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OHP minutes Canberra 1990 October 19th-20th

Executive summary

1. Prioritising for FY '92 drilling OHP placed:
First: North Pacific Neogene Transect
Second: Atolls and Guyots
Third: Bering Sea

The remaining are of no interest to OHP and were not discussed.
The basis for the order is minuted.

2. OHP suggest that information such as tentative ship track, upcoming legs etc. should be published in a forum such as EOS, since JOIDES JOURNAL does not have wide readership.
3. OHP support the proposal that PCOM should set aside some drilling days (OHP suggest 12 per year or 2 per leg) for short objectives. To be workable, it would be necessary to publicize the ship track and to invite proposals for targets along it.
4. OHP are concerned that manuscript handling (deadline management, MS turnaround to reviewers, communication with editorial board, blue-pencilling etc) is not being handled efficiently, and that in consequence the pressure on scientists to complete MSS in a timely fashion is being squandered to the detriment of the final product.
5. OHP are convinced that blind whole-round sampling and freezing for Organic Geochemistry should be terminated at once, and that the majority of the material should be split and returned to the normal repository forthwith (priority being given to heavily-sampled APC Holes).
6. OHP would prefer to have no membership changes for their next meeting and to aim for panel turnover at the regular fall meeting. In the event that PCOM wish to replace the members due to retire, names are given.
7. In the event that leg 137 has time in hand, OHP assures PCOM that good use for paleoceanographic purposes would be made of the sites proposed in proposal 373/E.

Present: N J Shackleton, John Barron, Wolfgang Berger, Bill Berggren, Tim Bralower, Peter Davies, Albert Hine, Eystein Jansen, Dennis Kent, Thomas Loutit, Alan Mix, Hisatake Okada, Lisa Pratt, Edith Vincent; Hugh Jenkyns (PCOM), Judith MacKenzie (SGPP), Guy Smith (LITHP) and Jack Baldauf (TAMU).

Apologies for absence were received from Peggy Delaney, and from Rainer Gersonde who was to have represented Rüdiger Stein / Gerold Wefer.

Peter Davies welcomed us to Canberra on behalf of the Bureau of Mineral Resources and gave a brief introduction to the Bureau.

PCOM report (Hugh Jenkyns)

STRATCOM is a subgroup for developing the strategy for renewal of the Drilling Programme. PCOM has discussed whether the program would be best presented in terms of a small range of programs that are highly focussed, or in terms of a broader range of opportunities more along the lines of the existing themes of the LONG-RANGE PLAN. The latter approach was the consensus.

OHP is asked:

- 1) to integrate existing proposals into themes from the long range plan
- 2) to plan to obtain proposals for themes not presently represented
- 3) to integrate interdisciplinary interests
- 4) to determine whether it is necessary to identify coordinators for thematic programs.

New Working Groups and DPG's were reported:

WG on Sea Level

WG on Deep Drilling (has already met once but no report is available)

DPG on North Atlantic / Arctic Gateways

DPG on N Atlantic passive margin evolution.

HJ outlined the mandates of these groups. NJS added that he had submitted suggestions for members of the first three of these and thanked those many members who had sent their suggestions to him.

Other requests from PCOM are agenda items below.

The JGOFS' request to use leg 138 opportunity to gather information (at no cost expense to Leg 138) was approved by PCOM; OHP welcome this especially if it eases a transition to more meaningful interaction with JGOFS, if they extend their interest in fluxes over geological timescales.

Liaison with the Nansen Arctic Drilling initiative was formalized.

Liaison with GSGP was formalized and Bralower agreed to keep NJS in touch (NJS ACTION: ask PCOM chairman whether liaisons to other organizations appointed by PCOM have a mandate to inform the relevant thematic panels?)

TAMU Report (Jack Baldauf)

Jack Baldauf Reported on activities at TAMU and again OHP greatly appreciated the opportunity to be kept abreast of progress. He reported on the state of staffing: 134 and 135 are complete and legs to 139 are in progress of being staffed.

JB then presented interesting graphs showing the number of applicants for each ODP leg (ranging from around 36 to 100) broken up by affinity. Variability reflects planning lead-time (eg 115 was scheduled at short notice) as well as true community interest. It was questioned whether people in the scientific community realized that they had such a high chance of success in applying.

Here as well as elsewhere in our discussions it was questioned whether the JOIDES journal is read (as opposed to circulated) sufficiently widely to inform the community. It was suggested that JOIDES Office should use another forum (eg EOS) on a regular basis to announce opportunities, indicate the likely ship track, indicate areas for which proposals would be welcome, list upcoming legs, list priority themes...

Moving to publications, JB showed how the production is moving towards the target production schedule and indeed one A-volume has already beaten the 12 month target. Despite the loss of some real science OHP are pleased to see this trend. However they do have some constructive concerns:

- 1) several members feel that time and effort in TAMU is being wasted copy-editing initial submissions and that this time should be devoted only to revised MSS. Some authors re-write to such an extent that almost nothing that had been copy-edited survives, while others feel inhibited from reacting to reviewers because of the apparent "finality" of the copy-edited document. On the other side it was reported that revised MSS pass without further attention, so that errors that would have

been spotted by the copy editor, as well as more trivial features that he/she would have changed, go through to the final print. It was also reported that, in some cases, the copy-editing is scientifically wrong; possibly TAMU should include a statement that the copy-editor's notes are not "final".

- 2) several members noted that the review process is sometimes very seriously delayed with MSS sitting on a desk in TAMU, that could be out in the process, not so much through individual failing, as because somebody else is responsible for approving the reviewers. NJS suggested that in most cases MSS could be sent straight out on day of arrival, after a secretary has telephoned a potential reviewer (from the list identified by the author) to confirm his willingness. The Review Board would simply be notified, with the freedom to suggest additional reviewers if they felt it necessary. It was suggested that on occasion members of the Review Board show personal bias to such an extent that it might be fairer to the authors to give more responsibility to disinterested personnel in TAMU.

Engineering Leg Report

Jack Baldauf reported on the engineering successes and scientific failures of Leg 132. Concern was expressed that so much emphasis was put on success whereas by comparison with the expectation that sufficient drilling would be achieved to justify the presence of a skeleton scientific party, the leg was a failure.

Leg 133 Report (Peter Davies)

Peter Davies and Judy Mackenzie reported on the successes of Leg 133. The leg drilled 36 Holes at 16 Sites with excellent APC recovery, but poor recovery in reefal material. A preliminary report was circulated. OHP were delighted by the scientific expectations aroused by the presentation.

Prioritization of the FY '92 options (Final CEPAC Compilation)

The philosophy of prioritization was discussed. Jenkyns reassured the panel that the plans for FY 1992 are not pre-determined and that PCOM will make the plans on the basis of panel prioritization rather than on the plan outlined a year ago (which contained no program with any content of interest to OHP. For the benefit of new members who had not been present at the last meeting when the whole range of proposals including those in the CEPAC prospectus had been ranked, a brief discussion of each of the three proposals with OHP content was held. In the subsequent voting 9 members rated the North Pacific Neogene transect highest.

The North Pacific Neogene transect is an essential component of the strategy formulated in the COSOD 1 report, wherein latitudinal and depth transects are drilled to delineate the evolution of critical components of the ocean circulation system. The North Pacific has up to now yielded little of its history because so many of our tools depend on the presence of carbonate microfossils. Now a range of sites have been identified taking advantage of the survey and piston coring of Detroit and Patton-Murray Seamounts that will fill several needs in the region including the history of both surface- and deep- water mass evolution in the N.W. and N.E. Pacific. The leg will sample high resolution Neogene sections that are important in relation to our long-term goals in "Short-period climatic change" and in "The carbon cycle and paleoproductivity". OHP considers these High-Latitude North Pacific sites to be a critical component of its global array of high-resolution transects. Three sites at Detroit Seamount will address differences in the Neogene histories of mid-depth and deep waters (2400-3900m) with important implications for carbon cycle models. An East-West transect of three sites near 45W will extend a transect begun with Leg 86, adding valuable information on Neogene siliceous and eolian sediments, ice rafting and polar front migration. In addition significant contributions to our knowledge of Paleogene and Cretaceous paleoceanography will come from both sediment sampling and from the improved tectonic reconstruction that will result from basement dating.

Atolls and Guyot Program

The Atolls and Guyot program was rated second, with four first-place votes.

The Atolls and Guyot program addresses several topics of interest to OHP, primarily in relation to Mesozoic and Paleogene paleoceanography and low-frequency environmental variability. The most important of these is the determination of timing and causes of drowning of Cretaceous atolls in the Pacific Basin. This is a question that has concerned marine geologists for several decades, and which can only be resolved by ocean drilling. The timing of this event will be compared to the evolution of carbonate platforms in the Atlantic and Tethys, and to climatic, tectonic and eustatic events. In addition, this drilling program should obtain Cenozoic and Upper Cretaceous sections with possible recovery of rare Pacific mid Cretaceous black shales. Black shales have already been drilled on other shallow water settings in the Pacific, including Horizon Guyot and Shatsky Rise. The proposed transect should allow the evaluation of temporal and spatial occurrences of an oxygen minimum zone. In addition, it is possible that K/T boundary and Paleogene sections may be recovered at shallow burial depths.

Many of the objectives will be achieved regardless of the coring system utilized. However, it is clear that the results of the whole program will benefit greatly from successful deployment of the DCS system. We hope that every effort will be made by ODP to have the system operational for this program in 1992.

Although not primarily aimed at sea level problems, this program can make a significant contribution to our understanding of questions relating to the history of sea level, because if any sea level change observed in this environment proves synchronous with a change in a continental margin, it is most unlikely that a synchronous tectonic effect would be the cause. Even though we are not optimistic about the sea level objectives, the Atolls and Guyot program addresses several items of great interest to OHP and we strongly support implementation of this drilling program.

Bering Sea History

While rating the Bering Sea a clear third of the three OHP programs the panel do retain a very strong interest in this program. No drilling has been attempted in the Bering Sea since 1971, so that any drilling in the area must appear more speculative than drilling in easier latitudes, but the panel consider that reconnaissance drilling may often produce more exciting results than highly focussed and well-planned drilling, and that there is a place for excitement in a program such as ODP.

The Bering Sea History program addresses Cretaceous through Neogene climatic and oceanographic objectives of OHP in the highest-latitude region of the North Pacific. These studies will fill an important gap in high-latitude regions and are needed for comparison with completed transects in the Antarctic and Norwegian-Labrador seas.

High resolution studies of dominantly biosiliceous sediments will document Plio-Pleistocene environmental changes in the Bering Sea including productivity and sea ice histories. Records of ice-rafted debris will document onset and variability of continental glaciation in the circum-N-Pacific region. This proposal will study the environmental effects of the opening water mass exchange between the Pacific and the Arctic, and the Bering Strait. Although sparse, carbonate presence may allow the construction of isotopic records and possibly provide a climate proxy for the Arctic.

Any Cretaceous and Paleogene sediments that will be recovered will provide a unique high-latitude record for the North Pacific. Currently, no pre-middle Miocene deep-sea reference sections exist for the North Pacific north of 40°N. These records may provide critical correlation to the Cretaceous-Paleogene of the Russian platform.

Leg 137 Options

Leg 137 is intended to work on Hole 504B, clearing junk and deepening the hole. However, it is possible that this operation will fail and the hole may be abandoned before the end of the available time. In case of this eventuality OHP reexamined Proposal 373/E for APC work in the area. NJS pointed out that it had been difficult for him to guide OHP towards prioritising this proposal since the strongest arguments would have been based on his own work, still in press. However, he pointed out that the data from Site 677 was already obtaining considerable attention and that high-resolution studies of all the four main fossil groups are now being undertaken (in Texas, Bergen, LDGO, Stockholm, Cambridge). The following points were noted in support of further APC coring nearby: 1) because the target overlap for 677A and 677B was only 1.5 meters, several inter-core gaps are not in fact covered. 2) the Hole 677B terminated at 100 mbsf so that no inter-core gaps are covered below that depth. 3) APC coring was not carried as deep in section at Hole 677A as could be hoped. 4) In view of the importance of the record from Site 677 for astronomical calibration of the Plio-Pleistocene timescale, independent data from a nearby site would be especially valuable. 5) the objectives of proposal 373/E (related to spatial differences in down-hole diagenetic change associated with pore-water convection patterns) may have important implications for the paleoceanographic (particularly isotopic) record deeper in the section.

Whole Round Sampling

OHP were unanimously opposed to the continuation of blind sampling for freezing, just in case the samples might be of greater value in the future. The revelation that requests for these samples has been minuscule, reinforces the widely held belief that this procedure is wasteful of resources and ship-board manpower, and on many occasions significantly hampers the achievement of the scientific objectives of the drilling. Strong arguments were made that the existing frozen sections should be split and returned for normal access, especially those from APC cores in which high-resolution studies are commonly carried out, as well as in other Holes where sampling pressure is high.

The alternate view was offered that portions of the frozen samples, or a subset, should be retained frozen to enable comparisons to be made ("geriatric studies"); these could be much less than 30cm whole rounds and still enable continuous records to be developed where these are desired. It was also pointed out (with turkeys in the freezer as an analogue) that the procedure of simply freezing is not appropriate for true long-term preservation of organic materials, and that freeze-drying followed by storage under nitrogen would be appropriate in situations where there is a genuine interest in pristine long-term storage.

Add-on Proposals

NJS outlined the suggestion he had made to PCOM, that PCOM announce that in each year a certain number of days would be set aside for drilling, on the basis of "add-on" proposals that used the opportunity of the announced ship track to proposed limited targets which could be achieved in a very short time. Such proposals could dispel the notion that the program is inflexible, could significantly increase the number of people whose proposals influence the program and could significantly ease the possibility for an "outsider" to have an impact. Disadvantages would be the need for additional site-survey and safety panel work, the need to staffing to be responsive with the possibility of the legs being more varied than has been the case in many recent legs.

Despite the difficulties, OHP unanimously supported the proposal that PCOM should seriously consider such a scheme on the basis of about 12 days per year (2 days per leg) being the maximum time available.

After reviewing proposal 386/E (see below), OHP returned to the question posed by PCOM as to whether a Santa Barbara Basin single hole should be proposed, should PCOM agree to set up the scheme. This would appear to be an ideal case, since OHP had already prior to its previous meeting, received a letter proposal that a single APC site should be occupied in the Santa Barbara Basin in transit, and a proposal for this hole is now embedded in Proposal 386/E. OHP unanimously agree that this would make an excellent Site to open the scheme, for the following reasons:

a) There is broad interest in the paleoceanographic community for drilling in Santa Barbara Basin (see letters by J. P. Kennett, J. Barron; proposal by Lyle et al., 386/E).

b) In the context of Global Climate Change, a recently convened panel on Earth System History (NSF, July 1990) identified two topics as being of the first priority:

- 1) high resolution studies of climatic fluctuations and
- 2) the role of the ocean in the global carbon cycle.

c) The Past Global Change (PAGES) component of the International Geosphere Biosphere Program (IGBP) is especially focussed on the past 2-3 glacial cycles.

d) Along similar lines, there is a new initiative from DOE for studies focussed on ultra-high resolution of recent changes in sediments related to the CO₂ problem.

The sediments in the Santa Barbara Basin are ideally suited for ultra-high resolution studies of marine records with regard to change and of the global carbon cycle. They are being deposited

in a semi-enclosed basin with a sill depth within the oxygen minimum zone. Thus, little oxygen enters the basin. The high productivity in overlying waters, due to seasonal upwelling, leads to a high supply of organic matter and corresponding depletion of oxygen in the bottom water. As a consequence, anaerobic conditions develop near the sea-floor, preventing benthic macrofauna from disrupting the sediment. A bacterial mat develops which acts as a sediment trap. Seasonal changes in the quantity and quality of sediment supply provide for annual varves. The existence of both a terrigenous-clastic and marine-biogenic signal allow for detailed reconstruction of climatic fluctuations. Due to the high organic carbon content of the sediment, the carbon isotopic record of carbonate can be directly compared to the carbon isotopic composition of individual biological markers on a lamina by lamina basis.

During El Nino periods supply of organic matter to Santa Barbara Basin is greatly decreased. At those times, benthic macrofauna can invade the deep basin due to a rise in oxygen content. The bacterial mat is then destroyed and varves are damaged. Thus, the sediments contain also a record of the frequency of El Nino events.

The sedimentation rate (0.5 to 1 m/1000 yr) is such that APC coring to about 300 mbsf should retrieve a substantial portion of the Pleistocene record (ca. 0.5 million years). High resolution studies on the effect of sun spot cycles (11 yr.) and other solar cycles should be possible. A tie-in to deep-sea stratigraphy would greatly enhance our knowledge about the history of coastal upwelling in the Milankovitch time scale. This knowledge is necessary to properly understand changes in the carbon dioxide content of the atmosphere as seen in ice cores.

Time requirements:

Detour during transect Los Angeles - Victoria about 4 hrs.
Set-up and leave site about 6 hrs.
Drilling (1/2 hr per core for 30 cores) 15 hrs.
TOTAL: 25 hrs.
With Double-APC Total: 40 hours.

We recommend that the proposers of Proposal #386 be contacted and asked to prepare the necessary documentation for their site CA-10, for possible inclusion in Leg 139 or wherever PCOM deems appropriate within the Central and East Pacific program.

Proposal Reviews

General discussion

OHP had a fruitful discussion of reviewing procedure. NJS admitted that proponents were perhaps not receiving as much feedback as they desired. At present the Chairman is provided with a form to fill out which implies that comment from the panel for transmission to the proponent is only required if the proposal is of interest but has deficiencies. One question is what form of comment should be sent to a proponent whose proposal, even if re-vamped in a major way, is unlikely ever to be drilled in a program such as ODP. On the other hand even a very highly-rated proposal has a low chance of being drilled: that is the proposal that really deserves further work to enhance its chances. WHB suggests that the form should be redesigned to easily give the proponent an idea of the likely timescale for further action if any. NJS proposed that, in future, instead of asking a panel member as watchdog to abstract a proposal for the benefit of the panel, he would assign the task of writing a review of the proposal, after the panel discussion, and ensure that the proponent receives the review. This will certainly result in the proponent getting more feedback than at present. In discussion, several other pieces of information were identified that could also be of use to a proponent: an idea of the planned ship schedule (or advice as to where this information is to be found); information as to what proposals are currently highly rated; knowledge of the identity of the panel member acting as watchdog/reviewer; the membership of the panel (or the source of the information) so that the proponent can identify a friend who can explain the situation; advice on the "political" aspects, such as, that a focussed proposal is more likely to succeed than a catch-all proposal for the same area.

380/A REV No OHP interest

381/A OHP discussed this at their last meeting although it was a preliminary submission. T J Bralower is the watchdog.

382/A No OHP interest

383/A No OHP interest

384/A A Mauffret, G Wagoner and J Diebold: An ODP Proposal to Study the Connection Between the Pacific and Atlantic Oceans Venezuela Basin and the Aruba Gap

This proposal contains elements that interest the OHP panel. However, the potential ocean history is not well developed and is only generally addressed. The OHP panel considers that the paleoceanography would be better presented as a separate proposal. Alternately, the panel recommends that paleoceanographic objectives be added.

Specifically, examination of the carbon cycle could be addressed by comparing onshore (rich units La Luna Fan) to what might exist offshore in an attempt to determine how long-term, high productivity can be sustained.

If the proponents would appreciate help on the OHP aspects, OHP recommends the proponents contact Professor Isabella Premoli-Silva (University of Milano) or Dr Larry Peterson of RSMAS (University of Miami) for advice. Dr Premoli-Silva has both panel and Caribbean WG experience; Dr Peterson has expertise and interest in Caribbean ocean history.

385/E OHP declined to review this since it is apparently already scheduled, but note that for PCOM to agree to an "add-on" of this nature is in the spirit of the OHP resolution relating to such proposals.

386/E REV Lyle et al. California Margin Drilling. Alan Mix watchdog. This is a re-working of proposals 271/E and 350/E taking account of earlier OHP communications. It addresses questions of considerable importance to OHP; both from the point of view of the importance of the ocean current, and of the high productivity associated, this system must be investigated by drilling at some stage.

387/ No OHP interest

388/E Curry, Backman and Shackleton Ceara Rise Transect (P. Davies chaired the discussion; Alan Mix watchdog). This proposal had been solicited by OHP so as to ensure that when plans are made to drill the western equatorial Atlantic are being discussed a depth transect is among the options. The following points were made:

- 1) survey data are needed (as the proponents appreciate)
- 2) the chosen depth spacing is somewhat arbitrary but survey will probably firm it up; if possible a deeper end-member would be desirable.
- 3) the possibility of turbidites crossing the Ceara Rise was brought up by Mix (work by J. Damuth).
- 4) the question of the optimum site for deepening to Mesozoic objectives will be considered by Bralower.
- 5) Kent will investigate the magnetic properties of DSDP354 so that the proponents can better predict the chances of good magnetostratigraphy being obtained.

247/E ADD OHP noted this addition, comprising a manuscript submitted to Paleoceanography by Zahn, Pederson, Bornhold and Mix entitled: Water Mass Conversion in the Glacial Subarctic Pacific...

PCOM agenda item: achievements in relation to COSOD-1 objectives

Jenkyns explained that PCOM would like input from thematic panels (as well as from individuals, co-chiefs etc) on the success that ODP has had in relation to the objectives prioritized at the COSOD-1 meeting in 1981 that provided the blueprint for ODP. This input is likely to be used in the renewal process. There was considerable discussion as to what the chief achievements had been.

What follows is the input compiled at the meeting; NJS will refine it to the required 1-page length as a separate exercise. It was agreed that the exercise had been of value to panel members.

Reconstructing Vertical and Horizontal Palaeo-Oceanographic Transects was a major strategy evolved in COSOD I. Legs 107, 108, 112, 113, 115, 117, 119, 120, 130, 138 all contribute to a global array, which will be to first order completed for the Neogene by transects in the North Pacific, across the Californian Current, in the Western Equatorial Atlantic and in the Norwegian Sea. Drilling in the depth range of Intermediate Waters is also required to provide adequate vertical coverage. This drilling strategy has been extremely successful, contributing to many of the themes listed below.

Orbital variations

High resolution study of ODP's continuously cored sections have led to the view that orbital rhythms are pervasive in the record of past climates (DSDP Leg 94 and ODP Legs 108, 111, 117, 121, 129, 130, and others planned). The ocean sediments act as multi-channel recorders of various aspects of climate change, with orbital signals recorded in carbonates, magnetic susceptibility, wind-blown sediments, faunal and floral indices, stable isotopes, well-logs, and other parameters. The orbital signatures vary spatially and evolve through time. This important result has major implications for mechanisms of climate change, such as decoupling of monsoonal circulation in the tropical Atlantic and Indian Ocean from high-latitude climates.

Orbital Tuning of Geological Timescale

Huge advances for the past 3 million years (Legs 94, 108, 111) and material recovered that may extend calibration significantly (Leg 121, 128, 130, 133). Further extension into the Paleogene has been slower than was hoped, although recently exciting work using DSDP sections has been published for the Oligocene (leg 73) and the Latest Mesozoic-early Cenozoic (Legs 39,72 and 74).

Carbonate Stratigraphy

APC coring has recovered undisturbed carbonate cycles to a depth of approximately 300 mbsf, corresponding (in pelagic carbonates)

to the last 10 million years. Detailed correlation of carbonate cycles between adjacent sites at different water depths reveals an important paradox (Leg 130): the differences in carbonate percentages are much too small to account for the differences in sedimentation rates. This implies that carbonate dissolution conditions the sediment for increased loss of non-carbonate material. The finding it has important implications for the nature of the CCD, and for the interpretation of carbonate cycles in the context of CO₂ fluctuations.

Patterns of Evolution of Micro-organisms

Spatial-temporal biogeographic patterns are being studied in the framework of an improved chronologic framework. Knowledge of high latitude assemblages in the northern (Legs 104, 105) and southern (Legs 113, 114, 119, 121) hemisphere have been considerably improved. We have a much better understanding of faunal and floral response (turnover, speciation) to oceanographic and climatic events (eg Paleocene/Eocene boundary, Eocene/Oligocene boundary, mid-Miocene cooling). Morphometric (shape analysis) studies are now being conducted on calcareous and siliceous microfossils, yielding testable models of speciation. Recovery of a large number of K/T boundary sections provide the data for extinction and recovery patterns in different microfossil groups.

Continental History

Mesozoic/Paleogene warm vegetated Antarctic Continent documented (Legs 113, 119, 120). Glacial history of Antarctica well defined back to around 40my (Leg 119) and earliest Antarctic ice-rafting history documented in Leg 113, 114, 119, 120. Detailed history of glaciation in the N-Hemisphere documented back to the late Miocene, with major intensification at 2.5 and 1 Ma (Legs 104 and 105). Aridity history of tropics deciphered (Legs 108, 117, 121).

Polar Oceans, Northern Hemisphere

Reconstructions of deep water characteristics show that deep water formation in the Norwegian-Greenland Sea goes back to the middle-late Miocene boundary, and has been variable since that time (Legs 104, 105). Intensification of temperature gradients and deep-water overflows happened in the Pliocene at 4Ma (Legs 104 and 105).

Polar Oceans, Southern Hemisphere

Extraordinary temperature structure, perhaps providing the best evidence for "warm salty bottom water", in the Eocene (Leg 113); detailed reconstruction of circulation history through the Cenozoic (legs 113, 114, 119, 120).

Carbonate Platforms

ODP advances in understanding carbonate platforms include defining: The relations between platform evolution, plate motion, climate and sea level. The dependence of basin sedimentation on platform growth. The age and origin of the Great Barrier Reef (133), the mechanisms of platform dolomitization (133). Lateral progradation as a fundamental process in platform evolution (115). Sea level change in the Plio-Pleistocene and mid Miocene.

Substantial advances have been made in understanding the relationships between platform evolution, on the one hand, and plate motions, climate and sea level, on the other (Legs 101, 115 and 133).

Mesozoic oceans

ODP advances in Mesozoic Paleooceanography include:

Recovery of Upper Triassic Shallow water and fore-reef sediments, the oldest marine sediments in DSDP/ODP. These sediments include some of the oldest calcareous nannofossils (ODP Leg 122, Sites 761, 764).

Recovery of sediments deposited in the Jurassic Superocean including cyclic radiolarites similar to those from Tethys (ODP Leg 129, Site 801).

Recovery of early Cretaceous high-latitude black shales (ODP Leg 133, Site 393).

Recovery of the Cenomanian-Turonian boundary OAE (ODP Leg 103, Site 641; ODP Leg 122, Sites 762, 763).

Recovery of relatively complete K/T boundary sections in a latitudinally diverse range of sites ODP Legs 113, 199, 120, 121, 122, 130.

Absence of Cretaceous black shales in the deep sea documented in many fine intervals when they might be expected eg Leg 122.

History of Earth's Magnetic Field

The routine operation of a cryogenic magnetometer on the JOIDES RESOLUTION, combined with a zinc-coated drill string to minimize contamination, and APC coring, have allowed real-time magnetobiostratigraphic analysis. There are areas/intervals where the magnetic record is intrinsically poor (eg, pre-Pleistocene on leg 108, 121, 130. This is now known to be related to diagenetic reduction of magnetic minerals. Magnetic results from Leg 115 and Leg 121 place important constraints on true polar wander and the hotspot reference frame.

Evolution and Extinction

The material collected by DSDP/ODP for paleoceanographic purposes has provided the ideal base for studies of the evolution of calcareous and siliceous microfossils. Nevertheless concern exists that other resources (eg funding) do not enable these studies to be completed. OHP are convinced that the perceived failure to accomplish COSOD-1 goals in this area is not due to lack of proposals or to lack of suitable sites actually drilled, but to insufficient advantage being taken of the material collected. The need for a workshop on opportunities for studying evolution were identified. Bralower, Berggren, Barron will contact other interested parties and formulate a proposal.

PCOM Request (Motion relating to the Long-Range Plan).

OHP discussed the four questions from PCOM and considered that they deserved little attention (or that OHP chairman did not fully understand PCOM's request).

Specifically:

- 1) It is already OHP policy when ranking proposals, to group them according to the themes outlined in the long-term plan and to prioritize them within those themes (see minutes of last meeting).
- 2) It already OHP policy when they perceive a need for proposals in particular areas, to seek means of obtaining proposals to cover them (see, eg, Proposal 388). However, they are also aware that it is undesirable to solicit proposals from outsiders without taking account of the reality that with only a total of six legs a year for all themes from all panels, the most likely interval that will elapse between initial submission of the proposal and eventual drilling is infinity. One should only solicit proposals for goals that have reasonable priority.
- 3) OHP do not consider that coordinators are needed for themes. OHP considers that such an approach would alienate the community, stifle innovation, and create a situation in which the program was indeed a closed-shop run by insiders (noting that whenever an outsider comes into the system, he/she immediately is deemed an insider).
- 4) OHP do not feel they can be faulted for failing to integrate interdisciplinary interests.

Other business

NJS reported a letter from J-P Valet requesting endorsement of his request for dedicated C-holes at four leg 138 sites, in order for him to do non-destructive measurements on complete sections for rock- and paleo-magnetic objectives. OHP consider that, at this stage, the request can only be handled in the normal manner by the co-chiefs and the remainder of the scientific party. The point was made that Valet is one of three invited scientists interested in the magnetics area and that it would be inappropriate for the panel to make any recommendation that would give him privileged access to the material. Were the panel to have wished to make recommendations, they would certainly first have sought arguments for whole-core analysis, rather than channel-samples. In addition, the panel felt that, since the overall objectives are likely to require third holes to ensure 100 per cent stratigraphic cover, and that this carries the implication that samples must be available from all three holes in such situations in order that the scientific party can actually take detailed samples through 100 per cent sections, it would not be appropriate to dedicate whole holes for a single purpose, even if it were non-destructive. The panel do of course anticipate that Valet will find support for his objectives among the Leg 138 party.

Panel membership

NJS explained that, in his opinion, the October meeting is the appropriate one for new members to arrive, and that he intended to request that the two members (Kent, Berger) whose three years have ended, be permitted to remain members through the next meeting.

The panel agreed whole-heartedly, particularly bearing in mind that we have four new members at this meeting, none of whom have previous panel experience.

In the event that PCOM insists on replacing Kent and Berger the panel discussed their requirements. It was universally agreed that when Kent is replaced, it should be by another magnetostratigrapher, preferably one with both Mesozoic and Cenozoic expertise, and suggest:

Jim Channell
Neil Opdyke

Notwithstanding the PCOM remark on Mesozoic expertise the panel considers that its weakness in Paleogene expertise is more serious. It was noted, however, that the panel is heavily dominated by members with no previous panel experience and has few members with a breadth of experience over the wide area that we are responsible for, and that they would be minded to ask PCOM to renew Berger's membership because of his immense breadth, enthusiasm and wisdom. If PCOM feel unable to do this, two names were identified:

Jim Zachos PhD c. 1988 (Michigan) Stable isotopes, trace elements, paleoceanography. No panel experience, 1 (check) ODP leg
Anne Boersma PhD c. 1975 (Microclimates, New York). Benthic foraminifera, paleoceanography. No panel experience, 3 DSDP/ODP legs, broad knowledge of existing sites. Both have particular Paleogene expertise extending into the Mesozoic and the Neogene.

Fall 1991 meeting

Barron drew attention to the fact that in October 1991 Japan will host the final meeting of IGCP project 246 "Pacific Neogene Events in Space and Time", which will be attended by Okada and probably by Barron. Okada would be happy to host an OHP meeting in Yamagata (which would not be as expensive site as Tokyo is) and Barron pointed out that there are several panel members who would certainly attend the IGCP 246 meeting if their way to Japan were paid. This would undoubtedly have a significant effect on the extent to which ODP achievements were recognized in the final reports of the meeting. He mentioned that the attendance will be interesting, in that it will include many geologists from smaller Asian countries with knowledge to which we do not usually have access. OHP agreed that, despite the fact that it is unfortunate that the travel costs will be higher than the likely alternative (France, taking a normal rotation), it would be extremely desirable to be able to accept Okada's invitation (Oct 4-6 1991), and NJS agreed to seek provisional approval from PCOM so that members can make plans. It is hoped (next item) that the intervening meeting will be an inexpensive one.

Next Meeting

Considerable difficulty was found in identifying a convenient time and place. Bralower offered to host the meeting at Chapel Hill, University of North Carolina, February 28 - March 2.

Items to report

Kennett has USSAC support to organize an Antarctic Synthesis Workshop at UCSB, August 28 - 30, 1991. (NB: DATE CHANGE: NOT THE DATE GIVEN IN CANBERRA).

A USSAC workshop on the Paleogene is being held at Lake Arrowhead, January 4 - 6, 1991.

Letters relating to the proposed system to facilitate the acquisition of biostratigraphic data into the Joides Resolution computer system were read. OHP biostratigraphers were asked to prepare a response.