate taxonomy, stratigraphic, biogeographic/ecologic information for most species encountered in the sediments. The total number of potentially useful fossil species (latest Jurassic - Recent) that have been adequately described and are thus available for research applications in each of the above fossil groups is only approximately known, but is estimated to be around 800 for planktonic foraminifera, 2,500 for calcareous nannofossils, 5,000 for radiolarians and 2,000 for diatoms.

Prior Work

Basic information on most of these thousands of species is available in the widely scattered primary literature, and also (for all but the radiolarians, for which no adequate catalog exists) via the major "classic" catalogs (e.g. Ellis and Messina catalogs of foraminifera and diatoms, and the Handbook of Cenozoic Calcareous Nannoplankton, all published by the Micropaleontology Press). These catalogs, valuable though they are, are not sufficient for the needs of paleo data assurance in IODP. Such catalogs provide basic, essential, information on original species descriptions, but do not provide enough information on modern usage (particularly by previous DSDP-ODP scientists), biogeography, stratigraphic range or (for living species) ecology to support expected IODP research needs.

In recognition of this, many micropaleontologists have begun in the last few years to compile new digital dictionaries, which provide, albeit to varying degree, this missing information, and in an easily accessible digital form. A new comprehensive digital taxonomic dictionary of Cretaceous planktonic foraminifera was completed in the USA with funding from NSF, and a digital dictionary of ca 500 selected Cenozoic nannofossil species has been created by the International Nannofossil Association (INA) in CD-ROM format. Online databases of radiolarian taxa were begun a few years ago by researchers in Norway and Japan, while the first "classic" comprehensive 'original descriptions' catalog of radiolarians was started (but is still unfinished) as a private unfunded project by two retired radiolarian workers in Canada and France.

Needs and Role of IODP

These efforts have pointed the way towards digital taxonomic dictionaries that serve the needs of IODP. However, current efforts are of a piecemeal nature, and vary widely in degrees of effort, particularly when compared to the number of data records (species) needing treatment (e.g., foraminifera vs radiolarians). Lastly, each effort has developed its own technology. This software has not been integrated between systems, to IODP's own IT systems, or to other critical micropaleo

information sources, such as the Neptune database of DSDP-ODP-(IODP) microfossil occurrence data managed by CHRONOS. There is a clear need for a more comprehensive, integrated approach to this work, which should more clearly address IODP's information needs. At least one proposal that addresses some of the data integration issues is currently under consideration with Germany's DFG (RADDICT-Lazarus, Robert Huber and Jens Klump), while other research groups in Japan and New Zealand have recently obtained funds to help build digital taxonomic dictionary systems. What is now needed is the involvement of IODP, not so much as a direct source of funds, but as a natural focus, co-ordinator and indirect supporter of existing and planned future digital taxonomic dictionary projects. With IODP's expressed interest and involvement, and liaison to the micropaleontologic community via the PWG and MRCs, it is hoped that a co-ordinated community effort can be made to build the necessary taxonomic dictionaries, with funding coming mostly from national agencies to build individual components of dictionary content, according to local national interests and available taxonomic skills. Direct IODP funding of dictionaries may be needed as well, but (hopefully) may be only required to plug a few gaps in coverage.

Cost Estimates of Actual Work to Create DTDs

The following cost estimates are based on the following assumptions: The bulk of the needed work will be divided between low-level work such as document scanning by student helpers, and daily management of this work by a doctoral student or part-time post-doc. Project oversight will be provided by one or more senior scientists at the local institution, backed up by a international advisory group of taxonomic specialists. Most work by the senior project scientist(s) and advisory taxonomic specialists will be voluntary, with only small amounts needed for summer support (US scientists), plus travel costs for workshops and co-ordination meetings. This model is the one that is currently being successfully used for projects of this sort. Other estimates are based on experience gained in prior projects, and are:

- Data entry: ca 700 taxa/year with 1 full time student helper plus 1 full time doctoral student plus 25% PI scientist plus advisory group (ca 6-10 scientists each ca. 5% time) (number taxa/yr depends on how detailed the data entry is).
- SW development/adaptation/maintenance costs : ca 6 man-months IT postdoc per project
- Travel/workshop costs : ca 15K/yr for 1-2 workshops
- IT equipment/SW licences : ca 10K/project
- Supplies: 2K/project

Group	Planktonic Forams	Nannofossils	Radiolarians	Diatoms
Cretaceous	Done-B.Huber	260K plus INA CD	390K	(no signif. diversity)
Paleogene	Estimate-B.Huber (260K)			Proposed- Lazarus DFG (195K)
Neogene				
Total: 1.4 M	260K	260K	585K	250K

Table 3 - Costs for full set of taxonomic dictionaries (n.b. other than PF estimate, no overhead costs included, K= thousands of \$ US)

There are many ways by which this (substantial) initial estimate can be reduced.

One is to provide a comprehensive, unified software platform for all projects, and so to reduce IT development/integration expenses. This could save ca. \$200-300K from the total cost. Various software systems for individual dictionaries are already in use, but software that integrates several different types of data source and makes it web accessible is not yet available. CHRONOS is developing aspects of such a system, and some elements also exist within the PBDB system. The RADDICT proposal of Lazarus et al. (currently in review with Germany's DFG) explicitly proposes to develop such a general platform, albeit initially for use with Neogene radiolarians[Figure 4]. More sophisticated software also helps reduce costs by automating significant parts of the data compilation work (e.g. generation of distribution maps and range charts; conversion of web and print formats, etc.), and, importantly, by making use of existing and continuing voluntary contributions to other community databases.

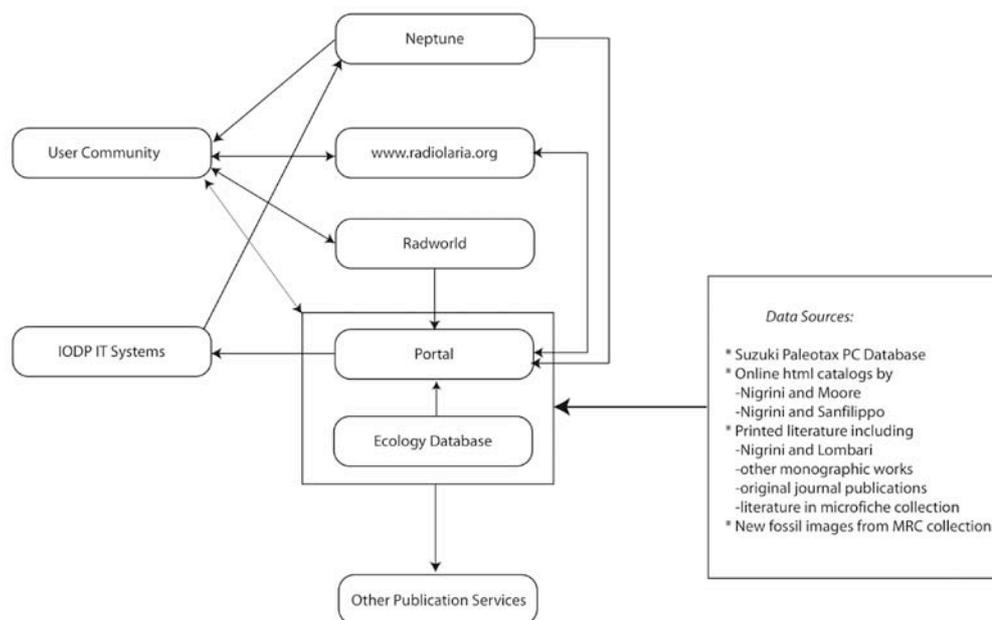


Figure 4 - Example of an integrated software platform for IODP taxonomic dictionary development. Existing online and off-line databases, primary literature, and new images from MRC collections are synthesised and made accessible to both individual users and web-based database queries via a central database and portal. Existing community database projects are not replaced but treated as partners and contributors to the larger system. [from D.Lazarus, R.Huber, J.Klump 2005 - DFG proposal for a Neogene radiolarian taxonomic dictionary: RADDICT (in review)].

To support the envisaged research goals above, in general most taxa need be databased for fossil assemblages any given time interval and geographic region. However not all microfossil groups are of equal importance to IODP for all time intervals and geographic regions. Further, within major microfossil groups occasionally larger taxonomic divisions (families, etc.) may have relatively low potential for research purposes (unresolved basic questions on appropriate taxonomic characters; generally poor preservation potential, etc.). Careful ranking and selected databasing of microfossil diversity according to these criteria could substantially reduce the effort required for IODP needs.

However, even with such methods, the total cost of developing a full set of digital taxonomic dictionaries is probably nearly \$1 M, and thus beyond the budget of IODP. How then to proceed? Fortunately, improved taxonomic catalogs are seen as a high priority by many micropaleontologists for a variety of research topics, and thus there is considerable potential to share the cost of taxonomic dictionary development with other agencies responsible for micropaleontologic research. However, to obtain this benefit, IODP needs to signal an interest in digital taxonomic dictionary development to other agencies, and be willing to cooperate in the support such projects. A useful first step in this direction is to provide co-ordination support for such development at an international scale via the PWG and MRCs, with the goals as stated above - to improve data integration between projects and prevent redundancy in work effort, as well as insure that data-sets are accessible to IODP's own IT systems. The budget for such a co-ordination effort can be modest - primarily support for workshops, although some significant IT costs may arise should it become necessary, as part of the co-ordination effort, to migrate data from existing systems into other software. A sum of ca. \$30,000 over a two year period would be sufficient to organise one or two symposia within larger general science meetings, at least one major workshop with ca 15-20 invited specialists active in existing dictionary projects, including IODP IT personnel, and occasional travel support for individual specialists to meet and work on specific issues, such as database integration. At the end of this time the MRCs would not only have furthered the development of taxonomic dictionaries, but should also be able to provide a much clearer estimate of what is and will become available to IODP via external projects, as well as more concrete prioritised estimates of costs for remaining taxonomic dictionary work.

MRC 2006-2007 Two Year Budget

Support for Sampling and Slide Preparation

A one-time special budget is requested to help eliminate the sample backlog, particularly for radiolarians, of \$7,000/yr for 2 years (enough to pay a student lab helper plus supplies costs for ca. 1,000 samples).

\$14,000

Support for Documentation and Databasing

Part-time student helper assistance (ca. 1 day/week) to speed database updates, estimate fossil abundances and assist in other documentation work is requested. Funds are also needed for SW updates etc. \$3,000/yr, next 2 years

\$6,000

General Coordination Costs, Planning for Education/Outreach

One or two curators' meeting(s), to plan future sampling, discuss other planned MRC activities (e.g. education/training and public outreach). Up to 10 curators @ \$1,000.

\$10,000

Coordination of Digital Taxonomic Dictionary Development

One or two workshops for active community specialists, selected individual travel support to insure adequate collaboration between projects. Circa 20 total participants @ approx. \$1,500.

\$30,000

Total 2 year budget-----\$60,000