

**OCEAN HISTORY PANEL MINUTES  
4-6 MARCH 1993 SANTA CRUZ, CALIFORNIA**

**EXECUTIVE SUMMARY**

**Meeting description.** The Ocean History Panel held its spring 1993 meeting 4-6 March in Santa Cruz, CA, hosted by Margaret Delaney, the panel chair. The Sedimentary and Geochemical Processes Panel also met in Santa Cruz, with a joint session of the two panels on the morning of the second day. (Minutes, item 1)

**Reviews of new proposals.** We then reviewed the twenty new submissions. Panel views were summarized in written reviews and in tabular form. (Minutes, item 4b)

**Joint OHP/SGPP session.** We heard presentations, followed by active discussions, on the following topics: sea level, DCS, Leg 138 correlation techniques, the recent SMP/IHP meetings, non-engineering wish list priorities, and the Advisory Structure Review Committee Report. We discussed areas of mutual OHP/SGPP interest. (Minutes, item 5)

**Non-engineering wish list priorities.** There was general agreement from OHP that the consensus list presented by Moran adequately represented our needs. However, when the carbonate autosampler becomes available from the manufacturer, it will be of highest priority to OHP. It is currently not on the list. A significant contribution to micropaleontological needs would be to allow more than the standard number of plates in biostratigraphic chapters to encourage a lasting and accessible documentation of taxa. (Minutes, item 5f)

**Global ranking.** (Minutes, item 6d)

#	Proposal number and abbreviated title	No. voting	Total points possible	Total points awarded	Fraction awarded/available
1	NAAG, Leg II	14	189	178	0.942
2	430 Sub-Antarctic SE Atl. transect	15	202	174	0.861
3	354-Rev/354-Add Benguela Current	14	190	143	0.753
4	415-Rev Caribbean	15	202	142	0.703
5	386-REV2/422-REV California Current	14	189	123	0.651
6	404 Neogene/W. Atl. sed. drifts	15	202	122	0.604
7	427 South Florida margin sea level	14	189	95	0.503
8/9	391-Rev Mediterranean Sapropels	15	202	93	0.460
8/9	079-Rev Mesozoic Somali Basin	14	189	87	0.460
10	337/337-Add EXXON SL test, N Zealand	14	189	69	0.365
11	253-Rev/253-Add Ancestral Pacific	15	202	61	0.302
12	347-Rev Cenozoic s-equat. Atlantic	14	190	56	0.295
13	406 North Atlantic climate	15	189	52	0.275
14	367/367-Add Cool water carbonate	15	202	35	0.173
15	Bering Sea (CEPAC)/390	15	202	34	0.168

See minutes (item 6e) for a brief statement of scientific justification and assessment of drilling readiness for each ranked program.

**Coring issues.** We noted two areas of high concern for OHP with regard to core recovery and integrity. (1) There is a clear need for improved core handling strategies in sediments with high gas contents, such as those found at Site 893, Santa Barbara Basin site. (2) As documented by the outstanding data sets from Leg 138 and on earlier legs, we note the consistent offset in both APC and XCB sections between mbsf and composite depth scales reflecting stratigraphic continuity. A greater understanding of the reasons for these offsets, along with improvements to minimize them, are needed (see similar statement, Spring 1992 OHP minutes). (Minutes, item 8a)

**Advisory Structure Review Committee Report.** We held a lively discussion with Bill Hay, ASRC, of the panel views of the report's recommendations. (Minutes, item 8b)

**OHP business.** We discussed upcoming panel rotations and the ongoing revisions of the OHP white paper.

**NAAG, Leg II planning.** Given the high ranking of this program in our global ranking, we intend to hold a one-day planning session just prior to our Fall 1994 meeting to finalize a drilling plan based on the results of Leg 151, the NAAG-DPG, and other proposals currently in the system. Attendees to be invited include representatives of the OHP panel, the chief scientists of Leg 151, the NAAG-DPG, and the various proponent groups. (Minutes, item 10)

**Future meetings.** The Fall 1993 meeting is scheduled for 6-8 October 1993 in Bremen, Germany, with Gerald Wefer as host. The NAAG-II planning day is 4 October. The Spring 1994 meeting is tentatively scheduled for 29-31 March 1994 at University of Massachusetts, Amherst, with Mark Leckie as host, and the Fall 1994 meeting for Australia, with Bob Carter as host.

## **OHP MINUTES**

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**OCEAN HISTORY PANEL  
4-6 MARCH 1993**

**DETAILED MINUTES**

**1. INTRODUCTIONS AND MEETING LOGISTICS**

The Ocean History Panel held its spring 1993 meeting 4-6 March in Santa Cruz, CA, hosted by Margaret Delaney, the panel chair. The Sedimentary and Geochemical Processes Panel also met in Santa Cruz, with a joint session of the two panels on the morning of the second day. The OHP meeting opened with introductions of all present, and with welcomes from Delaney and from Gary Griggs, director of the Institute of Marine Sciences at the University of California, Santa Cruz. In attendance were the following panel members:

Jan Backman, John Barron, Gregg Blake, Robert Carter, James Channell, Margaret Delaney (chair), Albert Hine, Mark Leckie, Anne Marie Karpoff, Lisa Pratt, Maureen Raymo, Kozo Takahashi (alternate for Hisatake Okada), Philip Weaver, Gerald Wefer, and James Zachos,

with the following liaisons and guests:

Will Sager (PCOM; arrived day 2), Tim Francis (TAMU-ODP), John Firth (TAMU-ODP), Brian Huber (IHP), Kate Moran (SMP), John Tarduno (LITHP), Elizabeth Ambos (NSF/ODP), Bill Hay (ASRC), and Teresa Hagelberg. Some guests visited both OHP and SGPP sessions.

Regrets had been received from Timothy Herbert, Hisatake Okada, and Alan Mix (PCOM).

**2. PRIOR MINUTES**

No comments or changes were required. The chair thanked panel member Herbert for his assistance with keeping minutes.

**3. REPORTS**

**a. PANEL CHAIRS AND PCOM ANNUAL MEETINGS Delaney**

Delaney reviewed the issues about Leg 150 (New Jersey margin transect) relative to the review process and the responsibilities of proponents. It would be wise to encourage proponents to construct drilling plans as a series of prioritized alternates to allow greater flexibility in the face of such problems. Although proposals for less-than-a-leg science are encouraged, there will be no continuation of the "add-on" science alternative. Packaging these sites will fall to the thematic panels. The role of the thematic panels was discussed. Panels could become more active in encouraging thematic synthesis volumes. Delaney noted that the Ocean History community has been active in producing such volumes already. The status of the DCS was discussed.

In the absence of the PCOM representative (arriving day 2), Delaney summarized the discussions and decisions of the annual PCOM meeting. These included: the accepted, revised plan for Leg 150; the schedule for Legs 152-158; the core repository discussion; and the acceptance of the Sea-Level Working Group Report. The site survey panel review deadlines for constructing the prospectus and drilling program for FY95 were noted (1 March, preview of highly ranked programs for readiness; 1 July, review for inclusion in prospectus; 1 December, final deadline for readiness). Substantial discussion of Leg 150 issues and the lessons to be learned were noted. Because of the implications for shallow water drilling, we look forward to the results of the shallow water working group.

**b. LITHP news Tarduno**

The potential areas of OHP/LITHP overlap in existing proposals were noted (253-Rev/253-Add Ancestral Pacific, 415/411 Caribbean, and 079-Rev Mesozoic Somali Basin). The new chair will be Sherman Bloomer.

c. **TECP**

No news was reported, as TECP is looking for a liaison to OHP.

d. **Recent and scheduled legs/Other ODP-TAMU news** Firth

Legs 146, 147, and 148 were discussed. Of particular interest to this panel were the drilling results at Site 893, Santa Barbara Basin, on Leg 146, with concern expressed about the substantial amount of gas present resulting in core disruption. We noted the need for improved methods of handling such cores given our thematic objectives including drilling in upwelling regions (see minutes, item 8a). Firth discussed the drilling schedule and the status of staffing.

**4. REVIEWS OF NEW PROPOSALS**

a. **Procedures.** Discussion centered on several points relative to proposal review. Proponents are excluded from the room during discussion of their proposals. Proposals are the documents from which the drilling program is constructed, and the goal of the review process is to provide useful feedback to the proponents in this regard. Proposal watchdogs are encouraged to contact proponents as suitable. Proposals are evaluated with regard to their scientific maturity and their consistency with White Paper, COSOD, and Long Range Plan themes. Reviews reflect the collective opinion of the panel, as summarized by the assigned watchdogs.

b. **Summary of reviews.** We then reviewed the twenty new submissions, with panel views summarized in written reviews (circulated to all panel members, as well as submitted to the JOIDES office - see section 11.). Proposals are listed below by category of review, with OHP watchdogs listed for ones within our thematic mandate. Proponents, absent during discussion, are noted. After the discussion of sea level in joint session, we revisited all sea level proposals; this is reflected in the table below and in the written reviews.

No.	Key Title	OHP Watchdogs	Proponents excused
<i>Ranking -- Addresses high-priority objectives, but with deficiencies, as noted</i>			
253-Add	Deposition of organic carbon-rich strata, ancestral Pacific	Herbert Leckie Pratt	
337-Add	Intention to revise Proposal 337	Blake Hine Raymo	Carter
347-Rev	Late Cenozoic paleoceanography, South-equatorial Atlantic	Backman Barron Karpoff	Wefer
367-Add	Cool water carbonate margin, southern Australia	Carter Channell Okada	
372-Add	Cenozoic circulation and chemical gradients, North Atlantic	Barron Blake Wefer	
422-Rev	Santa Monica Basin	Backman Raymo Wefer	
427	South Florida margin sea-level	Carter Channell Okada	Hine

429	Atlantic-Mediterranean Gateway	Backman Channell Zachos
430	Subantarctic Southeast Atlantic transect	Backman Raymo Zachos

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*Ranking -- Is of secondary interest to this panel if it is of high priority to some other panel*

408-Rev	Testing two new interpretations, Northern Nicaragua Rise	Blake Hine Pratt
412-Add	Bahamas transect: Neogene/Quaternary sea level and fluid flow	Carter Hine Karpoff

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*Ranking -- Proposal objectives are not within panel mandate*

333-Rev	Evolution of pull-apart basin, Cayman Trough
340-Rev	Tectonic, climatic, oceanog. change, N. Australian margin
419-Rev	Convergence at Azores-Gibraltar plate boundary
423-Rev	Gas hydrate sampling, Blake Ridge and Carolina Rise
424-Rev	To "CORK" Hole 395A
426	Mantle reservoirs/migration, Australia-Antarctic rifting
428	Tyrhenian Seafloor and hydrothermal sulfide deposits
431	Western Pacific seismic network
SR-Rev	Sedimented ridges II

## 5. JOINT OHP/SGPP SESSION

The session started with introductions and with a review of the agenda for the joint session.

### a. Sea level presentation and discussion.

Bob Carter gave a presentation on sea level issues in the context of ocean drilling and of the interests of OHP and SGPP in sea level. The presentation was summarized in a paper distributed to all at the session (Testing models of global sea-level change and sequence architecture, R.M. Carter). This centered on distinguishing the global sea level model and the sequence stratigraphic model. A well-constructed proposal would address one or the other, and probably not both. The global sea level model falls in OHP's mandate, as well as in SGPP's mandate. High resolution oxygen isotope records from pelagic settings are an important component of tests of the global sea level model, and fall clearly within OHP's mandate. In contrast, the sequence stratigraphic model is solely of SGPP interest. Various examples were presented to clarify these points. Discussion ensued on the interests of the two panels.

**b. DCS history and progress.**

Tim Francis gave a presentation for the education of panel members on the history, development, and current status of the DCS. There is a land test scheduled for summer 1993 and, depending on outcome of this, a sea test for Leg 157. Discussion ensued on when the system would be fully operational, on drilling rates, and on the ability to switch from APC to DCS on a single leg or to run multiple DCS legs. Moran pointed out the tradeoffs implicit in this time of severe budgetary restraints from continued DCS development (balanced against, e.g., shipboard computing environment improvements, core-core/core-log integration hardware and software, etc.).

**c. Leg 138 correlation techniques.**

Terri Hagelberg, a shipboard scientist on Leg 138, gave a presentation on the improved developments of core-to-core and core-to-log correlations in areas of continuous core recovery. After describing the history and accomplishments in this area on previous legs, Hagelberg described the scales of correlation on Leg 138 (1 - 10 m, core/log integration; decimeter-meter, shipboard composite depths; centimeter-decimeter, revised composite depths), the signals used in the APC hole-to-hole correlations (GRAPE wet bulk density, magnetic susceptibility, digital color reflectance), and the accomplishments in defining high resolution, continuous stratigraphies. Core-log comparisons showed the attenuation of signals in the logging record due to sampling times; the limit of core-log integration was at the resolution of 1 cycle/meter. Moran and Hagelberg discussed the offset between the mbsf and composite depth scales for both APC and XCB sections and the gaps between adjacent cores in a single hole, and noted that these effects are not completely explained by rebound from the elastic response for each lithology. Given the importance of high resolution, continuous stratigraphies on paleoceanographic legs, this warrants further investigation (see minutes, item 8a).

**d. News from SMP/IHP joint meeting.**

Kate Moran discussed the issues from the recent SMP meeting, including the strategy for the improved computing system; progress on core-log integration systems; the SMP system of assigning watchdogs for upcoming legs to liaison between co-chiefs, thematic panels, and the science operator about lab needs; the plans for dry dock; and the concerns about core handling in gassy sediment environments like the Santa Barbara Basin. With Brian Huber's input, the joint IHP/SMP sessions were described. Topics included: the corrections to the GRAPE system needed for high porosity environments (ODP GRAPE Evaluation: A Report to the JOIDES Shipboard Measurements Panel by J. Lloyd and K. Moran; handed out to all present); paleontological software for data acquisition; the need for the integration of information and guidelines for sample handling of the on-shore holes as part of the New Jersey margin transect; the recommendation for co-chiefs to have more responsibility in environments with low recoveries, including reduced scientific parties and/or alternate staffing schemes; the possibility of changing core archiving procedures to provide more material in the working half; and issues related to data handling.

**e. Non-engineering wish list priorities.**

Moran presented the non-engineering consensus wish list from SMP/IMP/DMP consultations. In priority order, these items are: navigation, WSTP upgrades, MSG upgrades for natural gamma, discrete resistivity, bar code readers and printers, seismic workstation, imaging resistivity, seismic towing system, XRD upgrade, hardrock velocimeter. There was general agreement from OHP that these our needs were adequately represented here. However, the autosampler for the carbonate analyzer is not yet available from the manufacturer, and so is not indicated on this list. When it is available, it will be of highest priority to OHP. Micropaleontological reference collections, an item high in OHP priorities in previous rankings, was no longer included in this list, at our request. This was not seen as a priority for expending funds, although shipboard biostratigraphers should be encouraged to contribute to a working collection. A more significant contribution would be to commit funds to allow more than the standard number of plates in biostratigraphic chapters to encourage a lasting and accessible documentation of taxa.

**f. Presentation of Advisory Structure Review Committee Report.**

Bill Hay gave an overview of the ASRC process and its report, preliminary to holding discussions

with each panel individually. He described the sections of the report dealing with white papers, the role of the thematic panels, the relationship with other programs, the role of SSP and PPSP, the composition of panels and shipboard parties, the role of PCOM, the handling of drilling proposals, and thematic synthesis volumes.

**g. Discussion of areas of mutual OHP/SGPP interest.**

We discussed the areas of mutual interest to the two panels, including sea level investigations and paleocean chemistry.

**6. GLOBAL RANKING**

**a. Strategy for global ranking, limits on proponent participation, and voting procedures.**

Existing proposals which had previously been ranked in Spring 1992 and/or reviewed at the Fall 1992 meeting as addressing high priority thematic objectives were given an overview by their watchdogs for the benefit of the panel, with panel discussion, and an assessment of drilling readiness. Existing proposals of secondary interest to the panel were also revisited to see if their status had changed since original review. Proponents left the room during discussion of their proposals.

From the existing proposals addressing high priority objectives and from such proposals first reviewed at this meeting, thematic groupings of proposals were constructed. Proposals may be included within more than one group, and parenthetical annotations [] were used to indicate other strengths of a proposal. When appropriate, proposals with common thematic interests and geographic areas were packaged into drilling programs. This categorization by thematic areas is viewed as a tool for ensuring the broad objectives of our mandate are addressed, and as a guide for evaluating where additional proposals may be needed. Within these thematic groups, proposals were ordered by consensus based on a combination of scientific importance relative to our thematic objectives, scientific maturity, and drilling readiness. These rankings were only guides to final voting and were not binding in later voting by individual panel members (i.e., an individual panel member could vote a different priority order on his/her final list than given for proposals in a thematic group.)

At this stage, we had 19 proposals under consideration for ranking, with the target of producing a ranked list of 10-15. To identify those proposals falling in the lowest priority range, we took a straw vote, with each panel member indicating the five proposals of LOWEST priority to them. Four proposals (indicated in the lists by thematic grouping) were among the bottom five choices of a substantial majority of the panel and were excluded from final ranking.

From the thematic grouping lists, each panel member of the fifteen voting members present produced a final list of proposals ranked from highest to lowest priority. With 15 proposals under consideration, the highest ranked proposal was given 14 points to the lowest ranked proposal being given zero points. Proponents were not allowed to vote for their own proposals. If an individual was a proponent on one proposal of 15 being ranked, his/her final list ranked the other proposals from highest to lowest priority by awarding ranks from 13 points to zero points. If an individual was a proponent on two proposals, the ranked list awarded points from 12 to zero. Voting sheets were submitted in writing, and retained by the panel chair.

Points awarded for each program were summed and compared to the total points possible if all eligible voters ranked that program as highest priority. This fraction of total available points awarded (total points awarded/total points possible) is the most accurate representation of ranking results, with the highest possible score being 1.00 and the lowest 0.

**b. Recap of existing proposals of thematic interest.**

The following proposals were discussed; proponents, noted in parentheses, left the room during discussion: 079-Rev (Channell, Hay), 354-Rev/354-Add (Wefer), 386-Rev 2 (Barron), 422-Rev, 338/338-Add, 391-Rev, 415-Rev, 418, NAAG-II (Backman), 356-Rev (covered and/or superseded by NAAG-DPG), 416, 345/345-Add, 404, 406 (Raymo), 372/372-Add, Bering Sea (from CEPAC prospectus)/390.



We also discussed active proposals of secondary interest to us, if of high interest to another panel. We noted, as we had in our reviews, that 408-Rev, Northern Nicaragua Rise, has the potential to be so ranked by several panels, and should be watched to make sure it does not fall between the cracks of the system. 412/412-Add, Bahamas Transect, is not of primary OHP interest at this time due to the unresolved questions about chronostratigraphy discussed in our review of 412-Add. 380-Rev3, VICAP-MAP, holds secondary interest for us in the MAP portion only. 403-Rev2, K/T boundary, Gulf of Mexico, remains of secondary interest for this panel.

**c. Thematic groupings.**

The thematic groupings, with proposals listed by consensus priority order within each group, were as follows:

**HIGH RESOLUTION OCEANOGRAPHIC/CLIMATOLOGICAL STUDIES,  
PRIMARILY NEOGENE**

NAAG, Leg II (with possible additions from 416, 372/372-Add) [GATEWAYS]  
430 Subantarctic Southeast Atlantic Transect [HIGH LATTITUDE]  
391-Rev Mediterranean sapropels  
404 Neogene paleoceanography from W. North Atlantic sediment drifts [ULTRAHIGH RESOLUTION]  
347-Rev Late Cenozoic paleoceanography, south-equatorial Atlantic  
406 especially Feni Drift sites and 372/372-Add reoccupation of DSDP Site 116 if not included in NAAG Leg II [ULTRAHIGH RESOLUTION]

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418 Reoccupation of DSDP Site 372  
429 Atlantic-Mediterranean gateway [GATEWAY]

**INVESTIGATIONS IN ANCIENT OCEANS**

415-Rev Caribbean Ocean [NEOGENE INTERMEDIATE WATER, GATEWAY]  
Of equal priority:  
079-Rev Mesozoic Somali Basin *and* 253-Rev/253-Add Ancestral Pacific  
Bering Sea (CEPAC)/390 [HIGH LATTITUDE, NEOGENE]

**UPWELLING SYSTEMS**

Of equal priority:  
354-Rev/354-Add Benguela, Angola/Namibia [NEOGENE]  
386-Rev2/422-Rev combined California Current [HIGH<sup>++</sup> RESOLUTION]

**SEA LEVEL**

427 South Florida Margin sea level  
337/337-Add Tests of EXXON sea level curve, New Zealand  
367/367-Add Cool water carbonates, southern Australia

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338/338-Add Sea-level fluctuations, Marion carbonate plateau, NE Australia  
345/345-Add Sea level and paleoclimate, West Florida Margin

Dashed lines indicate the proposals (418, 429, 338/338-Add, and 345/345-Add) not included in the top 15 based on the straw vote described above.

**d. Global ranking.**

There were now 15 programs under consideration. Fifteen panel members were present for voting. Six panel members were a proponent on one program being ranked: Backman on NAAG-II, Barron on 386-Rev2, Carter on 337/337-Add, Channell on 079-Rev, Hine on 427, and Raymo on 406. One panel member was a proponent on two proposals: Wefer on 347-Rev and 354-Rev/354-Add.

Listed below for each proposal/package are the number of eligible voters, the maximum points available if all eligible voters ranked that proposal highest, the total number of points awarded in voting, and the fraction of total available points awarded (total points awarded/total points possible). The highest possible fraction is 1.00 and the lowest 0.0.

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**e. Ranked proposals: brief statement of scientific importance, assessment of drilling readiness.**

**1. North Atlantic and Arctic Gateways (NAAG), Leg II, from NAAG-DPG and possible additions.**

**JUSTIFICATION:** The second leg of this highly ranked program is justified based on the scientific importance of understanding both the northern and southern gateway aspects of the circulation system in this critical oceanographic region, as well as maximizing the potential for reaching sites for which ice conditions may prove difficult in a given year. Other sites, from proposals new in the system since the DPG report, may be incorporated in planning for Leg II based on the outcome of Leg 151. The reoccupation of DSDP Site 116 from proposal 372/372-Add, Cenozoic circulation and chemical gradients in the North Atlantic (better satisfying as well the objectives of the Hatton Bank/Rockall Plateau site from proposal 406, North Atlantic climate variability) would address the history of intermediate water circulation and millennial-scale change critical for correlation with other high-resolution records, such as ice cores. Proposal 416, Glacial History of the High European Arctic: Drill-Sites on the Svalbard Margin, addresses issues of ice sheet history identified as a possible gap in the original DPG report.

Based on this high ranking, we intend to hold a planning day at our Fall 1993 meeting to finalize the design of NAAG, Leg II, incorporating the results of Leg 151, the NAAG-DPG report, and other proposals (see minutes, item 10).

**DRILLING READINESS:** The scientific strategy is mature. Sites identified in the NAAG-DPG report are generally ready to be drilled. Sites from other proposals are either reoccupation of DSDP sites or may need site survey data.

**2. Sub-Antarctic Southeast Atlantic Transect, from proposal 430.**

**JUSTIFICATION:** This proposal, for a bathymetric transect of carbonate sediments, involves important high latitude questions and fills a significant geographical gap in previous Southern Ocean drilling. It will address questions related to the migration of the polar front zone and the sea ice field, the mixing ratio of NADW and SOW, the history of the Antarctic cryosphere, Southern Ocean productivity and nutrient cycling, correlation to ice core records, and the role of orbital forcing in the Southern Ocean.

**DRILLING READINESS:** Site survey data are needed, as well as mature site selection with drilling time estimates.

**3. Neogene history of the Benguela Current and the Angola/Namibia Upwelling System from proposal 354-Rev/354-Add.**

**JUSTIFICATION:** This proposal focuses on the evolution of this coastal upwelling system and its response to high latitude cooling in the Neogene, and this drilling may lay the framework for a future effort focused on the Paleogene. The geographic coverage of this upwelling system should provide important data on carbon storage/burial as well as the evolution of productivity gradients within the system. Only the seaward edge of this upwelling system was drilled at DSDP Sites 530 and 532 on the Walvis Ridge, and ODP Legs 112 (Peru) and 117 (Arabian margin) have been the only ODP transects of coastal upwelling systems to date. These transects are well-designed, and high sedimentation rates in some areas may mean that the resolution of high-frequency changes in this region are also possible.

**DRILLING READINESS:** Site survey cruises are complete or scheduled in the first half of 1993.

**4. Caribbean Ocean history and the Cretaceous-Tertiary boundary impact event, from proposal 415-Rev.**

**JUSTIFICATION:** This proposal addresses objectives related to the Cretaceous-Tertiary boundary in the Caribbean, to the evolution of equatorial and Caribbean surface and deep circulation during the Neogene as influenced by the closure of the Isthmus of Panama, to the changes in the physical and chemical properties of tropical surface waters during the Paleogene, and to the development of a low latitude biomagnetostratigraphy for the late Cretaceous, along with further documentation of the occurrence and distribution of black shale deposits. We anticipate a revision of this proposal for next round of panel meetings incorporating objectives of lithosphere interest as originally described in proposal 411. We noted the geographic ties to a proposal of secondary interest to this panel, 408-Rev, Testing two interpretations, Northern Nicaragua Rise. These proposals have thematic ties about global ocean reorganizations in the Miocene.

**DRILLING READINESS:** Site survey data are needed, as is revised site selection with realistic time estimates and priorities.

**5. Paleooceanography of the California Current and California margin, from proposals 386-Rev2 and 422-Rev.**

**JUSTIFICATION:** A one-leg program based on a synthesis of these two proposals would address the history and development of an important upwelling/current system, including objectives related to upwelling history and the global carbon cycle and high-resolution records of climate change. Recent drilling of a single site in the Santa Barbara Basin has demonstrated the scientific excitement of this work. Drilling this margin would link the results of high latitude North Pacific drilling (Leg 145) with equatorial Pacific (Legs 85, 130, 138) studies of heat transport and paleoproductivity.

**DRILLING READINESS:** Site survey data are needed, as is a drilling plan with realistic time estimates and priorities. The proponent groups are actively and cooperatively pursuing these data and constructing such a drilling plan.

**6. Neogene paleooceanography from W. North Atlantic sediment drifts, from proposal 404.**

**JUSTIFICATION:** This proposal focuses on resolving North Atlantic climatic history, circulation changes, and changes in the heat and carbon budgets on millennial-scale resolution, giving open ocean records with resolution comparable to ice core records. The sites include one on the Bermuda Rise and a depth transect on the Blake-Bahama Outer Ridge. These are an important geographical link between the North Atlantic and Arctic Gateways (Leg 151 and NAAG, Leg II, our current top priority) and the scheduled depth transect on the Ceara Rise in the western equatorial Atlantic (Leg 154).

**DRILLING READINESS:** The Bermuda Rise site is ready to drill, and a site survey cruise is scheduled for the BBOR sites for the second half of 1993. A mature drilling plan with realistic time estimates and priorities is needed.

**7. South Florida margin sea level, from proposal 427.**

**JUSTIFICATION:** The proposed drilling has the potential to obtain high resolution, sub-orbital scale records; this needs to be further developed to fully define OHP interests in this proposal. Drilling will address the issues of timing and amplitude of sea level change in an interval with known forcing.

**DRILLING READINESS:** Site survey data are needed, as well as careful investigation of safety issues related to shallow water drilling and to the prevailing current regime. Issues of expected recovery and their impact on the scientific objectives need to be addressed.

**The next two proposals received equal ranking.**

**8/9. The formation of sapropels in the Mediterranean sea, from proposal 391-Rev.**

**JUSTIFICATION:** This drilling program intends to investigate the origin, geochemistry, and significance of Plio-Pleistocene Mediterranean sapropels. It is of OHP interest in the context of understanding the influence of global circulation and climate change in the Late Cenozoic on organic carbon deposition.

**DRILLING READINESS:** There are existing site survey data which may be sufficient for developing a mature drilling strategy. From previous evaluation of other proposals for Mediterranean drilling, it is clear that sites need to be selected specifically for the goals of this program.

**8/9. Mesozoic Somali Basin: Tethys and the birth of the Indian Ocean, from proposal 079-Rev.**

**JUSTIFICATION:** The objectives are to drill a single deep hole (2500 m sediment plus 500 m basalt in 4000 m water depth) in the Somali Basin. This represents an opportunity for research in one of the oldest and least understood regions of the ocean. This proposal is of broad interest, linking questions about Mesozoic paleoceanography, paleobiology, and paleogeography.

**DRILLING READINESS:** Site survey data are needed, as well as a consideration of the drilling technology required to achieve the scientific objectives.

**10. Tests of EXXON Sea-Level Curve, New Zealand, from proposal 337/337-Add.**

**JUSTIFICATION:** This proposal would test the global sea level model, specifically the Oligocene (30 Ma) low stand event, and as such falls within OHP's interests in sea level.

**DRILLING READINESS:** Integration of existing site survey for the region is needed. A revised proposal reflecting the Sea-Level Working Group Report and the shallow-water working group report is anticipated.

**11. Deposition of organic carbon-rich strata, ancestral Pacific, from proposal 253-Rev/253-Add.**

**JUSTIFICATION:** The program focuses on answering questions about the paleo-depth and paleo-latitudinal distribution of organic carbon-rich strata in the mid-Cretaceous, ancestral Pacific, a question of significant interest.

**DRILLING READINESS:** Site survey data are needed, and should address the question of the condensed versus erosional nature of the reflectors described in 253-Add. These objectives ideally require the use of the DCS or carefully targeted drilling to avoid problems with recovery.

**12. Late Cenozoic paleoceanography, south-equatorial Atlantic, from proposal 347-Rev.**

**JUSTIFICATION:** This focuses on high-resolution Neogene objectives in an important upwelling system, and is viewed as the eastern Atlantic counterpart to Leg 154, Ceara Rise. It will address issues of cross-equatorial heat transport, of productivity gradients, and of intermediate and deep water mass history in this region.

**DRILLING READINESS:** Site survey data exist. A more mature scientific plan, addressing the ties to Leg 108 drilling records and documenting site selection to avoid problems with turbidites, will result in a higher ranking.

**13. High resolution North Atlantic Neogene paleoceanography and climatic variability, from proposals 372/372-Add and 406.**

**JUSTIFICATION:** The reoccupation of DSDP Site 116 on the Rockall Plateau, being considered for NAAG, Leg II as well, addresses issues of millennial-scale resolution of North Atlantic intermediate-water circulation changes and North Atlantic climate variability. This addresses objectives from proposal 406 for a similar site. The Feni drift sites of proposal 406 are also of strong interest for the resolution of millennial-scale oceanographic and climatic records.

**DRILLING READINESS:** The reoccupation of DSDP 116 should be ready to drill, and there is a scheduled site survey cruise for the other sites. A revised scientific strategy based on these results may enhance this ranking.

**14. Cool water carbonate margin, southern Australia, from proposal 367/367-Add.**

**JUSTIFICATION:** This would examine the global sea level model, as well as the evolution of cool water carbonate platforms and the impact of the opening of Australia/Antarctica during the Paleogene.

**DRILLING READINESS:** Site survey data needs updating and focusing, and the proposal needs updating in light of the Sea-Level Working Group Report and the Paleogene Workshop Report. A revised proposal is anticipated.

**15. Bering Sea from CEPAC prospectus and Drilling in the Shirshov Ridge region, from CEPAC prospectus and proposal 390.**

**JUSTIFICATION:** This program of drilling is potentially high-yield, filling an enormous gap in knowledge about North Pacific biota and climate; this is an important oceanographic region, with little known. Site selection may need to be modified to accommodate Paleogene/Cretaceous objectives in addition to Neogene ones. Sites from the CEPAC prospectus not drilled on Leg 145, North Pacific transect, could be considered as well.

**DRILLING READINESS:** Site survey data are complete for sites from the CEPAC prospectus; drilling in the Shirshov Ridge region would require site surveys. The proposal will need updating and an active proponent group to receive a higher ranking.

**7. Review of OHP objectives/OHP White Paper revisions/proposal reviewing.**

We considered the active proposals and the global ranking list, and concluded that OHP thematic objectives are satisfactorily represented. The chair has some sections of a revised white paper, and will circulate the current version, with these revisions incorporated, hopefully before the fall meeting. Proponents on proposals should be aware of the Sea-Level Working Group Report, the Antarctic Workshop Report, and the Paleogene Workshop Report as guides.

We noted the inadequacy of the current 5 categories for reviews for giving sufficient feedback to proponents. A single category encompasses three separate criteria (scientific merit, thematic relevance, and proposal maturity). A revised system might grade proposals on several scales, for example, on scientific merit/interest, on thematic relevance, and on maturity, including site survey requirements. Although more

complex, such a system would define more clearly the reasons for the relative merits of different proposals.

## 8. OTHER ITEMS

### a. Coring issues.

We noted two areas of high concern for OHP with regard to core recovery and integrity. (1) There is a clear need for improved core handling strategies in sediments with high gas contents, such as those found at Site 893, Santa Barbara Basin site. High resolution, continuous records from such locations are of high scientific priority. Recovering and maintaining sediments in as undisturbed a state as possible are critical for these efforts. (2) As documented by the outstanding data sets from Leg 138 and on earlier legs, we note the consistent offset in both APC and XCB sections between mbsf and composite depth scales reflecting stratigraphic continuity. This offset reflects both coring gaps between adjacent cores and expansion of sections beyond that explained solely by physical properties. High-priority OHP objectives in both Neogene and older sedimentary sequences rely on developing continuous stratigraphies, and a greater understanding of the reasons for these, along with improvements to minimize them, are needed (see similar statement, Spring 1992 OHP minutes).

### b. Responses to Advisory Structure Review Committee report.

The panel held a lively discussion with Bill Hay on their views of the recommendations of the ASRC. We discussed various views on the importance of white papers and the best method to produce updated white papers. We discussed the role of the thematic panels in soliciting proposals, noting that OHP has been active in this regard. We discussed issues relating to liaisons with other national/international programs and SSP/PPSP. We discussed panel and shipboard party membership. We noted that non-U.S. OHP panel members have routinely been using a three-year rotation schedule, and that balancing panel expertise with U.S. and non-U.S. rotations is a relatively easy matter. Of more concern to us was the balance of expertise represented on PCOM, and the importance of the PCOM chair in program direction. We noted the rotation of the JOIDES office to a non-U.S. institution as a positive step, and thought the process used was an improvement over the automatic rotation system used by the U.S. JOI institutions. We reviewed the suggestions for a new system for the handling of drilling proposals and ship scheduling. A strength of the current system is the *science-driven* nature of the ship track. This revised system appears to return to a ship track driven from the top down, with a regional panel system reinstated as DPGs meeting prior to the annual PCOM meeting. It was not at all clear to us the advantages of this new system, nor what issues/procedures in the current system were trying to be fixed. We discussed the role of panels in producing thematic symposia volumes; this was not seen by us as of high priority for the panel system.

Overall, panel consensus was that many of the currently perceived issues are easily addressable by improved communications with proponents and potential proponents and by greater publicity about opportunities in ODP in vehicles other than the JOIDES Journal. For example, the FY94 drilling schedule has not yet been announced in an accessible public forum, while staffing for these legs is actively underway. Rapid publication of the ship schedule, with brief synopses of the scheduled legs, and explanations of application procedures (and the high likelihood of success of an application) in places like EOS and other community-accessible vehicles is seen as beneficial.

## 9. PANEL MEMBERSHIP/LIAISONS

Several rotations in non-US members will occur after the Fall 1993 meeting. R. Gersonde (expertise in diatom biostratigraphy) will be replacing G. Wefer, and will attend the Fall 1993 meeting as a guest. K. Takahashi (expertise in radiolarian biostratigraphy and particle flux) will be replacing H. Okada, and attended this meeting as an alternate. A number of U.S. members will be stepping down after the Fall 1993 meeting: Barron, Channell, Herbert, Hine, and Pratt. Because of the recent and scheduled non-U.S. rotations, we are not looking for a one-for-one replacement of expertise for these retiring members, but for a general balance of panel expertise. We maintain a list of panel expertise. We divided our discussions into potential nominees with expertise in magnetostratigraphy, sea level, logging and/or Cretaceous oceans, and

paleoceanography on various time frames (two positions).

Al Hine agreed to attend the upcoming TEDCOM meeting (3/30-31), and Tim Herbert agreed to attend the May DMP meeting.

## **10. FUTURE MEETINGS**

The Fall 1993 meeting is scheduled for 6-8 October 1993 in Bremen, Germany, with Gerald Wefer as host. 4 October will be a planning day for NAAG, Leg II, with invitees representing the OHP panel, the chief scientists of Leg 151, the NAAG-DPG, and the various proponent groups. These include: M. Delaney (OHP chair), G. Wefer (OHP NAAG watchdog and meeting host), E. Jansen (NAAG-DPG member, proponent on original proposal 320), J. Backman (OHP, co-proponent), J. Thiede (co-chief of Leg 151, proponent on original proposal 336), R. Henrich (member NAAG-DPG, proponent on original proposal 336), W. Ruddiman (chair of NAAG-DPG), R. Zahn (proponent on 372), A. Solheim and/or A. Elverho/i (proponents on 416), and W. Berger (PCOM liaison for fall meeting).

We discussed dates for the Spring 1994 meeting, with the expectation that one or more current or future panel members might be on Leg 154, Ceara Rise cruise, with a scheduled end of 26 March. The meeting is tentatively scheduled for 29-31 March 1994, probably at University of Massachusetts, Amherst (Mark Leckie, host) or in Houston (Gregg Blake, host). Dates may move one day later if the ship schedule changes. Tentative plans were set for a Fall 1994 meeting in Australia hosted by Bob Carter.

## **11. OHP NEW Proposal Reviews - Spring 1993 (attached by JOIDES Office)**

### **253-Add**

4-Addresses high priority objectives, but with deficiencies

Proposal addendum 253-Add presents new information and seismic interpretation relevant to proposal 253-Rev, Paleoceanographic Controls on the Deposition of Organic Carbon-Rich Strata in the Ancestral Pacific. This addendum consists of: (1) a manuscript by Sliter and Brown and (2) a letter describing the plans to submit a site survey proposal for Shatsky Rise. OHP has recently reviewed 253-Rev, so this review addresses the information in 253-Add.

The paleoceanographic and chemostratigraphic objectives of 253-Rev/253-Add are fundamentally important objectives addressing high priority themes of OHP. The addition of objectives to determine the age and history of basaltic volcanism at Shatsky does not fall within the OHP mandate. Based on this addendum, two potential problems exist regarding achievement of objectives of interest to OHP. First, the difficulty of recovering coherent samples in carbonate-chert sequences has not been overcome with current technology, and it is not clear when/if the DCS will be ready for routine deployment. Second, the re-interpretation of strong seismic reflectors R1 and R2 as unconformities at the Cenomanian/Turonian (?Coniacian) and at the Barremian/Aptian boundary suggests that information may be limited or absent from key intervals of Cretaceous history when global paleoclimatic changes were occurring. Site survey information is clearly needed to address the condensed versus erosional nature of R1 and R2 reflectors and to define whether "windows" of drilling opportunities with current technology do exist. These results will have a strong influence on future OHP evaluations.

### **333-Rev**

1-Proposal objectives not within mandate of this panel

The proposal objectives are focused on the tectonic evolution of the Caribbean Sea, and do not fall within the mandate of this panel.

### **340-Rev**

1-Proposal objectives not within mandate of this panel

The proposal objectives are now exclusively tectonic ones, and do not fall within the mandate of this panel.

### **347-Rev**

#### **4-Addresses high priority objectives, but with deficiencies**

Proposal 347-Rev replaces 347/347-Add, which were reviewed at the fall 1992 OHP meeting. The intention in the original proposal was to drill three latitudinal transects in the equatorial Atlantic in order to reconstruct the dynamics of the transequatorial heat transport in relation to NADW formation, intermediate deep flow, and productivity variability. OHP concluded that the scientific objectives of the original proposal were well suited to test a key area of the conveyor-belt hypothesis, and that this research field is of high priority thematic interest for OHP. The fall 1992 OHP review of 347-Add posed critical questions concerning the drilling strategy (e.g., longitudinal vs. latitudinal transects) which have not been answered in 347-Rev. The re-occupation of Site 668 on the top of the Sierra Leone Rise is incorporated, as recommended by OHP. Several of the proposed sites (EA2-EA5) are for 200 m penetration and will likely only achieve Pliocene and Pleistocene objectives, as judged from results from nearby Leg 108 sites. Deeper penetration, to 500- 700 m, is thus desirable for these sites, in order to fulfill Miocene objectives as well. This may require site relocation. Nearby Leg 108 Sites 662 and 663 were affected by redeposition and turbidites which interrupted the stratigraphic continuity of the Plio-Pleistocene sequences. OHP strongly recommended that 347/347-Add proponents tie in the Leg 108 seismic records and drilling results to their own seismic records in order to locate the best possible undisturbed sediment sequences. In 347-Rev, the proponents have not changed the site locations as described in 347-Add and have only marginally discussed OHP's concern regarding potential slump/turbidite deposition. 347-Rev proponents are encouraged to convince OHP that drilling can be achieved in sediment sections that are not severely interrupted by slumps and turbidites. Likewise, proponents should explain why scientific objectives cannot be met with existing Leg 108 cores, given that some are at nearly the same location and depth.

### **367-Add**

#### **4-Addresses high priority objectives, but with deficiencies**

This proposal recommends drilling sites on the Southern Australia trailing-edge passive margin, noting that today the margin comprises one of the world's only cold-water carbonate depositional systems. It is an analogue to carbonate systems that occur in both the Paleozoic and Mesozoic records. As such, the main focus of this proposal, albeit of major significance, is of marginal relevance to the OHP mandate.

Nonetheless, a number of aspects of the proposal suggest that in modified form it might attract more substantial OHP support. First, recent publications by the proponents of 367/367-Add have added materially to essential knowledge of the margin, and serve to strengthen the case for drilling there. Second, there are potential drilling targets on the margin which lie directly within the OHP mandate, notably shallow-depth Paleocene-Oligocene sediments (addressing high resolution stratigraphy and sea-level issues related to testing the global sea level model), and possibly also the shallow-depth marine Cretaceous. Third, and even if developed and drilled solely as a carbonate margin proposal, stratigraphic information of interest to OHP would likely result. However, the low depositional rates will unfortunately limit the stratigraphic resolution obtained.

The proponents are advised to consult the Sea Level Working Group Report and the Paleogene Workshop Report in preparing a revision.

### **372-Add**

#### **4-Addresses high priority objectives, but with deficiencies**

OHP regards the NAMD-01 site, the reoccupation of DSDP 116 on the Rockall Plateau, as of very high thematic priority. It is very important to obtain an intermediate water isotope record in the northwestern North Atlantic, and previous studies at Site 116 (by Duplessy) show that this site should offer an excellent record. Site NAMD-01 also fulfills the objectives for one site of Proposal 406 (High



sedimentation rate record in the North Atlantic Back to Miocene at Intermediate Water Depths, Broecker et al.), offering a better Rockall Plateau site due to its shallower water depth. OHP notes, however, that there is little justification presented in this proposal for the NAMD-02 site. Based on biostratigraphy, Pleistocene sediment accumulation rates appear to be relatively low at Site 552, which is located near NAMD-02.

Proposed drilling at NAMD-01 might be deepened to recover a carbonate record back to the Oligocene (800 mbsf). At present, this is regarded as a higher priority than drilling at NAMD-02. Recovery of upper middle Miocene sediments should record lowering of the Iceland-Faroe Ridge and provide an important downstream link with NAAG-II sites SIFR and NIFR (see NAAG-DPG report for details). Consequently, this proposal can be strengthened by addressing topics of interest to OHP on longer time scales. Specifically, these are: 1) subsidence of the Iceland-Faroe Ridge (see Wright and Miller references, for example), 2) longer-term evolution of intermediate/NADW history, 3) recovery of the proven carbonate record back to the Oligocene for comparison with Leg 104, and 4) improvement of the long-term oxygen isotope record of Duplessy.

Drilling and logging time estimates should be added. The NAMD-01 site is being considered as an alternate in the planning of NAAG, Leg II.

#### **408-Rev**

Drilling proposal 408-Rev addresses an unusual combination of tectonic, sedimentologic, and paleoceanographic objectives. The proposal is succinctly written and clearly illustrated with simple conceptual diagrams and good-quality seismic lines. There are five objectives outlined in Section 1 related to understanding the Cenozoic evolution of the Northern Nicaragua Rise. As developed in the proposal, objectives 2 through 5 (Caribbean Current history, megabank partial foundering, megabank to small bank transition, and coral reef to algal-sponge dominated transition) are not within the mandate of OHP. However, objective 1, concerning gateway opening in the mid-Miocene and ties to global paleoceanographic processes, concerns a high priority theme for OHP.

Despite the relevance of the evolution of oceanic gateways to OHP interests, we have rated 408-Rev as of secondary interest to OHP because only two of the twelve proposed drilling sites are located in pelagic sequences away from the mass-wasted and current-reworked deposits characteristic of the channels through the northern Nicaragua rise. The two sites of interest to OHP are upstream (NNR-8) and downstream (NNR-9) from the principal channels. The majority of the proposed sites are focussed on the tectonic and sedimentologic processes leading to segmentation of a presumed pre-existing megabank. The proposal only touches on the types of studies required to specifically address regional and global aspects of paleoceanographic and paleoclimatic processes resulting from the northward flow of water through the Caribbean rather than through the Central American Isthmus.

We note that the broad-based scientific objectives of this proposal may result in this being ranked of secondary interest to several panels. We suggest that PCOM monitor the progress of this proposal to make sure it does not "fall between the cracks" of the review system.

#### **412-Add**

3-Secondary interest to this panel if it is of high priority to other panel

The proposed objectives of the original proposal were to use ocean drilling in deeper water sites to complement already drilled shallower sites in understanding sea level changes. Previous OHP support for this proposal was based on our interests in defining the synchronicity and amplitude of sea level changes, areas within our thematic mandate. OHP's previous review expressed our strong concerns about the ability of the proponents to provide the needed, high-precision chronostratigraphy to address the synchronicity aspects of sea level change, as well as concerns about defining amplitudes.

412-Add identifies this concern as well, rightfully stating that understanding mechanisms of global sea level change requires the deciphering of the age of sea-level related events. The abstract includes a strong

statement that "[W]ith the completion of the dating the chronostratigraphic framework for the sequence stratigraphy is provided and can be part of a high quality data set for the timing of sea level fluctuations since the Middle Miocene."

However, the summary figure of their chronostratigraphy (412-Add, Figure 1, Summary of chronostratigraphy of the core borings UNDA and CLINO of the Bahamas Drilling Project) discloses extremely serious problems relating to stratigraphic correlation and to their understanding of chronostratigraphy and modern marine time scales. The shown magnetostratigraphic, biostratigraphic, and chronostratigraphic correlations do not apply to any existing time scale. This figure does not inspire any confidence that adequate age models can be developed. This is a serious issue with respect to OHP support for this proposal.

In addition to the lack of required chronostratigraphy, the lack of presentation of how amplitude will be measured greatly reduce OHP's interest in the sea-level objectives of this proposal. 412/412-Add are now viewed as of secondary interest to OHP, with the current strengths (the sedimentary architecture/sea level story, the fluid flow model, and its potential contributions to the overall understanding of carbonate platforms) falling within SGPP's mandate. We very much encourage the proponents' attempt to acquire additional site survey data--particularly high-resolution seismic reflection data. The Quaternary, in particular, needs to be much better imaged.

The proponents need to provide as much detailed information and explanation as they possibly can to demonstrate high-quality, well-integrated chronostratigraphic control in subsequent revisions or addenda for OHP to view this as of high thematic interest. Figure 1 was simply insufficient to do the job, given OHP's severe reservations about the chronostratigraphy presented. The proponents might consider adding another chronostratigrapher to their team to enable them to do this correctly.

#### **419-Rev**

1-Proposal objectives not within the mandate of this panel

The proposal objectives do not fall within the mandate of this panel.

#### **422-Rev**

4-Addresses high priority objectives, but with deficiencies

This revised proposal, 422-Rev, addresses OHP themes of importance, most particularly global carbon cycle and carbon dioxide questions. The proposal also has the advantage of being able to address changes on Milankovitch as well as decadal to millennial-scale time scales.

OHP criticized 422, the original proposal for a site in the Santa Monica Basin, for being immature with respect to discussion of scientific objectives. Scientific objectives are more developed in this revision. In our original review, we encouraged the proponent of 422 to contact the proponents of proposal 386-Rev2 in order to explore the possibility of including this Santa Monica Basin site in the program based on that proposal, where the scientific objectives are more fully explained.

OHP again strongly recommends the proponents of proposal 422-Rev cooperate with the proponents of proposal 386-Rev2. OHP would strongly support one full California Margin drilling leg that is constructed to meet the combined scientific objectives as described in proposals 386-Rev2 and 422-Rev. The objectives of 422-Rev are seen as a valuable addition to those of 386-Rev2, but we see 386-Rev2 as having the lead role in defining and constructing such a combined program.

#### **423-Rev**

1-Proposal objectives not within the mandate of this panel

The proposal objectives do not fall within the mandate of this panel.

## **424-Rev**

### **1-Proposal objectives not within the mandate of this panel**

The proposal objectives, to "CORK" Hole 395A, do not fall within the mandate of this panel.

## **426**

### **1-Proposal objectives not within the mandate of this panel**

The proposal objectives do not fall within the mandate of this panel.

## **427**

### **4-Addresses high priority objectives, but with deficiencies**

This proposal is to drill depositional sequences on the south Florida margin, proposing seventeen drill sites. The high- quality seismic record reveals eight well-defined depositional sequences which may document sea level change during the last 150 Ka. This is an attractive proposal in that it may allow the sequence architecture to be correlated to the oxygen isotope curve. The proposal presently concentrates on aspects of sea- level change in the Late Quaternary, in particular determining the precise depths of various low stands and high stands during the last approximately 130,000 y.

There are major unknowns, however, which cast doubt on the feasibility of reaching this goal. (1) Water depths for the majority of sites are less than 50 m. Will JOIDES Resolution drilling be feasible, particularly in view of the proximity to the Florida Current? Consultation with the Science Operator may clarify this issue. (2) Will the lithologies be adequately recoverable? (3) Age control is the key to making the correlation of sequence boundaries to the oxygen isotope curve. Will this age control be adequate? Lack of information on the nature of the stratigraphic sequence makes this question difficult to answer from the proposal. (4) What is the influence of the Florida Current? To what extent is the sequence architecture due to interaction with the Florida Current rather than sea level change?

An additional potential attraction of this drilling, not currently addressed in the proposal, is that drilling the proposed sites might yield intervals of high quality, expanded climatic and paleo-oceanographic records. Such records have the potential to provide millennial-scale detail to both the sea- level curve and to general climatic history, for comparison with global and nearby on land events.

## **428**

### **1-Proposal objectives not within the mandate of this panel**

The proposal objectives do not fall within the mandate of this panel.

## **429**

### **4-Addresses high priority objectives, but with deficiencies**

This proposal, to monitor the evolution of the Atlantic- Mediterranean Gateway, is within the mandate of OHP. The objectives are not only of regional importance, as the evolution of this gateway had important implications for global climate evolution from middle Miocene time.

However, OHP concludes that this proposal does not adequately address feasibility of reaching these objectives with the proposed drill sites in the Gulf of Cadiz and the Alboran Sea. There is little rationale for the positioning of drill sites and inadequate documentation on the expected stratigraphic sequences. It is unclear that the critical pre-Messinian stratigraphy can be reached at these drill sites. The Gulf of Cadiz

sites are inherited from earlier proposals (323, which itself inherited them from earlier proposals). In the OHP review of 323, we expressed doubts about these site locations for monitoring gateway evolution due to their location within and close to the contourite field. This concern has not been adequately addressed in this proposal. The proposed drilling strategy is not well-justified with regard to the scientific objectives of this proposal.

## **430**

### **4-Addresses high-priority objectives, but with deficiencies**

The six stated paleoceanographic objectives of this proposal are all within the mandate of the OHP. In fact, it was exciting to see so many relevant climatic and geochemical problems potentially addressed by a leg of drilling. This fills a critical gap in previous Southern Ocean drilling. We give this proposal a very strong endorsement and make the following suggestions for any future revision.

1. Include a short discussion of WHY the previous Antarctic drilling was unsuccessful with regard to your scientific objectives and why this proposal will be. For example, it was not obvious to some reviewers how chances for successful drilling had changed. Place previous ODP/DSDP sites on the map (Fig. 2), and indicate the distribution of carbonate in upper Neogene sequences. Make it clear how previous drilling is helping to guide and define the scientific and drilling strategies here.

2. The proposal is somewhat repetitive with respect to reiterating white paper themes and scientific objectives. It would be made stronger instead by including short descriptions of the specific scientific problems to be addressed, how the chosen drilling strategy relates to these, and methods which will be used.

3. It was wondered whether a site at 1000-1500 meters depth is possible to monitor Antarctic intermediate water. Also, the proposal might be strengthened by including deeper penetration for some sites (e.g., 1, 2, and 5) to obtain longer isotopic records.

We encourage the proponents to pursue obtaining needed site survey data. As drilling plans mature, subsequent addenda or revisions should include drilling and logging time estimates.

## **431**

### **1-Proposal objectives not within the mandate of this panel**

## **SR-Rev**

### **1-Proposal objectives not within the mandate of this panel**

## **337-Add**

### **4-Addresses high priority objectives, but with deficiencies**

The Ocean History Panel recognizes the potentially important and significant ideas mentioned in this proposal. We view the promised, revised proposal as having important sea-level objectives for this panel, with our interests centering on issues related to the timing and amplitude of sea-level change. We are most interested in resolving the apparent problem presented by the 29/30 Ma low stand as seen in the Global Sea-Level Model and the conflicting field data reported in the proposal. Although not part of our mandate, the proposed sedimentary architecture objectives are also significant.

We encourage the proponents to submit the promised revision after having considered the four points mentioned in this letter addendum. The present proposal is too brief and should be expanded significantly to fully explain, document, and justify the objectives. The proponents should consider: (1) Cretaceous objectives, (2) the Paleogene Workshop Report, and (3) adding oxygen isotope objectives as a sea-level proxy. The proponents should also carefully consider earlier comments made by OHP on the original proposal.