DRAFT MINUTES

Interim Scientific Measurements Panel (iSciMP)
December 12-14, 2002
Edmonton, Canada

Attendees

i-SciMP

Buecker, Christian	Germany, RWE Dea AG
Divins, David L.	USA, National Geophysical Data Center, NOAA
Escartin, Javier	France, CNRS Institut de Physique du Globe
Gulick, Sean	USA, Institute for Geophysics, Univ. of Texas
Ikehara, Minoru (alternate for Y. Aita)	Japan, Kochi University
Kikawa, Eiichi (co-chair)	Japan, JAMSTEC, Washington DC
Lovell, Mike	UK, University of Leicester
Murray, Rick (co-chair)	USA, Boston University
Neal, Clive	USA, University of Notre Dame
Sagnotti, Leonardo	Italy, Istituto Nazionale di Geofisica e Vulcanologia
Saito, Saneatsu	Japan, JAMSTEC
Schmitt, Douglas	Canada, University of Alberta
Smith, David	USA, Grad. School of Ocean., Univ. Rhode Island
Takai, Ken	Japan, JAMSTEC
Tsunogai, Urumu	Japan, Hokkaido University

Liaisons and Guests

Brewer, Tim	JEODI
Goldberg, Dave	BRG, LDEO
Ito, Hisao	iPC
Kingdon, Andrew	JEODI
Kuramoto, Shin'ichi	CDEX
Kuroki, Kazushi	OD21
Masuda, Yoshihiro	iTAP co-chair
Moore, Ted	iPC
Moran, Kate	iTAP co-chair
Röhl, Ursula	JEODI
Schuffert, Jeff	iSAS Office
Wada, Kazuyasu	CDEX

Regrets

Aita, Yoshiaki (iSciMP)	Japan, Utsunomiya University

Executive Summary

iSciMP Recommendations, Consensus Statements, and Action Items

The second meeting in 2002 of the i-SciMP occurred on December 12-14, 2002 at the Alumni House of the University of Alberta, Canada, with panelist Douglas Schmitt serving as host. The two and one-half day meeting resulted in the following six recommendations, three consensus statements, and five action items. These are forwarded to iPC for comment and/or approval. A very preliminary list of future agenda items is also presented.

Recommendations to iPC

Recommendation 02-02-1: iSciMP recommends that there be a *database operator* who shall function as the distribution and collection point for all data collected as part of IODP. The database operator will coordinate and facilitate efforts with the science operators of the riser drilling program, the non-riser program, and the mission specific platforms to establish the common database and user interface and for the uploading of all IODP data. iSciMP encourages this database operator to build on the efforts of the previous drilling program and to seriously consider efforts currently underway in support of IODP.

> Background: iSciMP recognizes the significance of data management and the role it will play in the future success of IODP. In order to truly function as an integrated program, there should be one common user interface and one comprehensive database, maintained at a central location and mirrored at appropriate nodes, where the user community is able to access, visualize, and download IODP data and information.

Vote: 15 yes, 0 no, 0 abstain

Recommendation 02-02-2: iSciMP recommends that an *ad hoc* database working group be immediately established to provide oversight and assure database consistency across all IODP.

> Background: The opportunity to build and expand on the database efforts of the previous program is now. A comprehensive IODP database must be functioning and ready to receive data at the beginning of the first IODP drilling project. The working group will also identify areas where improvements in the previous database should be addressed, such as observations based on scientific interpretation, and identify additional data types (downhole logging, seismic profiles, digital visual core description,

etc.) to be integrated into the comprehensive database.

We anticipate the Working Group will comprise 8-10 individuals, with diverse background and international representation (US-Japan-JEODI), gathering for 1-2 day meeting. Dave Divins, iSciMP member, will Chair and organize it, along with strong input from other interested iSciMP members (e.g., S. Saito). We anticipate the constituency will include up to several iSciMP members--either as formal members or as observers--but will not be limited to persons with ODP or Janus experience. They will meet in April or March, and have a full report draft available in advance of iSciMP's July meeting, so iSciMP can sign off on the final report at that meeting itself.

Vote: 15 yes, 0 no, 0 abstain. The recommendation was sent by email to iSAS on December 18, 2002, with iPC approval being received on January 9, 2003.

Recommendation 02-02-3: iSCIMP recommends that Science Advisory Structure includes an Operations Committee (OPCOM). We recommend that each panel should have one panel chair as a voting member on OPCOM. The CMO and each implementing organization should have liaison representation on OPCOM and collectively would have a single vote.

A single vote for the IODP management and operator team would ensure that the operations groups work together as a unified IODP operations entity. Voting representation by panels will ensure that science priorities (PC) are retained; scientific objectives (SSEPs) are defended; readiness and issues related to scientific measurements (SCIMP), technical issues related to platform needs (TAP), the site survey requirements related to drilling operations (SSP), and special needs regarding safety and the environment (PPSP) are assured.

Background: The operations committee (OPCOM) has the mandate to identify the appropriate platform for drilling projects, schedule each of the platforms, and make recommendations on major expenditures (e.g., ACORKS) on IODP projects. As such, this committee must ensure that the operations/management entities deliver the science recommended by the scientific advisory structure. This can best be achieved by strong input from the science and technical panels within the framework of a clear demarcation between advice and contractual responsibilities. Once the advice from the SAS is provided to the CMO, the CMO is responsible for contractually implementing the scientific and technical recommendations that include, most importantly, operational decisions based on the best possible science plans.

A major difference between IODP and ODP is multiple platform

operations as compared with a single operator in ODP. It is important for IODP to adopt management instruments within the SAS and in the CMO that ensures the IODP is managed as a single entity instead of three separate platform operators.

This recommendation is intended to address these important issues for IODP.

Vote: 11 yes, 3 no (Saito, Takai, Tsunogai), 1 abstain (Ikehara).

Recommendation 02-02-4: iSciMP notes that standardization of drillpipe diameter across platforms has the potential to bring benefits to IODP. iSciMP recommends continued investigation of standardization of drillpipe across all IODP platforms. iSciMP recognizes that platforms may on occasion need to use alternate drilling systems, but such choice must meet the scientific objectives.

Background: This important issue was raised at a number of different junctures at the meeting. It impacts multiple features of the new program, all operators, and all platforms. String weight, borehole size, coring size, sample size for different needs (microbiology, sedimentology and structure), logging, downhole tools, and other parameters will be affected. More input from iTAP and continued input from i-SciMP in early 2003 is needed.

Vote: 15 yes, 0 no, 0 abstain.

Recommendation 02-02-5: iSciMP applauds JAMSTEC's effort to address anti-contamination drilling and sampling and encourages their continued development and communication with the iSAS on these matters.

Background: As microbiological research in IODP will be prominent, much research is addressing improved methods of obtaining non-contaminated samples. This recommendation is based on an interesting presentation by Mr. Wada (JAMSTEC), which intrigued the iSciMP to the point where further information is likely to be of interest. This subject will also be discussed at iTAP, and JAMSTEC (and perhaps other interested parties) will provide additional feedback at iSciMP's next meeting. This is also going to be discussed at the Microbiology Working Group meeting.

Vote: 15 yes, 0 no, 0 abstain.

Recommendation 02-02-6: iSciMP recommends that the link with iSSEPs be formalized by the following:

(a) Two iSciMP liaisons with iSSEPs will interact closely with the iSSEPS proposal watchdogs, throughout the life of a proposal and/or project.

(b) That iSciMP liaisons together with the watchdogs should identify upcoming technical issues, transmit relevant information to the proponents, or identify technical panel members that proponents may contact for technical issues.

(c) That the iSSEPs watchdogs remain the interface between proponents and iSciMP.

(d) That the proposal *Cover Sheet* should be modified to include a section where proponents identify the critical and non-standard measurements and technical needs required to achieve the proposed scientific objectives

(e) ISAS policy regarding conflict of interest will be closely adhered to.

> Background: iSciMP notes that a formalization of the link with iSSEPs and the access to information of proposals in the system to provide technical advice when required and/or requested would be desirable in the future.
>
> It is recognized that the new IODP program will involve long-term projects with multiple platforms. Some level involvement of iSciMP in the proposal review process and duration of projects is required to deal with upcoming issues. These include consistency of measurements across platforms and through time, identification of required developments at early stages of proposals or projects, and dealing with unforeseen problems (e.g., microbiology patents, safety of new technologies, sample handling, and others).
>
> The iSciMP recommendation intends to establish appropriate mechanisms of interaction of iSciMP with iSSEPs and proponents, retaining the technical nature of iSciMP.

Vote: 15 yes, 0 no, 0 abstain.

Consensus Statements

Consensus Statement 02-02-01: The iSciMP's next meeting (summer, 2003) will be held jointly with iTAP.

> Background: While iTAP and iSciMP are two clearly different entities, their mandates are broad and show apparent partial overlap that require effective communication between the two panels. A joint meeting of the two panels will allow establishment of joint working groups and plenary discussions if and when required by the items in the agenda. Joint meetings may be carried out in the future on a regular or an 'as needed' basis, depending on the results of this first joint meeting.

Consensus Statement 02-02-02: The next meeting of the iSciMP will be in Nagasaki, Japan, and hosted by panel member S. Saito. Scheduling will be coordinated if possible so our meeting will begin after the July 11th ending of the IUGG meeting in Sapporo, Japan. The location will allow the panel to inspect the *Chikyu* and be further updated on the logistical support of OD-21.

Consensus Statement 02-02-03: The co-chairs and panel members of iSciMP, as well as liaisons and guests, wish to express their warmest appreciation and thanks to Doug Schmitt and his assistant, Dean Rokosh, of the University of Alberta for organizing the successful 12-14 December, 2002, iSciMP meeting and social events, and making everyone feel most welcome in Canada.

Action Items

Action Item 02-02-1: European members of i-SciMP select a representative of the panel to attend the ECORD Science and Operations Committee (ESOC) meeting in Amsterdam on January 17, 2003.

> Status: Javier Escartin attended meeting and will report to i-SciMP by email and follow up at the next i-SciMP meeting.

Action Item 02-02-2 iSciMP will select 3 members from the panel to provide input to iSSEPs regarding the proposed MBARI test site proposal. These 3 members will work

with 3 members from iTAP and all six will report back to iSSEPs and their own panels with advice and suggestions.

> Status: i-SciMP panelists Escartin, Buecker, and Lovell, will serve in this capacity.

Action Item 02-02-3: Kazushi Kuroki of JAMSTEC will provide i-SciMP with the latest Chikyu equipment list.

> Status: List was received by email in early January, 2003, and subsequently distributed for comment on January 13, 2003. It is included in these minutes as Attachment B.

Action Item 02-02-4: iSciMP solicit input from other iSAS panels (e.g., iPPSP and iILP) and other members of the community regarding issues on analyzing, archiving, and disposing of drill cuttings.

> Status: On-going.

Action Item 02-02-5: In response to iPC Consensus 3-17, i-SciMP panelists David Smith and Ken Takai will develop a list of potential members of an ad hoc Microbiology WG. Membership should be diverse and prepared to meet in March-April 2003 and report to iSciMP at next meeting. By iPC meeting in March 2003 a list of attendees and plan for when the meeting will occur and a draft agenda will be available. David Smith and Ken Takai will be the co-chairs of this ad hoc WG.

> Status: On-going.

Preliminary List of Future Agenda Items

In order to plan adequately for future iSciMP meetings, the following agenda items are being considered for the Summer, 2003, meeting. These potential items are in addition to a number of issues resulting from the December, 2002 meeting and on-going projects, but provide an example of future discussions.

- Publications.
- Technicians (rotations, skill level, shipboard, shorebased).
- WG spreadsheets, prioritization of measurements and instrumentation.
- Scientific staffing flexibility.

Thursday, December 12, 2002

A) Introduction

The meeting began at 9:00 AM on Thursday, December 12, 2002, at the Alumni House of the University of Alberta, Edmonton, Canada. After introductions of all members and guests, host and panel member Douglas Schmitt provided a description of the facilities and an overview of social and related events. The original meeting Agenda is included in Attachment A.

B) Liaison Reports

iPC Planning
iPC member Ito presented the liaison report of the iPC. He emphasized the need to address coordination between iSciMP and iTAP, particularly with respect to future technology development. Murray brought to iSciMP's attention that the iTAP and iSciMP co-chairs already met (November, 2002) and on the basis of those discussions, discussions at this current iSciMP meeting, and the upcoming iTAP meeting, that there is likely to be a consensus view on this matter by the March 2003 meeting of the iPC. It will also be further discussed at this meeting.

Ito then discussed the ranking of proposals, and noted that during the last iPC meeting MSPs were ranked with the top five being identified. He reviewed iPC Consensus and Motions to help iSciMP focus its meeting, and in particular noted the iPC request to iSciMP that they form a Microbiology working group. He further noted that iPC has formed a working group to discuss the future OPCOM (Becker, Ito, Pezard, Pisias, Skinner, Taira) and that no consensus has emerged yet but will report by March 2003.

iSAS Office
Jeff Schuffert reviewed the iSAS panel structure and the schedule of upcoming meetings. During discussion, the upcoming ESOC meeting in January was noted by J. Escartin and A. Kingdon (UK, JEODI), where JEODI requests representatives from each panel to attend. On that basis, the following Action Item was identified.

Action Item 02-02-1: European members of i-SciMP select a representative of the panel to attend the ECORD Science and Operations Committee (ESOC) meeting in Amsterdam on January 17, 2003.

Status (as of 01/03): Javier Escartin attended meeting and will report to iSciMP by email and follow up at the next i-SciMP meeting.

After reviewing the basic statistics of proposals currently in the IODP system, he noted that 22 of them are addressing issues in the broad theme of "Solid Earth and Geodynamics", 20 are addressing "Deep Biosphere and Sub-seafloor Ocean", and 53

"Environmental Change". There are many proposals that address multiples of these issues (that is, few only target one of them). There was discussion about how important it is for iSciMP to be aware of these relative ratios--it doesn't behoove us to discuss in great detail issues that are not likely to come up if they are not being proposed. Schuffert emphasized that the iSAS is a support office and re-iterated that they will gather what information we wish from the proposals so that iSciMP can best identify issues before they arise.

iSSEPs

iSciMP member Escartin reported from the Nov 2002 meeting in Montpellier, France. During review of the proposals that were discussed in France, it became clear that the one of them in particular (Pre-Proposal 621, Monterey Bay Observatory, McNutt [MBARI] Lead Proponent) would benefit from input from iSciMP and other panels. ITAP co-chair K. Moran, who was also at the iSSEP meeting, agreed with this observation. The following Action Item was identified.

Action Item 02-02-2 iSciMP will select 3 members from the panel to provide input to iSSEPs regarding the proposed MBARI test site proposal. These 3 members will work with 3 members from iTAP and all six will report back to iSSEPs and their own panels with advice and suggestions.

Status (as of 01/03): iSciMP panelists Escartin, Buecker, and Lovell, will serve in this capacity.

Escartin then led a discussion based on several unifying points of relevance to iSciMP that arose at the Montpellier meeting. These include the need for a minimum set of standard measurements and procedures, the interest in Calypso coring, the on-going saga(s) regarding drilling basaltic material and zero-age crust, an interest in better orientation of cores, and the increased interest in high temperature drilling, sampling and instrumentation.

He further noted that there appear to be only a few ocean crustal formation proposals, which may reflect that the community sees zero age drilling as impossible, even in the new program. Also, despite its high visibility, there are no sole- or primary-focus Deep Biosphere proposals currently being discussed, which may reflect the pervasiveness of interest (that is, it is a common component of other proposals) or that they are not yet mature enough to migrate up to the upper echelon of the review structure yet.

The iSciMP then had a lengthy discussion regarding the degree to which they should get involved in the proposal review and construction process. For example, Murray asked if more mature proposals would benefit from increased proactivity of iSciMP. Divins noted the general problem of PIs missing expertise in their proposal or not aware of site survey needs, and noted that while the issue was important to iSciMP, it was also an issue that was across the program. Moran commented that part of the problem was that the new program must provide the environment so that PIs know they can come to panels for

advice. Schuffert provided the reminder that PIs were told to focus on science and not worry about limitations or details of individual platforms.

Overall, the consensus view was that part of the proposal review process should include information passed to iSciMP so that conversations can happen with PIs. It is important that iSciMP not get involved in discussions about the scientific content, and indeed no one in the discussion expressed any interest in doing so. Nonetheless, the "value added" by having the relevant discussions well ahead of time is likely to greatly increase the quality of science that eventually results. Escartin suggested that the watchdogs maybe should have an additional formal mandate to make sure they pass on iSciMP-types issues about individual proposals to iSciMP.

It was decided that this issue needed more discussion, and time on Day 3 (Saturday) was identified and reserved for this topic (see "P ").

iSSP

iSciMP member Divins summarized his observations as liaison to iSSP. He noted that 5 MSP and 7 non-riser proposals were reviewed, and another 9 proposals were not ready to be ranked or forwarded. Part of the discussion resulted in the consensus that a drill ship is not a seismic survey vessel and that routine SCS does not need to be performed. Drilling proponents should identify and have approved by both iSSP and iPPSP the final drilling locations ahead of time.

This led to discussion regarding what should be required, versus what capabilities should be maintained to be available if needed. Clear identification between proponent responsibilities (site surveys) and IODP responsibilities (safety/engineering) will need to be clearly spelled out. iSSP has recommended that a new WG should be formed for IODP data bank issues. Results of its first meeting at AGU touched on at least two issues: 1) The gap between the phase-out of ODP and establishment of an IODP data bank and the need for data bank services to continue, and 2) What products and services should the IODP Data Bank provide?. The iSSP WG will next meet in February, 2003.

It was agreed that this issue merits further iSciMP involvement and discussion, as it bears directly on both measurement and data handling issues. Time was reserved for further discussion on this matter.

After the lunch break, Kuramoto (CDEX) presented information regarding the newly developed JNOC Database as a potential model for IODP Data Bank issues. This information had also been presented at the iSSP meeting of February, 2002. They are interested in collecting all seismic as well as logging data in one place (NDR data center, located 50-100 km SE of Tokyo in SKK). Data will be kept confidential, with a relatively small staff located in a small facility. Hardware includes Sun Enterprise with 450 GB hard disk, 2 X 700 GB Tape library, all normal types of tapes usable, Access protected by 2 firewalls and passwords and provided by web/unix. They are planning to include in Geoframe database but served out by LiveQuest software.

C) Review of Results from Last iSciMP Meeting and iPC Discussions

Murray provided a brief overview of this current iSciMP meeting and highlighted several relevant issues with respect to progress from last meeting, and the input from iPC. (1) With regard to the ongoing discussions regarding any one of a number of issues regarding database, core description, and so on, it is important that we do not particularly finger individual software systems or providers but keep discussions in terms of model systems. (2) The Sample and Data Policy report needs to be signed off on by end of meeting. (3) Given the rapidly approaching 'deadline' of the start of the IODP, and the relatively infrequent meeting schedule, it is well within our purview to request to setup WG's if needed to address issues in a timely fashion. The Microbiology WG is but one example of this, but there are likely to be others. (4) In addition to planning for the broad program, we must keep focused as well on the types and requirements of proposals that are coming down the pipeline so we are discussing the most important technology and measurements issues.

D) Report from iTAP by K. Moran

Moran provided an overview to begin laying out a framework for interaction between iSciMP and iTAP. Time is reserved later in the meeting for more detailed discussion, but the goal here is to get the panel thinking of the overlap so on-going discussions can be considered in the proper context. She noted that the general iTAP mandate is all long range technological developments needed to meet objectives of IODP. iTAP is not TEDCOM, but iTAP is on the technology recommendation and R&D side of the coin, not on the working or operator side. iTAP will be trying to develop technological needs in 2-5 year time frame, develop broad specifications and assess where it sits in R&D spectrum, and decide how the need should be implemented on the R&D spectrum.

A potential type of "decision tree" for recommendations re Science and Technology might be 1) if item does not exist then institute an ad hoc WG to decide if and how to develop, 2) if item partly exists, then after appropriate panel input the SAS could recommend the CMO be involved in improvements, 3) if item is off the shelf ready then recommend to buy it or not. One fundamental challenge will be to assess how much these needs should be proposal driven or are cross platform such that the whole IODP would profit scientifically from the new technology. There are multiple issues here that are in parallel to those facing iSciMP as discussed previously at this meeting.

As identified by Moran, specific examples of overlap between the panels include:

1. Drillpipe standards
2. How can new developments that are proponent driven readily be brought into the program?
3. Level of effort associated with technical developments (lab, hole, ship, drill)
4. Downhole tools: (a) wireline logging tools; (b) drillstring-latched (TLC) tools; (c) LWD and MWD.

5. Core handling, storage, transportation
6. Core archive (slab/u-channel)
7. Flexibility to incorporate expedition-specific techniques/technology
8. How much time should be allocated to technology trials/verification per platform per year?
9. Microbiology issues – technology overlaps.
10. Review the safety procedures (with iPPSP) for all three platforms
11. Observatories: what does the program provide? Guidelines are needed to help the investigators
12. Drilling or sampling or operational data needed for decisions on future developments/improvements/monitoring
13. Communications
14. Guide to the IODP issues

The preliminary discussion on this highlighted some key issues. Kuramoto noted that technology recommendations need to get to the operator in a timely manner. Murray observed that the operators will need to get directions from panels, so that they do not make de facto decisions in a vacuum of advice. The SAS structure needs to work more rapidly than in the past in getting these technological needs addressed, and must have the flexibility to go outside if that is more efficient.

Potential next steps were preliminarily discussed, and include (1) iTAP & iSCIMP liaisons and/or joint meetings, (2) Formal links with OPCOM, (3) A process to identify technology needs and who takes the lead on each.

In this context, it was noted that iTAP currently consists of 11 persons, but may be growing to 15. These issues need to be addressed shortly and will be expanded upon later at this meeting (see " J"), as Ito noted that the iPC will report to IWG in January.

E) OD21 Progress Report

Chikyu and VCD: Kuroki provided an update regarding the *Chikyu* and CDEX issues. Drilling equipment is to be put on at Nagisaki Shipyard (NSY). Kuroki presented the latest floor layout for core processing, measurements, etc. In response to a question, he noted that at least one hood will be safe for $HClO_4$ (perchloric acid). Loading tests have been completed for lab elevator and lab hatch (on each deck).

The construction schedule is currently as follows: 2002=outfitting, early 2003=Sea Trials, middle 2003 in Nagasaki, rest of 2003 drilling modules installed, 2004= Sea Trials and then prep for Shakedown, 2005=Shakedown cruise and prep for training cruise in 2006/7.

Discussion centered on status of instruments and database. iSciMP member Neal asked if a list of equipment in Lab Stack has been distributed. While one had been sent to SciMP

(JOIDES) it had not yet been distributed to iSciMP (iSAS), but one would be sent shortly. This lead to the following Action Item:

Action Item 02-02-3: Kazushi Kuroki of JAMSTEC will provide i-SciMP with the latest Chikyu equipment list. Status: List was received by email in early January, 2003, and subsequently distributed for comment on January 13, 2003. It is included in these minutes as Attachment B.

In response to a query regarding distributing the exciting information and photographs of the *Chikyu* progress, Kuramoto noted that a flyer has been created and soon a website for CDEX will be created.

Within the CDEX operational structure it became apparent that there is a separate Site Survey group, observation of which led the panel to wonder how this Site Survey group fit in with the anticipated iSAS panel of similar interest (e.g., iSSP). Kuramoto responded that the CDEX group is specific to the *Chikyu* and with further clarification pointed out that CDEX group is to augment, not replace or supplant.

Kuramoto then presented an update to the OD21 Data Base, with a particular emphasis on the OD21-VCD (visual core description) with graphical representation, and provided a walk-through of some of its features. Murray noted that iSciMP said before that there should be one uniform and standard database between all platforms but that it may not be this exact database (that is, it hasn't been decided yet). Neal questioned whether the VCD will be able to or will need to be modified from cruise to cruise. It became clear from Kuramoto that the system does not care and there is ample flexibility to hand insert comments in system so it should be flexible enough.

Murray questioned whether the specific recommendations from last meeting of iSciMP were getting implemented. Panelist Saito commented that not all have been achieved yet but many have and more will be in the future.

Buecker then started an important discussion regarding the potential conversion of depths in the database from measured depth to subsurface depth for slanted holes, and this expanded into a broader discussion of overall flexibility of the depth data. Moran noted that since the OD21 database is built on JANUS, it should be, and Kuramoto confirmed that once the depth types are enumerated then OD21 can implement it. Analogously, iSciMP member Gulick queried about how the database will handle types of lithology or sediments that will be encountered by MSPs that ODP currently has no lithologic symbols for and will OD21 be looking at standardizing for lithologies that are not usually encountered in ODP. As this issue will come up later during the MSP discussion, discussion on this point was curtailed temporarily.

Downhole Measurements: iSciMP member Saito led a discussion of the findings of the Downhole Measurement WG that has been organized as part of the Japanese support system for IODP proposals in order to study downhole measurements and monitoring in

deep holes. The WG chose the Seismogenic Zone as an example to develop an extensive wish list based on proposed science. One of the key issues highlighted involved long term monitoring of progress and how to best categorize items from preliminary survey, science priorities, technical difficulties that are achievable soon, over 5 years, 10 years, etc. Currently, in ODP non-routine measurements are developed by PI. In IODP, however, iTAP or iSciMP may study feasibility but the situation gets tricky in terms of obligations. In short, technology for long term monitoring and how to handle this in terms of iSciMP and iTAP and PI versus IODP obligations remains unclear. One way to help focus this, as suggested by Saito would be to, for example, separate sensor development from hole developments. Moran noted that iSciMP needs to standardize what are "standard measurements" and Ito confirmed that additional input is needed from iSciMP and iTAP.

F) Kochi Core Repository

Alternate panelist Ikehara (serving for Aita) provided an exciting overview of the on-going progress towards the development of the Marine Core Research Center (MCRC) in Kochi, Shikoku Island, Japan (conveniently located within walking distance from Kochi Domestic Airport). The facility is large!…approximately 100 m by 50 m with large numbers of cores being stored at 2°±2, small number at –20° and –85°C, and including a large sampling room, and laboratories for paleomagnetics, organic and inorganic geochemistry, sedimentology, MST and CT, X-Ray and SE, clean room, microbiology, and geochronology, to name but a few.

The presentation stimulated much discussion and enthusiasm, with most questions addressing the relationship between shipboard and shorebased measurements. Ikehara noted that it is not formally decided yet whether this will be an IODP facility. Kikawa queried as to the philosophy in mind for scientific measurements to take place in MCRC. Ikehara and Kuramoto pointed out that the philosophy is not yet finalized but routine measurement can be shared on land at MCRC and at sea. CDEX will provide some money for this core facility with idea that same measurements can be done onland and at sea. Murray was curious about what happens if SciMP decides a certain measurement needs to happen in the future on all platforms…will this trickle down to the MCRC? Kuramoto offered that such situations will arise, and it will need to happen but not clear whether at Kochi or elsewhere. Additional high-end facilities could get installed at the MCRC, but would need to be funded by someone else. CDEX will provide the curators.

G) Preliminary Results of ODP Leg 204

David Goldberg (BRG-LDEO) presented a summary of the logistics and accomplishments of ODP Leg 204 (Hydrate Ridge). This report was solicited because this Leg included many aspects of drilling that are likely to be more common in IODP, including multiple staff changes (including 5 Staff Scientists), use of novel instrumentation, extensive surveying both pre- and on-cruise, and so on. The personnel transfers worked well in that the rendevous' were successful. The personnel changes

affected the science party due to different people and sometimes the direction of science changed with different people.

One line was shot for a crossing line on a hole drilled outside of the 3-D survey. Six (6) sites were planned to drill, yet they ended up drilling 16. LWD was done shortly into cruise after only one cored hole and at end one was done to limited depth due to PPSP requirements. Pressure release was facilitated by drilling into liners, but they still had around 6 exploding cores. The PCS was used to measure gas constituents. The HYACE Lab Transfer Chambers (LTC) allowed for collection of cores under in situ pressure which worked on at least 3 of the cores. Infrared Thermal Imaging of the cores worked successfully. The logging included Density, Neutron Porosity, Electrical Resistivity, Acoustic Velocity, Neutron Spectroscopy, and NMR (for the first time). Nuclear Magnetic Resonance (NMR) in LWD measures for porosity and can theoretically measure exact hydrate abundance. Money for the new technologies like NMR ended up sailing through external support from, for example, US DOE. Some items came early (e.g., VSP guns) and others came later through efforts of Rack (JOI) and co-chiefs. This was long-run beneficial as well, for example the GI Gun on board will stay there but was purchased by DOE.

H) JEODI Presentation

Invited guests Kingdon, Brewer, and Rohl led a several hour discussion on the many facets of the European drilling initiatives with respect to MSPs, and the often unique parameters they will contribute to and require of the IODP. Kingdon reviewed the structure of ECORD (European Consortium for Ocean Research Drilling) and JEODI (Joint European Ocean Drilling Initiative).

Kingdon reminded the panel that ECORD's overall goal is to fulfill all science that IODP intends to do but cannot without MSPs. MSPs are required to drill in ice covered, shallow water, etc., and which specific platform is selected must be chosen dependent on location. For example, cores have been successfully obtained from geotechnical drilling vessels, jack-up platforms, seabed drills, or even drilling trucks on scaffolds in very shallow (well <10 m) water depths.

Minimum Vans and Location of Science: In most scenarios, MSPs will only be able to target the minimum amount of science on any platform, such as, curation, core description, time critical ephemeral measurements, logging, and MST. All other science operations must occur remotely, either in the immediate vicinity or in a more distant (central?) laboratory. In some cases, only a very few people can be accommodated on the platform itself, including perhaps just the co-chief(s), staff scientist(s), logging scientist, and curator. Kingdon emphasized that the science does not necessarily occur simultaneously with the drilling.

Murray commented that iSciMP has already provided a list of the minimum number of vans, along with a rough model of what should go into those vans, from a previous

meeting (see further discussion below). Kingdon noted that in some extreme cases (e.g., drill truck on a platform) some of those vans may indeed need to be located onshore in the immediate vicinity. Kingdon feels that the majority of science and science parties will not take place on the platform. JEODI thinks this should often be at Bremen.

Potential Unique Aspects of MSP Operations: Kingdon summarized how MSP operatios need a different understanding of the science objectives and associated risks. For example,

- MSPs will need to be project-based, not Leg-based, as will also be the case with *Chikyu*.

- Timelines: Drilling and curation will first occur, then perhaps move to shorebased laboratory (Bremen?). Real time sampling will occur only if required, core splitting only if needed for objectives. One potential model involves having a restricted number of people offshore, but have the science party receive reports with possible consultation via email if turnaround time quick enough, with the science party meeting at Bremen, which is planning housing, sampling, and storage capabilities. What are implications for sampling moratorium and then fulfillment of obligation timeline for publication if such a schedule is necessary?

- Science Technical Liaison: It will be important that project specific science and technical needs be communicated at very early stage, as it is essential to have science requirements nailed down to allow contracting of the most appropriate platform, solicit advice on on-site needs, and need named individual(s) to interact with liaison.

- The physical separation of science and drilling areas, that works to ensure safety, will not be possible and thus more advanced training will be needed for scientists.

- Core diameter will not necessarily be of a fixed size between the various MSPs, and one meter sections may also be preferred. This latter point was discussed briefly but without coming to any conclusion, other than that in all situations (core width and length of sections) uniformity between riser, non-riser, and MSPs is the goal, so as to facilitate ease in archiving, sampling, and track measurements.

- Database system: Whereas in the current ODP, and presumably IODP, shipboard data acquired is uploaded into JANUS (or some relational database) in as near real-time as possible, it may be that for some MSPs this will be impractical. Instead, dealing with getting the data into the database within a (short) period of time afterwards may prove more workable. This point was discussed at length, and it became apparent that there was some confusion because the term "JANUS" was being used interchangeably. All parties agree that the data needs to be acquired in a fundamental format that follows JANUS structure, but that it need not be accessible through the JANUS program interface (which is the real concern) in real-time. See further discussion below (" Data Base Issues", in this same section).

- Future MSP proposers: Because MSPs are a completely new opportunity to the community, Kingdon suggested preparation of a manual for would be proposers since PIs are not aware of new capabilities. Moore noted that a WG already exists that is going to create such a document, and that, regardless, it is the new OPCOM that will decide whether the *Chikyu*, non-riser, or MSP is the most appropriate platform for a given set of scientific objectives.

PETRO-CLICs: Brewer then provided an overview of how to potentially improve linkage between logging and core studies. A model being considered would involve PETRO-CLICs (Core-Log-Interpretation Centers). Industry might come in for even just a single MSP project. Concept is that petrophysical staff scientists which are doing both logging and petrophysics, with PETRO-CLICs being spread about in terms of centers for maximizing outreach. The Central Office at Leicester would select from list of possible operators that are recognized and would be advised by steering committee and a panel called EPAL (European Petrophysics Advisory Panel) which would meet with CDEX and non-riser operators. Proponents would go to Leicester for advice, much the way proponents go to LDEO in ODP. Much expertise would be coming from the geotechnical community and so their tools and experience would be able to be incorporated into IODP better. Moran asked about the goal being to integrate core logging and downhole logging, and Brewer confirmed that it is theorized that such a system will maximize the science and works with the space limitation issues.

Bremen Core Repository: Rohl spoke briefly about the new facility being planned in Bremen. It should be ready in 2004. The envisioned MSP core-flow involves: On Deck to Ephemeral Measurement Container to Curation Container to MST Container to Bremen Repository/Laboratory.

Use of Vans: The above led to discussion of measurements—where, why, and how many. Murray brought up again that iSciMP (and SciMP before it) has addressed this issue in the past, with the recommendation being to consider the three diagnostic criteria of:

- Safety,
- Ephemeral Properties,
- Drilling decisions that must occur at sea (or on-site).

Smith noted that it was on that basis that the following five vans had been previously recommended by iSciMP:

Van 1: Curation,
Van 2: MST and related tracks,
Van 3: Ephemeral properties and safety,
Van 4: Cold Storage,
Van 5: Logging.

with it being acknowledged that not all vans would need to be physically on the MSP and that "near vicinity" is likely to fulfill the science objectives in some cases. To this end, Kingdon and Brewer emphasized that they would like to define capabilities but not the number of vans or their location.

Minimum Measurements: Escartin raised the issue about whether there would be duplication of all the measurements or some at or near platform and some back at Bremen. Brewer noted that, as with the current program, some would get duplicated and others would not need to. Indeed, some vans could even be left at Bremen for a particular project. Neal raised the issue of standardizing calibrations and measurements between MSPs and the rest of IODP. Brewer noted that they are looking to achieve what is currently on the ODP ship at least at the start, with results comparable to the current Initial Reports. Moore acknowledged that flexibility is important but that the program will need a consistent set of data that is done everywhere, and a minimum set of equipment that is transportable, and additional equipment that is not transportable. He further noted that we don't want to constrain this program but need to learn what is the budget required. Smith queried about the likelihood of multiple platforms acting as MSPs at once and Kingdon offered that while it would be nice that it was not going to happen in the practical sense at this point.

Database Issues: The issue of ensuring that MSP data is able to integrated into the IODP data base was revisited. Divins noted that it is not necessary that the database has to be on the MSP, as long as all of it can be entered in the database once the science party completes the initial measurements. Moran suggested that iSciMP look at the JANUS tables to see if they need to be improved. Kingdon raised their serious concern that JANUS will not end up compatible with the various anticipated MSPs and requested the flexibility to look further into this issue and not be constricted today to JANUS. In this sense, he was referring to the JANUS interface. Kuroki observed that OD21 is trying to integrate with JANUS since that is the starting point and that it would be important that the interfaces look similar for the users and similar data quality, etc. He noted that the important thing is that the user can compare all the data from all the platforms (riser, non-riser, MSP) and that we can export and import from whatever databases are being used. Murray emphasized the importance of the data coming from the MSPs to be seamlessly integrated with whatever the IODP database is. Kingdon agreed and further commented on the need of ease of uploadability on the platform. Escartin observed that this can work provided, for example, that at Bremen the information is added into the IODP database. This discussion led to the following two recommendations (on the next page):

Recommendation 02-02-1: iSciMP recommends that there be a *database operator* who shall function as the distribution and collection point for all data collected as part of IODP. The database operator will coordinate and facilitate efforts with the science operators of the riser drilling program, the non-riser program, and the mission specific platforms to establish the common database and user interface and for the uploading of all IODP data. iSciMP encourages this database operator to build on the efforts of the previous drilling program and to seriously consider efforts currently underway in support of IODP.

> Background: iSciMP recognizes the significance of data management and the role it will play in the future success of IODP. In order to truly function as an integrated program, there should be one common user interface and one comprehensive database, maintained at a central location and mirrored at appropriate nodes, where the user community is able to access, visualize, and download IODP data and information.

Vote: 15 yes, 0 no, 0 abstain

Recommendation 02-02-2: iSciMP recommends that an *ad hoc* database working group be immediately established to provide oversight and assure database consistency across all IODP.

> Background: The opportunity to build and expand on the database efforts of the previous program is now. A comprehensive IODP database must be functioning and ready to receive data at the beginning of the first IODP drilling project. The working group will also identify areas where improvements in the previous database should be addressed, such as observations based on scientific interpretation, and identify additional data types (downhole logging, seismic profiles, digital visual core description, etc.) to be integrated into the comprehensive database.
>
> We anticipate the Working Group will comprise 8-10 individuals, with diverse background and international representation (US-Japan-JEODI), gathering for 1-2 day meeting. Dave Divins, iSciMP member, will Chair and organize it, along with strong input from other interested iSciMP members (e.g., S. Saito). We anticipate the constituency will include up to several iSciMP members--either as formal members or as observers--but will not be limited to persons with ODP or Janus experience. They will meet in April or March, and have a full report draft available in advance of iSciMP's July meeting, so iSciMP can sign off on the final report at that meeting itself.

Vote: 15 yes, 0 no, 0 abstain. The recommendation was sent by email to iSAS on December 18, 2002, with iPC approval being received on January 9, 2003.

Friday, December 13, 2002

Murray began the day with a review of the previous day's progress and an outline of the goals for the day.

I) Micropaleontological Reference Centers

Ikehara presented a report of the MRC (Micropaleontological Reference Center) meeting that occurred at the National History Museum (UK) in October, 2002. iSciMP member Aita attended the meeting, as he operates the Radiolarian Satellite MRC in Utsunomiya, Japan. In the report from October meeting (included in these minutes as Appendix 3), there were several issues raised regarding the capabilities and status of the MRCs as the IODP spins up. The MRC operators had several proposals and ideas to suggest to iSciMP, including:

1) That IODP need to consider drilling strategies to get more biosiliceous material in the high-latitude northern hemisphere. In particular, Paleogene, Cretaceous, and Jurassic samples as well as northern high latitude samples are underrepresented.

2) That the MRCs play a lead role towards constructing new shipboard and shorebased micropaleontological databases.

3) That ownership of the MRC collections potentially be legally linked to IODP and that selected MRC material be transferred to permanent status at Museums.

4) That guidance be provided regarding the handling of MRC-collection ownership within IODP after ODP has phased out.

After acknowledging general support for the excellent work that the MRCs have been providing to the community for many years, Murray responded that #1 is a science issue and needs to occur at the proponent level. If a sufficient number of persons are concerned, then they should propose drilling expeditions to IODP to rectify the situation. Moore commented that all issues of statements of permanent loan, etc., need to be handled by the CMO which is in the process of being formed. Murray noted that iSciMP has already supported the goals and needs of having MRCs, and can support the need of having improved reference libraries, but, as Moore confirmed, iSciMP can not deal with issues of ownership. Moore provided the history that originally when the MRCs were set up they did it to enhance their own collections for free and then it evolved to making reference sets for the ship. There will need to be a discussion with the MRCs at a CMO level, eventually, regarding #2-#4. Murray noted that at that point, iSciMP would be glad to help support the need for MRCs and the vital role they play, but at this point the proposals presented are not in iSciMP's purview.

J) iSciMP and iTAP Coordination

Time was granted to continue the conversation regarding coordination between iTAP and iSciMP. All options ranging from having liaisons or merging the panels were discussed. The four co-chairs of both panels proposed that the panels jointly meet.

iSciMP member Lovell requested a reading of both panel's mandates. After Murray did so, Moore noted that iPC's intent was that iSciMP seemed overburdened and so iTAP was created to take some of that burden and go from a retrospective TEDCOM approach to a forward looking iTAP. Techonology and measurements interact with each other but needs two panels because it is a huge job.

Much discussion about the potential roles of liaisons, and of joint meetings, and whether these meetings should be held at an operator resulted in distilling down the pros and cons of joint meetings as follows:

Pros
1) All reports are only given once,
2) One can identify issues that both panels need to discuss,
3) Having people who are experts in tech and measurements together ensures good coordination.

Cons
1) May be trying to cram too much into a two day meeting.
2) Agenda building will be more complicated but can be done.
3) Size and associated logistics.

Moore noted that iPC is considering having a joint meeting of all co-chairs to enhance communications. Murray further noted that is also very important to have joint working groups. Meeting at an operator was not viewed favorably as it may lead to inhibition of discussion from the panel as well as the operator. Many persons thought that a liaison system was not sufficient to provide the necessary communication. Gulick and others agreed that merging panels is not desirable at this time. Murray and Kikawa recommend trying joint panel meetings with time for getting together. This resulted in the following consensus statement:

Consensus Statement 02-02-01: The iSciMP's next meeting (summer, 2003) will be held jointly with iTAP.

> Background: While iTAP and iSciMP are two clearly different entities, their mandates are broad and show apparent partial overlap that require effective communication between the two panels. A joint meeting of the two panels will allow establishment of joint working groups and plenary discussions if and when required by the items in the agenda. Joint meetings may be carried out in the future on a regular or an 'as needed' basis, depending on the results of this first joint meeting.

K) Discussion of IODP "OPCOM"

The potential constitution of OPCOM was discussed. Key discussion points focused on how to (1) maximize the involvement by the scientific community, (2) ensure the operators work together as one group to best benefit the scientific product, and (3) ensure balanced voting on issues. It was questioned whether iSciMP should be involved in these discussions at this point. Murray commented that it is within our means to be proactive, and Moore confirmed that OPCOM is one of the most important committees in IODP and so input is appreciated from iSciMP and other panels as early as possible in the process. Kuramoto and Ito expressed concern that iSciMP not move too rapidly, as this is a complicated issue that is being discussed in detail by an iPC WG. Several panelists saw the value in being involved in the discussions. Acknowledging that iSciMP's recommendation, whatever it may be, will be only a recommendation for iPC to consider, after much discussion of the pros and cons of various structures and approaches the following recommendation eventually resulted:

Recommendation 02-02-3: iSCIMP recommends that Science Advisory Structure includes an Operations Committee (OPCOM). We recommend that each panel should have one panel chair as a voting member on OPCOM. The CMO and each implementing organization should have liaison representation on OPCOM and collectively would have a single vote.

A single vote for the IODP management and operator team would ensure that the operations groups work together as a unified IODP operations entity. Voting representation by panels will ensure that science priorities (PC) are retained; scientific objectives (SSEPs) are defended; readiness and issues related to scientific measurements (SCIMP), technical issues related to platform needs (TAP), the site survey requirements related to drilling operations (SSP), and special needs regarding safety and the environment (PPSP) are assured.

> Background: The operations committee (OPCOM) has the mandate to identify the appropriate platform for drilling projects, schedule each of the platforms, and make recommendations on major expenditures (e.g., ACORKS) on IODP projects. As such, this committee must ensure that the operations/management entities deliver the science recommended by the scientific advisory structure. This can best be achieved by strong input from the science and technical panels within the framework of a clear demarcation between advice and contractual responsibilities. Once the advice from the SAS is provided to the CMO, the CMO is responsible for contractually implementing the scientific and technical recommendations that include, most importantly, operational decisions based on the best possible science plans.
>
> A major difference between IODP and ODP is multiple platform operations as compared with a single operator in ODP. It is important for IODP to adopt management instruments within the SAS and in the CMO

Continued on next page…

that ensures the IODP is managed as a single entity instead of three separate platform operators.

This recommendation is intended to address these important issues for IODP.

Vote: 11 yes, 3 no (Saito, Takai, Tsunogai), 1 abstain (Ikehara).

L) Drill Pipe Standards

Moran initiated a discussion regarding the issues with increasing or not increasing drill pipe standards in terms of impacts on scientific measurements. She reports on meeting with DOSECC where it came clear that DOSECC uses same size as ODP and which CDEX is planning for *Chikyu*. Thus, minimal modification is required to get riser, non-riser, and deep MSPs into standard of 5-5.5 API. However, in shallow MSPs the drill string may be too heavy at times and instead mining drilling standard may need to be used. Also, 5 m and 10 m standards will both work with MSP (5 m fit in a standard size shipping container), riser, and non-riser.

Kingdon commented that for MSPs it would really help to maintain flexibility for the shallowest water legs where light weight drill strings are required for operation issues and penetration depth. Ito queried about slim tool logging on MSPs, to which Kingdon noted that they will not be able to always use slim line Schlumberger logging tools and need flexibility to use other companies for tools that fit with the lighter weight drill strings. Schmitt provided examples of appropriate slimhole tool companies, and Lovell suggested that for testing one could actually run slimline tool in same pipe on non-riser ship to compare with the larger tools.

Issues of size of recovered material were brought up. Although COMPLEX identified a need for larger samples, the CDC suggested that most needs could be accomodated by drilling multiple holes. Smith and Takai strongly noted that core diameter should not decrease to smaller than currently used in terms of getting large enough microbiological samples, but the width currently used has been demonstrated to be acceptable. Sagnotti confirmed that the diameter of current core is okay for paleomagnetics and that standardization between platforms is important.

The discussion resulted in the following recommendation (next page):

Recommendation 02-02-4: iSciMP notes that standardization of drillpipe diameter across platforms has the potential to bring benefits to IODP. iSciMP recommends continued investigation of standardization of drillpipe across all IODP platforms. iSciMP recognizes that platforms may on occasion need to use alternate drilling systems, but such choice must meet the scientific objectives.

> Background: This important issue was raised at a number of different junctures at the meeting. It impacts multiple features of the new program, all operators, and all platforms. String weight, borehole size, coring size, sample size for different needs (microbiology, sedimentology and structure), logging, downhole tools, and other parameters will be affected. More input from iTAP and continued input from i-SciMP in early 2003 is needed.

Vote: 15 yes, 0 no, 0 abstain.

M) Reports from Individual Measurement Working Groups

Murray introduced the subject by identifying several goals of the overall WG discussions, including: (1) What are the different measurements needed, (2) What degree of standardization?, and (3) What data needs to be gathered in the future? These issues will be discussed here, and help identify critical gaps in our knowledge for discussion by email and at the next meeting. Also, we have the ability to recommend to iPC that ad hoc WGs be formulated if we feel it necessary to move in a more timely fashion.

The below presentations represent a first pass at identifying the above issues, with a target goal of the July, 2003 meeting being for final sign-off of lab-by-lab requirements.

Core Description: Saito observed that core description by naked eye is indispensable and that it must be continued as a fundamental component of the core description process. An effective data management system is required to provide efficient environment for core description, as database and core description are intimately related. Core description should include visual, core images, or any other non-destructive measurements, including x-ray CT images, MSCL, image scanning for hard rock, XRF, color reflection, image scanning all cut surfaces. For core splitting, the roughness is ideally < 1 mm so perhaps need to develop precise splitting technique, especially for hard rock cores which may be in pieces and cut individually by hand. The data management system should be able to display data from discrete core samples and logging data. Rohl expressed concern that this much imaging may be too slow to maintain flow on shipboard. For example, scanning XRF gives high-resolution geochemistry and is highly advantageous, but its processing time may be too long.

Much discussion centered on whether archiving of cores should be fundamentally changed so that individual pieces are archived according to their anticipated future need(s). Perhaps hard-rocks and soft-seds need to be archived differently, for example.

Perhaps archiving should change on a leg-by-leg basis, reflecting the specific leg objectives. Multiple points were made about the value of consistency throughout riser, non-rise, and MSPs. Overall, panel did not feel ready yet to make such a large decision, yet wanted to keep at the issue for the next meeting. Important concerns were expressed about compromising future measurements, using techniques not invented yet, if cores were sliced up for specific fractional archiving. Additionally, it would cause an enormous increase in workload for the operators.

Paleomagnetics: Sagnotti presented a discussion of the relative merits of discrete samples in lithified rocks versus continuous samples (u-channels or split half cores). U-channels avoid shear deformation and ephemeral mag problems while providing high-res data. Basic needed measurements include: magnetic susceptibility, NRM, Mag/Paleomag: Stepwise Demag by Thermal or AF. Highly Recommended measurements include ARM, Hysteresis, Thermomag curves. Such measurements should be made whenever possible but especially when very important for science proposed. Additionally, all measurements should be made as soon as possible because in part they are ephemeral. Measurements can be made in the following order: Mag Sus, NRM, stepwise demag NRM, Stepwise Aq and demag of ARM, Stepwise Acq and demag of IRM.

Dedicated paleomag labs will need to be located on *Chikyu*, non-riser ship, and shorebased labs. For MSPs, where ephemeral issues are important then a paleomag van for doing the measurements at sea will be required. Kuroki commented that transportation of cores for paleomag work must sent in a van without steel and in a nitrogen atmosphere. Rohl noted that Bremen has done this with success.

After a lengthy presentation of the details of various instruments, it became clear that it will be very important to define the diameter (and therefore the resolution) of the pass-through cryogenic systems. A small diameter system will ensure the high-resolution needed for discrete samples or u-channels, whereas a large diameter system will allow the measure of archive half-cores. The relative merits of u-channel sampling was discussed, with respect to whether they could be used, after paleomagnetic measurements, as permanent archives or as undisturbed samples to be passed to other laboratories for further analyses. No decision was made on this subject, and it should be revisited in the future.

Physical Properties: Schmitt led the discussion by noting that important considerations for this group were making measurements in different types of rock and sediment, and to ensure links with other measurements, both shipboard and downhole. It will also be important to develop standards for core-log integration. Buecker noted that standards for seismic-core-log integration do exist from SciMP (JOIDES) and Kingdon pointed out that they are putting core and log together in their model for MSPs so that they integrate from the beginning.

With respect to the large number of track type instruments (e.g., MST), several panelists noted that sometimes resolution is compromised on legs due to speed through MST, so

perhaps dual sensors or dual MST tracks for getting the high-resolution data should be considered. This was met with general support from the panel. For example, while natural gamma at its current resolution is not helpful for paleoceanographers, Buecker pointed out that with new sensors the resolution can be increased to be sufficient for such purposes.

Discussion addressed in various ways the issue of destructive measurements. For example, rock strength is a destructive measurement, but is of great interest. Moran noted that there are ephemeral properties relating to response of the core to differences in stress that are not destructive. This led to further points regarding location of measurements. For example, permeability can't be measured in the hole so it is important to measure it on the cores. However, Lovell noted that some of these measurements as well are destructive: Permeability requires dry cores. Moran commented that pore pressure is vital for some programs and needs to be included in some WG, and Ito further noted that for deep coring legs some measurements need to be done under pressure. Lovell observed that there is no point in measuring rock mechanics under pressure unless pore pressure is quantified since the goal is effective pressure.

Paleontology: Ikehara summarized three main proposals from the Paleontology WG.

1) Gather an additional sample per core for micropaleontology, in addition to the typical core-catcher sample. This would effectively double the initial shipboard stratigraphic resolution. The main purpose of this proposal is to provide higher resolution paleontological data in keeping with requirements of the Initial Science Plan (ISP). In addition, it would provide a more robust record of fossil assemblages that can be related precisely to core level and well-defined lithofacies.

2) For the riser ship, use the cuttings at certain sites at 10 m intervals. This would require special people and rooms for analyzing cuttings, special resin cases for storing cuttings, and new database system for logging cuttings.

As there was insufficient expertise present to discuss cuttings in detail, and the subject was broached with respect to other subjects as well (see "Geochemistry WG" below), the following Action Item was agreed upon:

Action Item 02-02-4: iSciMP solicit input from other iSAS panels (e.g., iPPSP and iILP) and other members of the community regarding issues on analyzing, archiving, and disposing of drill cuttings.

Status: On-going.

3) Develop a new prep routine for sediments and lithified rocks. It was proposed that strategies be developed to improve efficiency and routines to process sediment samples including extremely hard rocks:

a) Sodium tetraphenylborate method is available for very hard shale.

b) An integrated process of two or more microfossil groups (foraminifera, radiolarians, diatoms, palynomorphs) be conducted by specialist technicians. With the consultation of staff scientists and paleontologists, co-chief scientists could make a decision of using further samples for paleontological study when certain cases are identified, such as when the recovery of sediments is expected to be less than 50%. More than two technicians are ideally required for this procedure and they should be skilled in knowledge and experience of chemical experiments.

There was discussion as to which of these measurements needed to be routine for all platforms, under which conditions some of the sampling could be streamlined, etc. It was agreed that these issues shall be considered and revisited at our next meeting.

Microbiology: Takai and Smith led a discussion regarding the microbiology anticipated needs and issues. Murray reminded the panel that iPC has recommended iSciMP form an ad hoc WG to address the myriad challenges presented to us by microbiology. Takai noted that at present we cannot make certain standardization measurements because it is such a new field. However, certain commonalities can be identified for all three platforms:

1) Determination of contamination to ensure acquisition of indigenous samples. Thus, it will be critical to use routine contamination protocols (e.g., ODP Technical Note 28) and possibly use growth gels,

2) Will need to continue to improve core handling procedures, and include subsampling of whole round cores immediately after core arrives on deck and in absence of oxygen. In some (many?) cases, several holes will have to be acquired at each site,

3) Curation and archiving of whole round samples and subsamples. Procedures such as the long term preservation in liquid nitrogen and short-term preservation of core-slurry in refrigerator need to be codified.

During discussion, Moore questioned whether in the future that microbiology will ever become a routine sample requirement. Smith and Takai, and many panelists, expressed support for doing so. Smith added that in microbiological sampling speed is of the essence in some cases since it is a cold sample coming up through warm water. Also the cores should be kept relatively cold (approximately 10°C) for sampling/sectioning for purposes of culturing since the heat will kill the living biota. Moran expanded the discussion to include considering why not measure other ephemeral props (such as MST) at cold temeratures. It was noted that Mr. Wada from JAMSTEC will be giving an additional presentation on Saturday regarding gel coatings during coring to prevent microbial growth (see "O"). These and other comments resulted in the following Action Item (next page):

Action Item 02-02-5: In response to iPC Consensus 3-17, i-SciMP panelists David Smith and Ken Takai will develop a list of potential members of an ad hoc Microbiology WG. Membership should be diverse and prepared to meet in March-April 2003 and report to iSciMP at next meeting. By iPC meeting in March 2003 a list of attendees and plan for when the meeting will occur and a draft agenda will be available. David Smith and Ken Takai will be the co-chairs of this ad hoc WG.

Status: On-going.

Geochemistry: Murray gave a brief overview of the geochemical needs as they pertain to aqueous (ephemeral) measurements and solid phases measurements (bulk chemistry as well as highly spatially resolved geochemical data such as scanning XRF, laser ablation). He anticipates that future improvements in IODP's abilities to acquire spatially resolved data will be a major emphasis. In all cases, the issue of consistency among the platforms will be important, with respect to element menus (and the ability of the database to handle variability therein), calibration and QA/QC. These and other issues will be more specifically outlined at the next meeting.

During discussion, the potential for working on drill cuttings was raised, and Murray noted that particularly with the increasing abilities of geochemical instruments to deal with small samples that we will attempt to capitalize on the availability of the cuttings. Moore noted that we are going to have to deal with the mud and cuttings for both environmental issues as well as archiving. Buecker suggested archiving cuttings every 5 or 10 m. Kuro noted that the plan for *Chikyu* in terms of cuttings is to send cuttings to land to be disposed and to collect ~200 cc every 10 m for analysis and archiving. Refer to Action Item 02-02-4, above.

Borehole/Drilling Measurements: Buecker noted that each drilling platform in IODP will require a different standard for downhole measurements. Each logging program must be carefully prepared to assure the goals of each drillling project. The common logging needs for all platforms are:

1. *Required equipment* for acquisition system and borehole safety. Buecker provided examples of industry standards but since we are not looking for hydrocarbons then we will need to develop our own.

2. A list of *minimum required measurements*. The minimum required measurements for standard logging include borehole environment (caliper, temperature), lithological logs (natural gamma), nuclear logs (porosity, density), electrical resistivity (deep and

shallow), sonic (at least p-wave), magnetism (magnetometer and magnetic susceptibility), borehole imaging (electrical or acoustic), and seismic check shots (VSP recommended).

3. *Quality control for data acquisition.* A repeated run is recommended, so as to give confidence in the reliability of the data. Also, reasonable resolution and sampling interval (6 in) are recommended.

4. *Quality control for routine processing*. There needs to be a required minimum for on-site data processing and a required level of data correction for large storage. Whatever corrections are made, they must be stored with sufficient description to be able to get back the raw data.

5. *Data management and distribution* will require establishment of a log database for each drilling platform. There will need to be centralization of data distribution for all drilling platforms, accessible via the www and responsive to the 1-year moratorium. The log data analysis centers need to be integrated across all 3 parts of IODP.

Buecker further described anticipated needs for each platform:

Non-riser. Maintain current ODP logging standard…we have more than 20 years of good experience with it, and the program should fluorish. However, there is a real need to use new standard tools to capitilize on innovation potential.

Riser: Maximize advantages of large diameter logging tools (industrial standard combinations, imaging tools such as fullbore electrical imaging, dynamic formation tester, magnetic resonance, dipole shear sonic, hostile environment tools), along with frequent use of the LWD and MWD (LWD in uncored intervals, LWD/MWD in pilot holes). Develop Logging-While-Coring?

MSPs: Will need the required equipment for rig-floor acquisition system and borehole safety (depth control, heave compensation, cable tension, head tension, etc.). There will need to be a certain level of on-site initial processing, followed by shorebased processing. For slim hole logging, 2.5 in diameter tools will have to meet the required measurements in IODP at a minimum.

During discussion, Saito thought there may not be a very good off the shelf magnetic susceptibility tool, but Buecker pointed out that we need to look beyond Schlumberger's offerings and that there in fact are. There was much discussion among the panel about how industry standards and tool strings could add a lot to the IODP that ODP has not taken advantage of successfully. Specific points included large diameter tools that could be deployed through the riser, latch-in-to-bit tools, and that there is no standard for DSI (only for P and S wave velocities). Moran suggested we consider technology that can log through casing for the upper holes. Ito and Lovell both suggested to consider breaking long tool strings into shorter ones to get upper hole information. Alternatively, Moran pointed out that the holes could be logged on the return run with a latch-on module if we investigate some of the geotechnical tools.

Gulick emphasized that it is important that the Logging Data Analysis Centers be staffed by personnel who are capable of basic seismic processing and proper integration of logging with seismic data through use of checkshots on the particular system that is being used (e.g., Geoframe). In parallel to other discussions of technical support expertise level, there was wide affirmation of this point by the panel.

Underway Geophysics: Divins began by reminding the panel of the current capabilities in ODP (JOIDES), which include as routinely collected during all transits: Bathymetry, Magnetics, and GPS navigation. Also available are: High resolution seismics, Seismic reflection profiles (6 channel and single channel), and Acoustic Doppler Current Profiler.

With regard to the IODP, his group recommends that all three types of platforms should routinely collect bathymetry and GPS navigation, and that the riser and non-riser ships, along with MSPs when possible, should gather when possible magnetics and high resolution seismics. They should have the additional capability to perform seismic profiling.

During discussion, Gulick recommended that 3.5/12 kHz on IODP missions should be collected. Murray questioned whether we should be collecting data such as magnetics and seismic for purely altruistic reasons? Many panelists commented in response that it is extremely desirable to have the capability of seismic reflection for coming on site, and for doing additional drilling and need crossing lines.

Murray closed the lengthy discussions on WG's by reminding the panel that a major agenda item at the next meeting will be to develop a series of specific recommendations for each laboratory's needs. He will be communicating with the panel via email as to how best achieve this.

N) Review of Sample and Data Distribution Policy

Prior to Smith leading the discussion, Moore reminded iSciMP that iPC is particularly interested in this policy as it figures large into how we operate this program. He noted that it is a really good idea to have the vision on how to deal with data and samples upfront. Traditionally, the policy has been fairly liberal. We must speak how it needs to work for the science before it gets decided for us. He would like to present the revised policy to IWG as a working final draft. Murray noted that the main goal before us, as outlined in pre-meeting emails, was to separate out true policy from implementation. Implementation issues inherited from ODP had swamped the text, resulting in an overly large document that was not focused on policy.

Smith presented to iSciMP the results of his efforts to pare down the text (a version had been distributed before the meeting). There was wide agreement that the improvements were significant. Various changes in definition of science party, classifying sampling as routine or non-routine, incorporation of site-survey data, population of CAB, and other points were also clarified.

The moratorium period was changed from wording associated with the end of the cruise date (as is the case with ODP) to reflect instead "release of samples", as shorebased sample parties often result in samples being released several months post-cruise, thus eroding the effective work time of scientists protected by the moratorium. The proposed wording also can accommodate, for example, a riser leg where multiply-timed sampling parties may eventually meet. The "Sample and Data Recipient Responsibilities" section was changed to publish 20 months post-moratorium and it was added that IODP must be acknowledged.

After a final review the next day, the document was immediately forwarded to Moore and iPC for discussion at IWG. It is included here as Appendix D.

Saturday, December 14, 2002

O) Presentation of Anti-contamination System

Wada (JAMSTEC) presented a coring methodology that uses an anti-contamination gel to prevent growth of microbes external to the core or escape of microbes from within core. It should also improve the ability to recover still cleaner geochemistry samples.

The apparatus has been tested on land, and evaluated in comparison to latex microspheres. Coring without the anti-contamination gel yielded 40,000 beads/g, while coring with the gel reduced this value to ninety (90) beads/g, which is a remarkable result. The panel responded very well to this presentation, and there was much discussion. In response to various questions, it became clear that:

1. There is enough volume of gel in the device to handle coating a severly factured sample.

2. The gel is made of a plastic like material with a cationic base on the outside that is only in the gel but will not dissolve in the water. It prevents physical activity, reduces microbial activity, and can even be further improved in the future.

3. The intent is not to use it routinely, but only on an as needed basis.

4. Future work needs to check whether this gel is acceptable environmentally and safe for humans. Particularly in Europe, this could be a major issue.

5. The gel currently is not usable for APC, only for rotary coring, but it works at temperatures such as those found in hydrothermal vent systems.

6. If the gel polymerizes between deployment and recovery the tools will have to be cleaned between runs, but apparently even if it polymerizes inside the barrel the tools are not gummed up.

7. It will also be important to assess whether use of the gel compromises other studies of the samples.

On the basis of the presentation and discussion, the following recommendation resulted:

Recommendation 02-02-5: iSciMP applauds JAMSTEC's effort to address anti-contamination drilling and sampling and encourages their continued development and communication with the iSAS on these matters.

> Background: As microbiological research in IODP will be prominent, much research is addressing improved methods of obtaining non-contaminated samples. This recommendation is based on an interesting presentation by Mr. Wada (JAMSTEC), which intrigued the iSciMP to the point where further information is likely to be of interest. This subject will also be discussed at iTAP, and JAMSTEC (and perhaps other interested parties) will provide additional feedback at iSciMP's next meeting. This is also going to be discussed at the Microbiology Working Group meeting.

Vote: 15 yes, 0 no, 0 abstain.

P) Identifying Technical Needs of Proposals

To follow up on the discussion initiated during the iSSSP liaison report (see "B"), Escartin led a discussion on how to identify and enhance the technical capabilities of proposals within the iSAS system. The panel feels there is a clear need for proposals to have a greater level of technical input. This will requires some access to proposals, perhaps via iSSEPS watch dog reports, with technical info and advice from iTAP and iSciMP. Moran noted that iSSEPs co-chair asked iTAP to interact with a particular proposal to give technical advice. After much discussion about conflict of interest, role of co-chairs, and iTAP-iSciMP relative contributions, the following recommendation resulted (on next page):

Recommendation 02-02-6: iSciMP recommends that the link with iSSEPs be formalized by the following:

(a) Two iSciMP liaisons with iSSEPs will interact closely with the iSSEPS proposal watchdogs, throughout the life of a proposal and/or project.

(b) That iSciMP liaisons together with the watchdogs should identify upcoming technical issues, transmit relevant information to the proponents, or identify technical panel members that proponents may contact for technical issues.

(c) That the iSSEPs watchdogs remain the interface between proponents and iSciMP.

(d) That the proposal *Cover Sheet* should be modified to include a section where proponents identify the critical and non-standard measurements and technical needs required to achieve the proposed scientific objectives

(e) ISAS policy regarding conflict of interest will be closely adhered to.

> Background: iSciMP notes that a formalization of the link with iSSEPs and the access to information of proposals in the system to provide technical advice when required and/or requested would be desirable in the future.
>
> It is recognized that the new IODP program will involve long-term projects with multiple platforms. Some level involvement of iSciMP in the proposal review process and duration of projects is required to deal with upcoming issues. These include consistency of measurements across platforms and through time, identification of required developments at early stages of proposals or projects, and dealing with unforeseen problems (e.g., microbiology patents, safety of new technologies, sample handling, and others).
>
> The iSciMP recommendation intends to establish appropriate mechanisms of interaction of iSciMP with iSSEPs and proponents, retaining the technical nature of iSciMP.

Vote: 15 yes, 0 no, 0 abstain.

Q) Future Agenda Items

In order to plan adequately for future iSciMP meetings, the following agenda items are being considered for the Summer, 2003, meeting. These potential items are in addition to

a number of issues resulting from the December, 2002 meeting and on-going projects, but provide an example of future discussions.

- •Publications.
- •Technicians (rotations, skill level, shipboard, shorebased).
- •WG spreadsheets, prioritization of measurements and instrumentation.
- •Scientific staffing flexibility.

R) Next Meeting

Consensus Statement 02-02-02: The next meeting of the iSciMP will be in Nagasaki, Japan, and hosted by panel member S. Saito. Scheduling will be coordinated if possible so our meeting will begin after the July 11th ending of the IUGG meeting in Sapporo, Japan. The location will allow the panel to inspect the *Chikyu* and be further updated on the logistical support of OD-21.

S) Appreciation of Host

Consensus Statement 02-02-03: The co-chairs and panel members of iSciMP, as well as liaisons and guests, wish to express their warmest appreciation and thanks to Doug Schmitt and his assistant, Dean Rokosh, of the University of Alberta for organizing the successful 12-14 December, 2002, iSciMP meeting and social events, and making everyone feel most welcome in Canada.

T) Formal Adjournment of Meeting

Appendices are located on the following pages….

A. Agenda.
B. *Chikyu* Equipment List.
C. MRC Letter.
D. Sample and Data Policy

AGENDA
Interim Scientific Measurements Panel (iSciMP)

December 12-14, 2002**,** Edmonton, Canada

Day #1, Thursday, December 12, 2002

8:30 - 9:00	Breakfast
9:00 - 9:10	Introductions and Welcome to New Members
9:10 - 10:15	Liaison Reports iPC Planning (**Ito**) iSAS Office (**Schuffert**) iSSEP (**Escartin**)
10:15 - 10:30	Break
10:30 - 11:30	Review of Results from Last iSciMP Meeting and iPC discussions of our recommendations. (**Murray**)
11:30 - 12:00	Report from iTAP (**Moran**), laying out of framework of interactions between iSciMP and iTAP. This is a broad discussion only, to provide overview and context (see Day 2, 9:00 - 11:30).
12:00 - 1:30	Lunch
1:30 - 3:15	OD21 Report Chikyu Construction (**Kuroki**) Kochi Core Repository (**Kuroki**) OD21 Data Base (**Saito**) Anti-Contamination Drilling and Sampling (**Wada**) Long-term Observatories (**Saito**)
3:15 - 3:30	Break
3:30 - 5:00	JEODI Discussion (**JEODI attendees)** European Structure of IODP (Science Operator and Management Agency). European drilling planning group activities and input. Example of MSP: Arctic Drilling. Operational Matters Relating to Science Ops and Safety.
5:00	End of Day

Day #2, Friday, December 13, 2002

8:30 – 9:00 Breakfast

9:00-11:30 (incl. break)

iSciMP/iTAP issues (**Moran** and **Masuda**). Discussions of issues common to iSciMP and iTAP and how to best proceed, examples include Drilling Standards, Pipe Diameter, Pipe Stand Length/Coring Tools, Joint Panel Meetings, Working in multiplatform environment, etc.

11:00 – 11:30 Micropalentological Reference Centers. (**Ikehara)**

12:00 – 1:30 Lunch

1:30 - 3:00 Reports from "Measurement Working Groups": Past Concerns and Future Issues

Core Description: **Saito**, Neal, Escartin
Paleomagnetics: **Sagnotti,** Kikawa, Buecker, Lovell
Physical Properties: **Schmitt**, Lovell, Saito
Paleontology: **Ikehara.**
Microbiology: **Takai,** Smith
Geochemistry: **Murray,** Tsunogai, Neal.
Borehole/Drilling Measurements: **Buecker**, Pirmez, Lovell, Schmidt, Saito
Underway Measurements: **Divins,** Gulick, Lovell

3:00 - 3:15 Break.

3:15 - 5:00 Review of Sample and Data Distribution Policy (**Smith** and **Saito)**
Special emphasis on microbiology (as recommended by iPC),
Re-visit definition of scientific and auxiliary parties, etc.,
Moratorium length,
Balance between implementation vs policy,
Integration with publications.
Finalization of draft policy

5:00 End of Day

Day #3, Saturday, December 14, 2002

8:30 -9:00	Breakfast
9:00 – 11:00	Future Issues Regarding Implementation of IODP. Review of potential MSP and non-riser expeditions for FY04 and FY05. Facilitate identification of technical needs and match with potential available resources. Discuss development of "Scientific Coordinated Measurement Plan" per expedition. Discuss desired flexibility of staffing of drilling expeditions. Discuss panel chair meetings and iSciMP/iTAP meetings for enhanced coordination and planning.
11:00 - 12:00	Review of i-SciMP Recommendations to iPC.
12:00	Adjourn.

OD21 SHIPBOARD LAB EQUIPMENT_DRAFT_

July 14, 2000

Item	No.	
STAFF SCIENTIST OFFICE		
PC(win)	1	
PC(mac)	1	
Compact Copy machine	1	
CATV monitor	1	
CO-CHIEF SCIENTIST OFFICE		
PC(win)	2	
PC(mac)	2	
LAB ROOF DECK		
Reefer Container (20ft)	10	
Gas monitor for above	1set	
Bug blower	1	
Jet heater	1	
Core catcher bench with sink	1	
Sink stand	1	
Core rack	1	
Utility for container lab	1set	
Utility for RI lab	1set	
CORE REGIST ROOM		
PC(win)	1	
BC printer	1	
Printer (mono)	1	
CATV monitor	1	

DOWNHOLE MEASURE LAB		
Monorail lift	1set	
WS	2	
Maxis	1set	
PC(win)	6	
PC(mac)	2	
Printer (color)	1	
Compact Copy machine	1	
Plotter(A0)	1	
CD-RW	1	
MO	1	
ZIP	1	
DAT	1	
EXBYTE	1	
CATV monitor	1	
CATV monitor	1	
X-RAY CT SCANNER LAB		
X-RAY CT SCANNER	1	
X-RAY shield structure	1	
QA/QC Laboratory		
Sampling device for microbiology	1	
Fluorescence microscope	1	
ECD gas chromatograph	1	
Liquid chromatograph	1	
Draft chamber (large)	1	
Safty cabinet	1	
Anaerobic glove box	1	
Autoclave	1	
4-Column 100-ton Press	3	

Freezer for Organic Geochemistry Samples		
Draft chamber	1	
LN2 bottle	2	
LN2 rack	1	
Pure water system	1	
PC(win)	2	
PC(mac)	2	
CATV monitor	1	
BC printer	1	
Microbiology Laboratory		
Safty cabinet	1	
Reefer showcase_+2~4 _C_	1	
Freezer_-85 _C_	1	
Freezer_-150 _C_	1	
Pressure pump	1	
Pressure chamber for sample preservation	5	
Freeze drier	1	
Incuvater (0-30_, 10-60_, 25-150_)	3	
Anaerobic glove box	1	
Autoclave (large)	1	
Autoclave (small)	1	
Fluorescent phase contrast microscope	1	
Fluorescent microscope	1	
Photomicrographic system	1	
Pure water system	1	
Electronic Balance	1	
Centrifuge with temp control	1	
Refrigirator (4_, -20_)	1	
Draft chamber (large)	1	
Clean bench	1	

PC(win)	2	
PC(mac)	2	
Mobile PC(win)	1	
Printer (color)	1	
CATV monitor	1	
CoreLabo/PP		
Whole Core MSCL _Gamma-Ray Attenuation Porocity Evaluator(GRAPE) _Magnet Susceptibility Meter _P-Wave Logger(PWL) _Electric resistibility _Natural Gammer-Ray Spectrometer	1	
Digital Image MSCL_____Color line scanner	1	
Whole/Split Core MSCL _P-Wave Logger(PWL) _Magnet Susceptibility Meter _Electric resistibility _Color spectrometer	1	
XRF core scanner	1	
Drill Press	2	
Laser Particle Analyzer	1	
Stereomicroscope	2	
Polarization Microscope	2	
Cut-off Saw/Tile Saw	2	
Parallel Saw	1	
Super Saw/Core Splitter	1	
X-Ray System (Soft X-ray camera)	1	
Thermal Conductivity System	1	
Penta-Pycnometer	1	

Electronic Balance(2)	2	
XRD	1	
PC(win)	4	
PC(mac)	2	
PC(win)	2	
PC(mac)	2	
WS	1	
WS	1	
Paleomagnetics Laboratory		
Cryogenic Magnetometer System (Alternating Field Demagnetizer) (ARM Magnetizer) (IRM Coil)	1	
Spinner Magnetometer (2)	1	
Thermal Demagnetizer	1	
3-Axis Fluxgate Magnetometer	1	
AF Demagnetizer	1	
Impulse Magnetizer	1	
Partial Anhysteric Remanence Magnetizer(PARM)	1	
Bartington MS2 Susceptibility Device	1	
Kappabridge	1	
Hall-Effect Magnetometer	1	
Fluxgate Digital Magnetometer	1	
Magnetic shield room	1	
Demagnetizer for above	1	
PC(win)	3	
PC(mac)	3	

Printer (color)	1	
CATV monitor	1	
CORE VIEWING ROOM		
OFF-TIME SPACE		
WS	1	
PC(win)	1	
PC(mac)	1	
Printer (color)	1	
CATV monitor	1	
CURATOR OFFICE		
PC(win)	1	
CATV monitor	1	
SAMPLE PREP ROOM		
Freeze Drier	1	
Water de-ionizing System	1	
Electrobalance	2	
Draft chamber	1	
Draft chamber	1	
Ultra-high temperature electric furnace	1	
Tabletop clean bench	1	
Tabletop cooling centrifuge	1	
Forced convection constant temperature oven	2	
Steam Glassware Washer	1	
Variable Temperature Ultrasonic Bath	2	
Ultraviolet Lamp	2	

Draft chamber	1	
B & W Video Image Printer	1	
High speed solvent extractor	1	
Tabletop Centrifuge(2)	1	
Bead Sampler	1	
Isotemp Programmable Ashing Furnace	1	
Mixer Mill	1	
Scientific Balance System(2)	2	
X-Press Motorized Hydralic Press	1	
Desiccator Specimen Cabinet for XRF Standards	1	
Refrigirator (4_, -20_)	1	
Ice maker (flake ice)	0	
PC (win)	1	
BC printer	1	
CATV monitor	1	
PALEON/ PETRO LAB		
Automatic Point Counter	1	
Polarizaion Microscope	6	
TV Camera for microscope	1	
Camera for microscope	1	
Video copy processor	1	
Stereomicroscope _____	3	
Digita camera for microscope	3	
Color Video Image Printer	3	
Microscope camera	1	
Anti-vibration pad	5	
Image analysis system _main unit, color processing soft, printor, video printer_	1	
3CCD color video camara DXC-9000	1	

PC(win)		
PC(mac)		
printer (color)		
CATV monitor		
GEO_CHEMISTRY LAB		
ICP-MAS	1	
ICP-AES	1	
CHNS/O analyzer	1	
Alkalinity Titrator System	1	
Other Titrator Systems	2	
Refrigerated Circulator for Waterbath(2)	2	
Coulometer	1	
Ion Chromatograph	1	
Spectrophotometer	1	
Gas Chromatograph #1(NGA)	1	
Gas Chromatograph #2	1	
Gas Chromatograph #3	1	
Hydrogen Generator (2)	2	
Rock Eval II	1	
Water de-ionizing System	1	
Liquid chromatograph	1	
Ultra-high temperature furnace	1	
Tabletop clean bench		
Reefer showcase	1	
Clean air equipment	1set	
Trash box	1	
Compact Isotope ratio MS analyzer	1	
Micro balance	1	
Micro balance	1	

PC(win)	3	
PC(mac)	3	
printer (color)	1	
CATV monitor	1	
THIN SECTION LAB		
Lap Wheel	1	
Polarization Microscope	1	
Low speed rotary small cutter	1	
Automatic thin section macine__one for _600 and one for _2000_	2	
Manual thin section macine_____one for _600 and one for _2000_	1	
Compact precise lapping machine	1	
Rotary cutter	1	
PC(win)	1	
CATV monitor	1	
ET SHOP		
Anti electrostatic desk	1	
PC(win)	1	
OFF-TIME SPACE		
WS	1	
PC(win)	1	
PC(mac)	1	
printer (color)	1	
CATV monitor	1	

STORAGE/ GAS BOTTLE RM		
N2 generater	1	
Liquid Nitrogen generater	1	
CHEMICAL STORAGE (1),(2)		
COOL/ DRY STORAGE		
COMPUTER/ USER/ LIBRARY		
Servers	1set	
WS	1	
PC(win)	1	
PC(mac)	1	
Printer (color)	1	
PC(win)	4	
PC(mac)	4	
Printer (mono)	1	
Printer (color)	1	
Plotter	1	
Scanner	1	
CD-RW	1	
MO	1	
ZIP	1	
DAT	1	
EXBYTE	1	
WS(only for data integration software)	1	
WS	3	
Plotter (A0)	1	

LOUNGE		
CATV monitor	1	
CONFERENCE ROOM		
Copy machine	1	
Ceiling projecter	1	
VTR	1	
Audio system	1	
White board	1	
CATV monitor	1	
LAB OFFICER OFFICE		
PC(win)	1	
PC(mac)	1	
CATV monitor	1	
YEOP/CURATOR OFFICE		
PC(win)	2	
PC(mac)	2	
CATV monitor	1	

Report of the MRC Sampling Meeting 2002

8 - 10 October 2002

The Natural History Museum

Paleontology Department,
Cromwell Road, London, SW7
5BD, U.K.

Attendees: Yoshiaki Aita (Radiolarian Satellite MRC in Utsunomiya), Michael Knappertsbusch (MRC in Basel), Dave Lazarus (Radiolarian Satellite MRC in Berlin), Yoshihiro Tanimura (MRC in Tokyo), Jeremy Young (Nannofossil Satellite MRC in London)

Organizers: Michael Knappertsbusch and Jeremy Young.

Purpose:

The main goal of this meeting was the selection of samples from new ODP Legs in order to complete the collections of the Micropaleontological Reference Centers (MRCs) of the DSDP and ODP with materials from hitherto unrecovered oceanic areas and geological times (sampling party).
We also discussed MRC related topics including progress on MRC database work, overviews of geographic and stratigraphic MRC sample coverage, information on IODP's database plans, and how MRCs can be linked up to the IODP.

1. Sampling party:

1.1. Sample selection
We were able to select a total of 955 MRC samples including materials for diatom-, radiolarian-, calcareous nannofossil- and planktonic foraminifer preparations (see Table 1). They were taken from 573 stratigraphic levels from ODP Legs 182 (Great Australian Bight), 183 (Kerguelen Plateau), 184 (South China Sea), 185 (Izu Mariana Margin), 188 (Prydz Bay, Antarctica) and 189 (Tasman Gateway). Additional samples were selected from 172 stratigraphic levels especially for diatom preparations from early DSDP legs 21 (East Australia), 24 (Indian Ocean), 28 (Southern Indian and Pacific Oceans), 29 (South-East Australia), and 38 (High Latitude North Atlantic), that have been reported by John Barron to be important material that should be available in the MRCs as a reference to standard stratigraphic and taxonomic diatom literature. The request has been forwarded to and accepted by ODP on 18 October 2002.
The ODP request number is #15925D.

Table 1:

Leg	Diatoms	Rads	Nannos	Forams	Totals
182	44	44	43	43	174
183	35	20	37	39	133
184	63	0	57	60	181
185	0	38	0	0	38
188	0	22	1	9	40
189	29	33	82	88	232
21	11	0	0	0	11
24	37	0	0	0	37
28	57	0	0	0	57
29	27	0	0	0	27
38	23	0	0	0	23
Grand Total	**326**	**157**	**220**	**239**	**955**

1.2. Who processes what?
We agreed on the following processing scheme (see Table 2).

Table 2:

MRC	Aita (Utsunomiya)	Tanimura (Tokyo)	Young (London)	Lazarus (Berlin)	Knappertsbusch (Basel)	Wise (FSU)
Leg/Group	Radiolaria	Diatoms	Nannofossils	Radiolaria	Forams	Nannofossils
182	X	X	-	-	X	X
183	-	X	-	X	X	X
184	-	X	X	-	X	-
185	X*	X	-	X**	-	-
188	-	X	-	X	X	X
189	X	X	-	-	X	X
21	-	X	-	-	-	-
24	-	X	-	-	-	-
28	-	X	-	-	-	-
29	-	X	-	-	-	-
38	-	X	-	-	-	-

(*) Samples from 1149B-4R through 26R go to the Utsunomiya MRC (Yoshiaki Aita).
(**) Samples from 1149A-1H through 17H go to the Berlin MRC (Dave Lazarus)

1.3. Final distribution of processed sample splits to the MRCs:

Table 3:

MRC	Diatoms (8 sets)	Radiolaria (9 sets)	Nannofossils (9 sets)	Foraminifera (8 sets)
San Francisco	X	-	-	-
Utsunomiya	-	X	-	-
Tokyo	XX (1 Moscow set)	X	X	X
London	-	-	X	-
Berlin	-	X	-	-
Basel	X	X	X	XX (1 Moscow set)
Bremen	-	X	-	X
Parma	-	-	X	-
Tallahassee	X	-	X	-
Nebraska	-	-	X	-
Moscow	in Tokyo	-	-	in Basel
Texas	X	X	X	X
Washington	X	X	X	X
Rio de Janeiro	-	-	-	X
New Zealand	X	X	X	X
Scripps	-	X	-	-

2. Discussion on MRCs:

2.1. MRC sample database related work.
Dave Lazarus reported progress on the completion of the MRC sample database in 4th Dimension (a cross-platform database system which is available free for academic users), which was initiated during our the 2001 MRC curatorial meeting in Berlin. The database contains now a complete dataset, including consensus geologic ages, for MRC radiolarian samples; for the other microfossil groups data entry is still pending. Thanks to the effort of Yoshihiro Tanimura, a large portion of data has been prepared for import for the other microfossil groups (diatoms, nannofossils and forams). Still, we need for these records geological ages, and also in general numerical ages for the database. Dave Lazarus (MRC Berlin) will put the database on an ftp server for download, so that individual MRCs can contribute to data entry.

During the discussion the question of consensus ages for the MRC sample database came up (Problem: age estimates from different fossil groups are sometimes not the same for the same sample). Should we use "barrel sheet" consensus geologic ages, Neptune-type age models to arrive at consensus numerical ages or should we use microfossil specific zonal assignments? The MRC database has fields to hold all three types of information. **[Problem not solved yet]**.

2.2. MRC sample overview.
Dave Lazarus presented impressive charts and maps showing the geographic distribution of radiolarian samples available in the MRC at several geological time-slices (see figures 1 and 2). At this moment about 2/3 of radiolarian samples have been processed to samples, indicating a backlog of about 1/3 for the radiolarians. About 1/6 of the processed samples were barren or rare in radiolarians, giving an idea about the success of radiolarian sample selection.
Dave surprised us with a stratigraphic overview of available radiolarian MRC samples from the Jurassic to Quaternary showing the very uneven distribution of preparations: Most samples were selected from the Neogene, while Paleogene, Cretaceous and Jurassic samples are underrepresented in the collections, particularly in the northern hemisphere. According to Yoshihiro Tanimura/Yoshiaki Aita a similar underrepresentation of Paleogene samples is also true for the diatom MRC preparations.

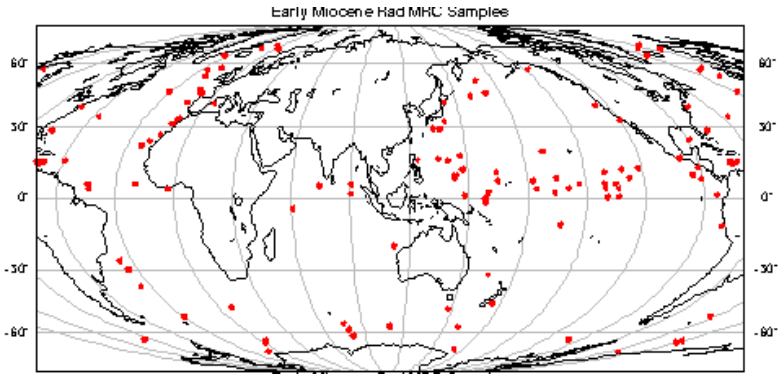


Fig. 1: Distribution of Radiolarian preparations in the MRC's available from the Early Miocene.

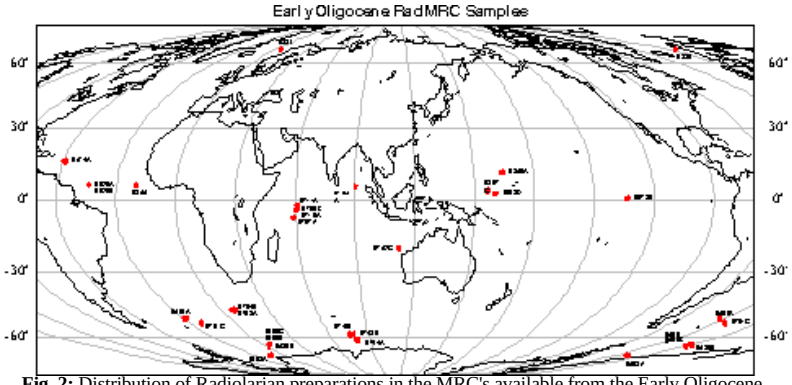


Fig. 2: Distribution of Radiolarian preparations in the MRC's available from the Early Oligocene.
The full set of radiolarian figures will be made available on-line from the Berlin MRC homepage.

In order to arrive at a more even distribution of biosiliceous materials we discussed the possibility of including into MRC collections of classical landsections, where the Paleogene and Cretaceous is more exposed.

MRC potential item to iSciMP:

MRCs have the potential to oversee long-term drilling success, and one conclusion was, that IODP would need to consider its drilling strategy to recover more biosiliceous materials, especially pre-Neogene materials from the northern hemisphere.

2.3. MRC ownership question.
Again, the question of MRC collection ownership was raised, which is particularly important to the radiolarian satellite MRC in Berlin, but also to the other MRCs:

1) The decline of ODP and the transition of ODP into IODP causes a situation of vanishing legal relationship for responsibility and ownership- and permanent loan status of MRC collections.

2) The use of radiolarian MRC materials in taxonomic work would be enhanced if MRC slides can be used to designate types ? type bearing slides are normally expected to be part of the permanent collections of institutions. (Radiolarians are particularly affected by this as type specimens cannot be picked out of slides, as for forams, nor can additional duplicate slides be quickly made from unused sample materials, as for diatoms and nannos).

Action item to iSciMP:

The status of ownership of MRC collections should clearly be clarified by IODP, and we suggest that MRCs should become legally linked to the IODP program.

Ownership of the MRC radiolarian collection at the Museum fuer Naturkunde in Berlin should be considered as a separate case, together with the responsible curator (Dave Lazarus).

2.4. Other database work in the MRCs:
Yoshiaki Aita informed us about database plans within IODP, and the difficulties of integrating so different systems like ODSN, Janus, etc. The basic guideline was that Jamstec prefers to preferentially orient themselves on Janus based systems. The availability of Neptune-online was acknowledged, but the tools and data structure must be more explained.

2.5. The role of MRCs in various existing and future database efforts within IODP.
Yoshiaki Aita presented the new **iSciMP recommendation 02-14**, which reads:

> "iSCIMP Recommendation 02-1-4
> To improve the stratigraphic quality and consistency of shipboard biostratigraphy of IODP, iSCIMP recommends that shipboard reference collections of Mesozoic and Cenozoic microfossils as well as digital image atlases and stratigraphic databases are needed and should be available for all IODP platforms and laboratories."

This recommendation states a strong demand for what the MRCs are in part already doing, and points the way in which MRCs should move. Examples are the MRC collections, various database efforts (MRC sample database, Neptune), involvement of various MRCs in the development of digital image atlases (e.g. Nigrini and Sanfilippo's Cenozoic radiolarian stratigraphy for low and middle latitudes [ODP Technical Note 27 (2000) in electronic format; and Olsson, Hemleben, Berggren & Huber's (1999) Atlas of Paleocene Planktonic Foraminifera, which is available in printed form and on CD-Rom).

The next iSciMP meeting will be on December 12-14, 2002 at Edmonton. We felt it necessary that the MRCs react promptly to recommendation 02-14 by proposing a target item to iSciMP:

Proposal item to iSciMP

Shipboard IODP micropaleontology databases and reference collections (in response to iScimp recommendation 2-14)

Proposal for consideration and response

iScimp recommendation 2-14 calls for the creation of shipboard paleo/strat databases and microfossil reference collections to support IODP's on-ship stratigraphic work. The MRC curators wish to offer their joint expertise to the IODP program to coordinate and manage this effort. This will include locating, selecting and integrating existing biostratigraphic community databases/atlases, promoting new work by the community to fill gaps in database/atlas coverage, and preparation of selected reference samples suitable for shipboard use, based on the extensive libraries of material now available in the existing MRC collections.

We envision this effort to primarily be one of coordinating and promoting the efforts of diverse individuals within the community, and acting as central liason between these people and IODP members responsible for shipboard facilities.

Funding support for this coordination work by the MRCs would also presumably be primarily provided by national agencies, but for this, some sort of official mandate or imprinteur from IODP for an MRC led effort would normally be a prerequisite for MRC members seeking local funding. We therefore ask IODP to consider this offer, and if an interest exists, to respond appropriately. We would be glad to develop a more detailed concept for IODP's consideration if this is desired.

2.6. Suggestions for a next MRC (strategic & sampling) meeting.
The next meeting will be a strategic one, but in the absence of many MRC curators we did not decide yet when and where it will be organized. The decision will be made after email discussion.

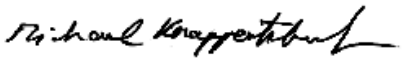
We realized, that a limited numer of DSDP & ODP sites have been drilled which in the past were not sampled by the MRCs for unknown reasons. We suggest to hold a special workshop (perhaps within the next MRC curatorial meeting ?) to discuss this question.
In this context the topics of the next MRC curatorial meeting may be related to the question: ***"Where are the gaps of sampling in the MRC collections ?"*** , which will make use of the ? by then ? completed MRC database, with ages and geographic locations for all samples.

In addition, we discussed the idea that, on a longer term, MRCs may include and actively select type materials from non-DSDP/ODP materials, as for example from Challenger expeditions.

Important legs for a next sampling round were mentioned, e.g. Leg 198 (Shatsky Rise) and 191 (Ontong Java Plateau).

Basel, 28 October 2002

On behalf of the MRC curators:



Michael Knappertsbusch, MRC Basel

Download as Ms Word file (.rtf format)

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IODP Sample and Data Policy

1. Overview of the Policy

This document outlines the policy for distributing IODP samples and data to research scientists, curators, and educators. This document also defines the obligations that sample and data recipients incur.

The specific objectives of the IODP policy are to:

- ensure availability of samples and data to scientific party members so they can fulfill the objectives of the drilling project and their responsibilities to IODP;
- encourage scientific analyses over a wide range of research disciplines by providing samples to the scientific community;
- preserve core material as an archive for future description and observations, for nondestructive analyses, and for sampling; and
- disseminate scientific results from post-drilling project research.

2. Sample and Data Distribution

IODP samples are generally distributed for research projects that can be completed within two to three years. During the moratorium period, samples are available exclusively to the drilling project's "scientific party" that has been formally approved by IODP, and whose requests have been approved by the Sample Allocation Committee (SAC, sec. 4).

The science party is defined as all scientists selected by IODP to produce initial, openly shared data associated with a particular drilling project within the moratorium period.

After a moratorium period, samples are given or loaned to persons in the following three categories whose requests have been approved by the IODP Curator:

- scientists who wish to conduct research on IODP materials and to publish the results, but who are not necessarily associated with a specific drilling project and;
- curators of museums and collections; and
- educators.

Archived data produced from samples taken for analyses, data acquired from boreholes by downhole measurements, and site survey data collected by IODP are available during

the moratorium to the entire scientific party. After the moratorium expires, all project data are made available to everyone.

3. Moratorium Period

The purpose of the moratorium is to ensure adequate time is allotted for scientific party members to conduct drilling project-related research before the cores and data are made available to the general scientific community. To accommodate the variability in duration of specific drilling projects, the period one year after the release of samples or data to the scientific party is designated as the "moratorium period". The release date, relative to the drilling project, may be delayed post-drilling or staggered during drilling as appropriate to the scientific objectives as defined by IODP. Only members of the scientific party are permitted to receive core samples and associated data during the moratorium period. Other requests for samples will be considered after the moratorium has expired.

4. Drilling Project Sampling Strategy

For each drilling project, a SAC is constituted, comprised of the Co-Chief Scientists, the IODP Staff Scientist, and the project Curator. During the drilling project, the Curator's authority and responsibilities to the SAC may be ceded to the drilling project Curatorial Representative.

The SAC establishes a project-specific sampling strategy and makes decisions on project-specific sample requests received before the drilling project, during the drilling project, and within (but not after) the moratorium. Approval of such sample requests requires endorsement by a majority of the SAC. In the event of an evenly divided vote, a decision will be made by the IODP Curator. Appeals to this decision can be made to the Curatorial Advisory Board (CAB).

5. IODP Review and Approval of Sample Requests

The CAB is a standing body that consists of two IODP senior managers and three members of the scientific community (selected by the IODP Scientific Measurements Panel) who will serve overlapping four-year terms. Every effort will be made to ensure that CAB membership represents a variety of scientific disciplines.

The CAB has two main functions:

It acts as an appeals board vested with the authority to make final decisions regarding sample distribution, if and when conflicts or differences of opinion arise among any combination of the sample requester, IODP Curator, and the SAC.

It reviews and approves requests to sample the permanent archive and requests for loans of core material for outreach and education.

6. Scientific Results Dissemination (Publications)

The responsibility and authority for making decisions regarding the publication of post-drilling project research to fulfill the IODP obligations, lies with an Editorial Review Board (ERB) and the IODP manager responsible for publications.

An ERB is established for every drilling project and remains active for 30 months post-moratorium. The primary purpose of the ERB is to maintain an independent and effective peer-review system for the publication of drilling project results. The ERB is comprised of the Co-Chief Scientist(s) for the drilling project and the IODP Staff Scientist. These individuals may select external scientists/specialists to serve with them on the board. The need for external ERB members will be determined based on the Co-Chiefs' and Staff Scientist's workloads and expertise.

7. Sample- and Data-Recipient Responsibilities

All scientific party members incur obligations to IODP that they must fulfill by using samples or data from the drilling project to conduct post-project research and by publishing associated results in agreement with the other terms of this policy. Manuscripts for publication must be submitted within 20 months post moratorium.

All scientists who receive samples or conduct nondestructive analyses from cores after the moratorium are obligated to publish a paper in a peer-reviewed scientific journal or book that publishes in English, or submit a progress report to the IODP Curator outlining the status of the samples and/or the data no later than 36 months after receiving them.

All publications incorporating IODP data or samples must explicitly acknowledge IODP and be submitted to the IODP Curator along with any applicable data.

Those not meeting the above obligations will be restricted from obtaining future samples and data and may not be allowed to participate in future drilling projects. Obligations incurred during the Ocean Drilling Program (ODP) will be carried forward into the IODP.