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Western Pacific Panel Meeting
June 19-21, 1986
Summary

PCOM's charge to the meeting was to devise a nine-leg drilling program, with alternates, for the western Pacific region. Input from the three thematic panels, together with 14 new/revised proposals, was presented and reviewed. The panel jointly revised the first WPAC drilling prospectus and agreed on 10 1/2 legs that can be strongly defended at this time. These legs were ranked by vote, and the resulting priority list is presented below (the maximum vote was 11):

1.	Bonin-1	9.8
2.	Japan Sea	8.6
3.	Sunda Backthrusting	7.6
4.	Banda-Sulu-South China	7.2
5.	Bonin-Mariana-2	6.1
5.	Great Barrier Reef	6.1
7.	Nankai	6.0
8.	Lau Basin	5.8
9.	Vanuatu	5.7
10.	Zenisu Ridge (1/2 leg)	5.1
11.	Sulu Transect	2.6

These results are VERY consistent with WPAC's previous rankings, even though the panel membership changed considerably, with only two exceptions:

a) the priority for drilling in the Sunda region rose considerably (10th to 3rd) following requested refocusing of proposal on collision tectonics rather than toe processes.
b) passive margin drilling in the South China Sea was removed from the priority list following specific criticisms by TECP (with which WPAC agrees), and pending significant revision (data and model updates) by proponents.

ACTION LIST

1. Revised WPAC drilling prospectus to be distributed by Taylor in August.
2. WPAC requests PCOM to establish a Lau Basin Working Group (see 4.11 for membership and mandate).
3. WPAC requests SOHP to clarify objectives and their priority in the Bonins — see 3.3.
4. WPAC notifies ODP-TAMU that the prime objective of Nankai Trough drilling is a 1700 m hole in 4600 m water which penetrates through a major decollement at 1400 m. WPAC requests evaluation of drilling problems following Leg 110 Barbados experience.
5. WPAC requests ODP-TAMU to provide their best estimates for drilling and standard logging times of holes specified in our revised prospectus.
6. WPAC requests proponents of Vanuatu drilling to migrate their MCS profiles over the priority sites and to provide these and velocity data to our next meeting.

DRAFT

JOIDES Western Pacific Panel Meeting
Universite de Savoie
Chambery, France
19-21 June, 1986

DRAFT

Members Present:	Brian Taylor, HIG, Chairman	Claude Rangin (France)
	Mike Audley-Charles (UK)	Jacques Recy (ORSTOM)
	Roy Hyndman (PGC)	Steve Scott (Canada)
	Derk Jongsma (ESF)	Hans Schluter (Germany)
	Margaret Leinen (LITHP)	Eli Silver (UCSC)
	Kazu Nakamura (TECP)	Kensaku Tamaki (Japan)
In Attendance:	Christian Auroux (ODP)	Alain Mauffret (SSP)
	Roger Larson (PCOM)	Erwin Suess (SOHP)
Absent:	Jim Ingle (Stanford), Jim Natland (SIO), Rick Sarg (SOHP)	

AGENDA

1. Minutes of the previous meeting
2. Reports from liasons and guests
3. Discussion of new and revised proposals
4. Review of WPAC drilling prospectus
5. Vote on WPAC drilling program
6. Review of site survey status
7. Circum-Pacific Conference
8. Next meeting

MINUTES

Taylor welcomed the new members from Canada (Scott), ESF (Jongsma), Japan (Tamaki), and "at large" (Hyndman), as well as the guests from ODP, PCOM, SOHP, and SSP.

1. MINUTES OF THE PREVIOUS MEETING

The minutes of the last meeting were approved with the following minor changes: a) p. 9, #6, Replace "Moreover, . . . SULU-1" with "While WPAC considered the Palawan region to be of interest for collisional processes, there was not unanimity concerning the interpretation of the deep carbonate reflection. No one voted in favor of the 2-km deep hole proposed at SULU-1."

b) p. 11, last sentence, add "Sulu/Celebes (French MCS)" to the list of proposals.

c) p. 15, #10, add J. Daniel (ORSTOM) to list of potential replacements for J. Recy.

The action list resulting from the last meeting was reviewed. Items 1, 7, and 11 were left to this meeting. All other actions were initiated. Revised proposals for the Great Barrier Reef and Sunda-Sumba were received,

but not for Manila-Taiwan and Japan Downhole Measurements. Individual proposals for the Lau Basin were received, but the recent results of all five institutions were not integrated.

2. REPORTS FROM LIAISONS AND GUESTS

The minutes of the Panel Chairmen's Meeting, and the WPAC sections of the most recent LITHP, SOHP, and TECP meetings (see Appendix 1), were distributed and discussed. WPAC thanks the thematic panels for their specific input and guidance.

2.1 PANCHM

Taylor highlighted three points of the PANCHM review of ODP results to date, that have particular relevance to WPAC: (a) Primary objectives have often been incompletely realized because of compromises between disparate objectives and/or too many objectives for a leg. (b) Achieving some objectives is still limited by significant problems in drilling and recovery of carbonates and sands, and by logging difficulties associated with the collapse of open holes. (c) ODP planning by incremental regional time blocks undermines our ability to meet COSOD objectives. The longer the overview, the better the chance of doing the best science. "Slow down (globetrotting) and do things right." Taylor noted the recent PCOM decision to potentially increase the time in the Indian Ocean and hoped that this trend would continue into the Pacific.

2.2 PCOM

Larson reviewed the results of the May PCOM meeting.

a) ODP Membership: ESF joined June 1; Derk Jongsma is the ESF WPAC member. Australia is negotiating with Canada for partial membership (~30%). U.S.S.R. is still considering full membership.

b) COSOD II: Palais du Congress, Strasbourg, 6-10 July 1987, hosted by ESF. Conceived primarily to address ODP program post 1991. Proposed steering committee: X. Le Pichon (Chairman), J. Cann, J. Fox, M. Kastner, H. Kinoshita, C. Moore, J. Morgan, N. Petersen, R. Price, W. Ryan, S. Schlanger, J. van Hinte.

c) Panel Membership: PCOM adopted a scheme of double liason between regional and thematic panels in which members vote in their home panel but are <u>non-voting</u> liaisons. In addition, DMP representatives will attend one meeting per year of each thematic and regional panel, and SSP will establish ad hoc liaisons with regional panels as appropriate. PCOM assigned Hawkins (LITHP), Sarg (SOHP), and Nakamura (TECP) as liasons from the thematic panels to WPAC. PCOM chose James Gill to replace M. Leinen, reconfirmed Roy Hyndman's appointment as member-at-large, and assigned Silver, Gill, and Ingle to liaise with TECP, LITHP, and SOHP respectively.

d) Conflict of Interest: "Proposal proponents should not be involved in panel discussions relevant to the potential inclusion of their proposal in drilling plans, and panel members who are proponents should not participate in votes related to their proposals." WPAC paraphrase: members who are proponents should participate on an information basis (i.e., answer

questions), but not lobby (or vote). Continued violators will be reported to PCOM.

e) Indian Ocean: PCOM adopted a 17/15 month schedule, starting with SWIR and ending with Argo-Exmouth, dependent on the inclusion/exclusion of Red Sea drilling, and with the possible one-month expansion of Argo-Exmouth sites for SOHP objectives (given that the Somali basin deep hole was excluded). The impact for WPAC drilling is later start dates if Red Sea (Oct. 88) and extra Exmouth (Nov. 88) drilling is included.

f) WPAC: PCOM Motion: The Planning Committee commends the Western Pacific Regional Panel on the procedure used in planning and moves to accept the nine-leg proposal as the basis for planning. PCOM expects this proposal to be modified by additions and further iterations of the schedule. Vote: 12 for, 0 against, 2 abstain.

In additional discussion, several PCOM members urged that the program be flexible enough to accomodate an increase in time spent in the region as additional proposals are received into the planning process.

PCOM Consensus: The PCOM requests that WPAC devise a nine-leg drilling plan with a strawman schedule by August 1986. This schedule should also include potential alternatives to be taken from the full twelve-leg program or other high priority objectives and should be cognisant of drilling proposals in adjacent areas (CEPAC).

2.3 TECP

Nakamura reported on the June TECP meeting which included a major review of the WPAC prospectus — see TECP draft minutes (Appendix 1) for important statements concerning Japan Sea, Nankai, Zenisu, and South China Sea (which they ranked in that order), and collision tectonics. TECP deferred to outcome of Barbados drilling and Physical Properties workshop before evaluating Nankai transect vs. deep toe of slope hole. Turbidite-dominated trench fill in Nankai is comparable to Aleutians and Cascadia. WPAC noted 1.7-km hole proposed at Nankai, compared to 2.8-km hole at Cascadia.

2.4 SOHP

Suess reported that SOHP's drilling priorities in the WPAC region are 1) Great Barrier Reef, 2) Sea of Japan, 3) South China Sea, 4) Ogasawara Plateau, and 5) Banda-Sulu. He reviewed these areas in terms of SOHP's major global themes — see SOHP minutes (Appendix 1) for specifics. Larson questioned SOHP's reasons for drilling South China Sea if Japan Sea is also drilled. Leinen responded that SCS will have better record of onset of northern hemisphere glaciation (controlled by uplift of Himalayas and effect on monsoons) due to Red River drainage of Himalayas into SCS.

2.5 LITHP

Leinen reviewed LITHP evaluation of WPAC prospectus. Nine legs are not sufficient in WPAC as LITHP objectives require minimum of five legs: Bonin-Mariana (2), arc-backarc transition, nature of forearc, diapirism; Lau Basin (1), backarc/MORB transition, 0-age crust; geochemical reference holes (1), mass balance, sediment influence on arcs, volcanic history; Japan Sea (1), continental marginal basin. See LITHP minutes (Appendix 1) for more details. LITHP expressed desire that drilling into basement penetrate at least 200 m. LITHP (and WPAC) concerned by present lack of integration of extensive Lau Basin data.

Reply by Larson to the question, "How should regional panels treat thematic panels' input?"
"Consider their guidance when devising your drilling program, but don't be held 100% hostage to the whims of thematic panels." A conflict of advice to PCOM is o.k. Although PCOM would prefer priority resolution at the panel level, they are still willing to decide between conflicting input.

2.6 ODP Operations

Auroux reported on the results of Leg 108-109 and on ODP operations:

a) Leg 108: NW Africa — Deep and shallow water circulation in the equatorial region. 27 HPC holes at 12 sites recovered record 3850 m. Sedimentation rate increased at 3 m.y. due to Sahara input, Canary current, increased upwelling. Problems due to turbidites, slumping, and biogenic gas. Equatorial currents have very rapid response to polar influences.

b) Leg 109: Return to 648B — deepened bare rock hole from 33.4 to 50.5 m. Lots of operational problems with hole instability and bottom hole assembly. Four-meter unsupported hole at Kane Fracture Zone. Cleaned and logged hole 395B. Drilled 90 m into serpentine diapir in axial valley directly west of Snake Pit region. Recovery 15-20%. At 40 m, reentered hole (without cone) with rotary bit (following initial mud motor drilling).

c) Operations: TAMU — two positions open at ODP, petrologist and Meyer replacement. Review of drilling time estimates: subtract 10%.
Leg 108 successfully deployed the mini-reentry cone (six feet diameter with 7 feet casing). Should be routinely available for short-term reentry.

3. DISCUSSION OF NEW AND REVISED PROPOSALS

3.1 Japan Sea (51/D): Tamaki presented results of recent magnetic, MCS, and OBS surveys. Detailed magnetic data in the east Japan Basin reveal coherent magnetic anomalies offset by numerous apparent pseudofaults (frequent ridge reorganizations?). Drilling in this area is not proposed due to presence of gas-charged layer, but similar surveys in the proposed drilling areas to the southeast will be conducted next year. Seismic studies of the Yamoto Basin reveal thicknesses of 2 and 10 km for crustal units with the velocities of Layer 2 and 3 respectively (i.e. twice the crustal thickness of that in the Japan Basin and normal oceanic crust). No dipping reflectors. Thinned continental or thick oceanic crust?

3.2 Ryukyu/Okinawa (145/D Revised) not considered (see minutes of last meeting).

3.3 Bonins: Taylor proposal (171/D) revised to include geochemical reference hole at crest of trench outer rise on Conrad MCS line. Okada-Takayanagi proposal (83/D) revised: 31° N transect based on single-channel data. Arc tectonics objectives similar to Taylor proposal, but also include two eastern Shikoku Basin/western Bonin Arc holes to study effect of meridonal ridge on Tertiary circulation.

Action to SOHP: Clarify objectives in Bonins: history of Kuroshio/Oyahio confluence to be addressed at Ogasawara Plateau (no proposal) OR sites E/F of Okada. Priority of Okada Sites E/F with respect to other Bonin sites and other SOHP objectives in WPAC?

3.4 Sulu Sea (27/D):

A French MCS cruise in Sulu and Celebes seas is planned for early 1987. Two additional sites were proposed by Rangin: C1 in northwest Celebes Sea to date basin formation (Weissel vs. Hilde magnetic correlations) and test Sulu Arc reversal model; P1 in Panay forearc to study initial accretion of Cagayan ridge crust onto Visayan Arc (slivers of Cagayan material are exposed on Panay). The Philippines may be the best place to study collage tectonics.

3.4 Australia-Sunda Arc Collision (242/D): Silver/Reed Proposal. This collision often is used as type for arc-continent collision. Proposal focuses on backthrusting of accretionary ridge over forearc basin in the Sumba and East Timor forearcs, and initiation of backarc thrusting behind (north of) Flores (the volcanic arc). Seismic and modeling evidence were presented supporting these processes. Proposed ODP drilling includes: a) Transect of 3 sites across the back thrust zone (Sawu thrust) east of Sumba island (S1,S2, S3), b) 2 sites in the backarc (F1-F2), c) 2 sites in transition zone between forearc basin and accretionary wedge east of Timor (T1, T2). This may be a back thrust also.
Sites S1-3 have as objectives:
1) Estimates of timing of initiation and cessation of activity along the Sawu thrust. The cessation can be clearly constrained with seismic control and drilling -initiation is more approximate.
2) The incorporation of forearc material into rear of accretionary wedge, and implications for thrust timing.
3) Vertical history of Sumba ridge, which is forearc basement. Two processes are envisaged: a) subsidence due to loading of forearc crust by back thrusting of accretionary wedge. b) Uplift due to (i) underplating or (ii) subduction of marginal plateau. For i) we expect rapid uplift if underplating consists of large crustal duplexes; slow uplift if it is through small sediment packages. For ii), we expect rapid uplift followed soon after by subsidence. If Sumba is a microcontinent, its vertical history may be less pronounced.
4) Sites T1-T2 have similar objectives to S1-S3, but this area is less affected by uplift of forearc basin crust and may show effect of thrust loading more clearly. These sites will also give estimates of timing of Timor uplift and history of arc volcanism in the stratigraphic record.
5) Sites F1 and F2 look at onset of backarc thrusting. Does this process follow, lead, or act simultaneously with back thrusting in the forearc wedge? F1 looks at possible rapid subsidence of lower plate as thrusting

initiates, and stratigraphy of the lower plate as reference section for F2. F2 examines oldest accreted material in the rear of the small backarc wedge as a measure of thrust initiation. A geophysical program using large source 96-channel seismic reflection has been proposed for this region through these sites.

MAC: Prefer sites T1-T2 over S1-3 because of ability to see thrust loading more clearly, as well as the history of Timor uplift/unroofing.
EAS: Existing seismic data are poorer here, but proposed MCS work may change that situation.
MAC: Maybe Sumba is uplifted because of uniform shortening in the crust.
EAS: You should see that reflected in surface geology. Sumba shows only very gentle deformation.
AM: Site survey panel will require cross lines for safety considerations, also heat flow.
EAS: Extensive seismic data (mostly shallow penetration systems) already exist, including some BGR MCS lines east of Sumba.
AM: May still present a problem.
SS: Tectonic story seems very well presented already, so why drill?
EAS: Drilling is necessary to answer questions of timing and sequence of collapse mechanisms in the forearc and backarc zones. These mechanisms appear to be well-developed in collision zones (e.g. Sunda, Mediterranean ridge), but much less developed in non-collisional settings. The timing and magnitude of vertical motions can quantitatively constrain processes of thrust loading (T1-T2 may be best) and abnormally large underplating events (Sumba Ridge uplift - sites S1-S3). Drilling at S2 may give age of initiation of Timor Trough (Miocene?) and F2, the initiation of Flores backarc thrust.

3.5 Ontong-Java Plateau (222/E) proposal: Kroenke et al.
Three elements to proposal:
1) Age and geochemistry of basement and late stage volcanism; how such plateaus form (LITHP objective)
2) Paleoceanography: deep water carbonate response to Neogene changes in sealevel (SOHP objective)
3) Collision tectonics (TECP objective): reference sites on Ontong-Java Plateau necessary for collision tectonics, interpret Malaita Anticlinorium as a flake thrust up onto Solomon Arc because Malaita matches what has been drilled already on the OJ Plateau.

Rangin: Island geology is not well integrated into proposal. Age of collision/obduction process? How was this determined?
Jongsma: Why put sites on inferred fracture zone? Interpretation of MCS not accepted by panel.
Schluter: Need better MCS date to determine whether the plateau is continental crust or oceanic crust.
Silver: Need more information about deep structure; the collision process in this area is fundamental, but this proposal does not address the large-scale problem.
Taylor: The existing and proposed site survey data base necessary to address the collision problem is not adequate.

CONSENSUS:
1) This is a fundamental problem with major implications for SW Pacific, but
2) The data base is not sufficient to address the collision aspect of the problem and the proposal is not well focused on this aspect.
4) It is not clear how drilling will solve the problem with the sites proposed.
If we broaden our view to include USGS proposal on Solomons and Vanuatu, then all things considered above, we prefer the Vanuatu proposals.

3.6 Solomon Sea Proposal (235/D), Honza et al. Three objectives:
1) Sediment accretion along New Britain trench to north
2) Accretion along south subduction zone that has very slow subduction
3) Age of Solomon microplate

Tamaki: Accretion of sediment can be addressed by other subduction zone drilling. The subduction at southern margin is not well constrained. The age of the Solomon microplate is a local problem.
Silver: A fascinating problem is the transition from the collision on New Guinea to the Solomons. The Solomon Sea is being closed, and that problem is not addressed in the proposal.
CONSENSUS: Data base insufficient to look at the primary problem: arc-continent collision.

3.7 Great Barrier Reef (206/D) Davies et al., revised.
Themes (see also SOHP minutes):
1) Carbonate ramp ideally situated to record response to paleoenvironment
2) Sedimentation as a function of sea level
3) Basin/shelf sediment fractionation
4) Diagenesis in an undersaturated ocean
5) Local problems: basin fill, building of reef

Silver: What is different about this from the Bahamas?
(Panel: It's epiclastic, reef has come and gone through time, carbonate undersaturated, ramp instead of steep scarp.)
Schluter; The tectonic influence is very great and should be considered more in choice of sites.
Leinen: Time allocation seems unrealistic in view of the fact that these will be cemented carbonates, not soft sediment. Will probably have to drop sites or shorten holes.
CONSENSUS:
Proponents should re-evaluate drilling times to determine whether all sites can be drilled to the depths indicated. If not, we favor shorter holes, not fewer holes.
Proponents should re-evaluate sites to consider tectonic problems (e.g., effect of differential subsidence on isolating sea-level effects)

3.8 Vanuatu (190/D) Fisher et al., revised. Major themes:
1) D'Entrecasteaux Fracture Zone collision
2) Arc reversal recorded in Aoba Basin development
3) Back-arc rifting and its relation to collision

Silver: The justification for specific sites in the proposal in terms of the geologic problems that they will solve is not strong.
Leinen: What differences are there between the Bonins and the Coriolis trough that justify drilling both?

Scott: The ore generation component of the proposal needs to be strengthened.
Larson: Is arc reversal a common enough process to devote a leg to drill it? (Answer from panel is "yes.")
Larson: Need to do more comparisons between areas; e.g. collision in Sunda vs. collision in Vanuatu.
Schluter: Quality of seismic profiles is not good (note: there are 27 days of MCS surveying funded next year).
NO CONSENSUS developed at this point.

3.9 Lau Basin: a) (220/D) Hawkins et al. (presented by Leinen).

Proposal based on Hawkin's view of how the basin formed - Miocene forearc rifting caused by retreat of trench. Now, spreading is back-arc to active Tonga arc (Lau ridge is a remnant), but young volcanoes built on initial "backarc" crust. Initially, get BAB/MIB basalts and with further widening of basin get LBB (Lau Basin basalt). Proposing 3 drill sites: L7 at transition between MIB and LBB; L11 at active spreading axis; L12 at inferred propagating rift where massive sulfides occur.
Comments from LITHP: (1) distribution of basalt types not well constrained by existing dredging - 25 hauls; (2) lack of understanding of nature of transition (intercalated? sharp?); (3) L11 near methane anomaly but disagreement as to whether crust really is zero age here, (4) L12 site is on inferred propagator which adds a complexity which is not well understood. LITHP encourages all proponents of Lau drilling to get together. LITHP likes Lau drilling because of (1) petrological problem of basalt types, (2) value for magma chamber.

Panel Concerns: There are several different interpretations of Lau tectonics and the time-space variation in BAB basalt chemistry. Proposals need to evaluate all the models. Bare rock hole proposed for spreading ridges near hydrothermal site. WPAC recommends that all the players get all data and syntheses together in a single proposal for presentation at our next meeting. A Lau-Tonga working group is needed.

Lau Basin: b) Cronan proposal (239/D) presented by Audley-Charles.

Proposes to relate chemistry and tectonics via (1) tracers in sediments to locate spreading center and (2) dating clastic components. Needs 2 holes. Good analog for lithogeochemical exploration.
CONSENSUS: Concepts good. Any Lau transect will undoubtedly provide the sediments to answer the questions posed, i.e. compatible piggyback proposal.

3.10 Tongan Forearc
Bloomer and Fisher proposal (243/D) presented by Brian Taylor.

Two holes on trench-slope break. Motivation is to test current model of forearc evolution as established in Marianas/Bonins. Is the model universal? Holes could also test competing models re continuity of arc volcanism in relation to episodes of backarc spreading, as recorded in the forearc sediments. Two holes (5 days each) could be done as part of a Lau leg. Really needs only one hole, not two.

Pelletier and Dupont proposal. (261/D revised) presented by Recy.
Oblique convergence of Louisville Ridge and Tonga Trench. Probable accretion of Louisville Ridge under Tonga arc giving localized 2000 m uplift of arc. Seven holes to test hypothesis.
Objectives: (1) tectonic effect of subducting Louisville Ridge; (2) accretion on inner slope; history obtained from microfossils in sediments.
Four holes located on MCS but three on SCS.
Is the proposal a better example of arc-ridge collision than Manilo Trench?
Yes, plate reconstructions are better known.
Biostratigraphy is possible in 0-3 m.y. time period, but a) it requires pelagic sediments (which may be diluted in the forearc clastics) and b) unless six sites are drilled the proponents say that they will have insufficient biostratigraphic resolution to solve the problem.
To distinguish along strike (ridge sweeping) from across strike vertical tectonics will require three transects of holes, linked by seismic stratigraphy (and there is no continuous forearc sedimentary cover).
CONSENSUS: Not clear how much drilling is necessary to solve the problem.

4. REVIEW OF WPAC DRILLING PROSPECTUS

PCOM is happy with the length and type of information provided in WPAC's first drilling prospectus. They request that we revise it in light of the thematic panels' comments and additional proposals received, and that we provide them with a nine-leg drilling program with potential alternatives.

This was our first opportunity as a panel to jointly review the first prospectus, each section of which was largely written by individual proponents. The review proceeded semi-topically, dealing first with the marginal basins (Japan Sea, South China Sea, Sulu/Banda Sea), then Great Barrier Reef, then collision/accretion processes (Sunda, Zenisu, Nankai, Vanuatu, Louisville), then intra-oceanic arcs/back-arcs (Lau-Tonga, Bonin-Mariana), and finally with the Sulu transect.

4.1 Japan Sea

New summary distributed. Too many sites and days. Panel supports:

1. Age and nature of basement J1b, J1d, JS3a (east of JS-3)
2. Multi-rift opening (11.5, 7 and 7 days)
3. Obduction and its timing — J3a (9 days)
4. Sediment history (silled basin) — JS-2 (4.5 days)
5. Metallogeny and Yamato Rift — J2a (13 days)

(Proposed holes for fresh water diatoms and deep sea fans are not supported). Plan 6 holes, 52 days on site, in areas with no gas problem. Tamaki to revise summary accordingly.

4.2 South China Sea - Part I, Rifted Margin

TECP criticizes proposal as relying too heavily on McKenzie model (symetric thinning) to the exclusion of the Werniche model (assymetric detachment); no reference to conjugate margins. May be a good place to study ocean continental boundary and (conjugate) passive margin evolution — but we need to see well-processed MCS data. The proposal, as currently written, is out of date in terms of rifting models. There is nothing special about 30 my drift onset if Werniche rather than McKenzie model is appropriate. Proponents need to identify how propsed sites will distinguish

between different models, not just details within one model. Return to proponents for significant revision.

South China Sea - Part II, Deep Basin

Need to know sediment history and age of basin. Propose to combine hole(s) in S. China Sea Basin, Sulu Basin, and Banda Basin in one leg.

4.3 Banda-Sulu-South China Sea

The interaction of the mosaic of microplates in SE Asia is the basis for many models of collage tectonics and terrain accretion. Better reconstructions provide new insights/ideas re processes. Sulu-Celebes-Banda area is one of the two (proposed) 'trapped' basins best known in the world (other is Bering Sea). Important problem is geodynamics, for which we need basement ages, histories of volcanism and collisions (from sediments), etc. leading to an understanding of accretion of terrains, entrapment of marginal basins, relation to ophiolites on land. Drilling is the only way of solving the problem. A Banda-SCS transect of holes would also meet important SOHP objectives: record of northern hemisphere glaciation onset (SCS), oxygen minimum and silled basin sedimentation (Sulu), and interaction/closure of Indian-Pacific circulation (Banda). Sediments are very thick in Celebes (>1500 m) and water is very deep (5000 m), so drilling one hole would take most of a leg. Decision: No Celebes hole.
Plan: One hole each in Banda south, Banda ridges, Banda north, Sulu Basin, S. China Basin; 56 days on site. Preferred S. China Sea hole is #SCS7 (on magnetic anomaly 6). Silver and Rangin to revise summary emphasizing geodynamic aspects.

4.4 Great Barrier Reef

Revised summary distributed. Basically O.K., but panel concerned by drill time estimates (too low). Taylor to make minor revisions: add figures, note preference for less penetration rather than fewer sites (don't sacrifice transect).

4.5 COLLISION Objectives

Ontong Java - Solomons not further considered for reasons stated above.

Manila - Taiwan proposal/prospectus not acceptable in its present form (three transects each requiring approximately one leg to drill, focus on toe/forearc processes). As stated at our last meeting, the panel is interested in considering a revised proposal focusing on the collisional processes — as an alternate (addition?) to the Sunda-Timor area.

4.6 Sunda Backthrusting

New prospectus distributed, addressing three processes:
a) backarc thrusting (F sites) - panel agreement
b) thrusting of the forearc wedge back onto the arc (S sites, perhaps T sites)
c) mountain-building and unroofing (T sites)
Extensive discussion of S vs. T sites. Backarc thrusting and forearc backthrusting are considered global collision processes, which happen to be best imaged currently along the Savu-Flores transect. Backarc thrusting occurs north of Wetar and forearc backthrusting MAY occur east of Timor, but these areas are not seismically well imaged at present. Audley-Charles suggests that mountain-building as a result of arc-continent collision is

better studied at the T sites which would not only provide a forearc vertical motion history but also a history of the uplift and erosion of Timor. The panel would like to see all three processes addressed, but the seven proposed holes would require 60 days on site, with minimal downhole measurements. An MCS site survey is proposed and the panel is prepared to forward the prospectus pending that information, but will ultimately have to reduce to five sites. Panel notes MCS cross lines will be required before drilling. Audley-Charles to send Silver and Taylor prospectus modifications dealing with Timor.

4.7 Zenisu Ridge

Existing seismic reflection data insufficient (for TECP and several WPAC members) to substantiate ocean-plate shortening, but MCS survey by Taira is scheduled for this year. Potentially exciting area re models of ophiolite emplacement.

Panel recommends Z1: local reference site (7 days)
Z2/3: dewatering, physical prop. (7 days) — NB. clams found at 23.
Z4: nature of basement (3 days) - for ophiolite emplacement models
Z5: date uplift/tilting history (8 days)

25 days total drilling = 1/2 leg. Rangin to revise prospectus accordingly.

4.8 Nankai

Most exciting aspect is excellent seismic imaging of lower slope/toe processes (Sites 1-4). The rest of the forearc transect is no better imaged than many other areas. Drilling conditions at Nankai are not difficult says Coulbourn/Karig/Taira; Leg 87 problems due to typhoon. Pending evaluation of Barbados drilling (Leg 110) and Physical Properties Workshop, the panels priorities are: NKT1 — reference site and layer parallel shortening of trench sequence
NKT2 — 1700 m hole through decollement to oceanic basement

Drilling and logging these two holes could require one whole leg.

ALTERT TO TAMU: Decollement to be penetrated is at ~6 km (in 4.6 km water)
NKT3 — imbricate thrust
NKT4 — lower slope basin backtilting above thrust

Taira/Tamaki to revise prospectus

4.9 Vanuatu

Leinen: LITHP prefers simple setting of Bonin transact to address backarc rifting and would deemphasize this aspect in Vanuatu unless significant differences (e.g. in geochemistry, structural and volcanic style, etc.) can be shown.

Panel chose Vanuatu region (Aoba Basin sites 1 and 2) to adress arc reversal (due to OJP collision?) rather than Solomons, but wants to see better MCS processing (velocity analysis, migration) to evaluate drilling the volcanoclastic wedges.

Primary focus of this area is DFZ collision. Two issues: (i) material transfer/structure evolution of forearc and (ii) coupling between collision and backarc extension. After extensive discussion, it was the panel's consensus that the time of initial collision was unlikely to be uniquely determined and therefore that issue (ii) be downplayed. Because the north DFZ causes little apparent disruption of the forearc, the panel preferred DFZ sites 4 and 5 over 1-3 to address issue (i).

CONSENSUS: Recy to revise prospectus to one leg, to include 2-3 forearc collision holes, IABl and 2, and two backarc holes. Panel requests to see migrated MCS lines and velocity data crossing all key sites.

4.10 Louisville Ridge/Tonga Forearc

See previous discussion of revised Pelletier and Dupont proposal.
CONSENSUS: Area insufficiently surveyed (needs extensive MCS grid linking at least three widely-spaced transects), and too many legs required to solve problem.

4.11 Lau-Tonga

See previous discussion of Hawkins, Cronan, and Bloomer-Fisher proposals.
Significant panel interest in Lau Basin but, like LITHP, consider data and models presented by existing proposals to be inadequate to define/evaluate specific sites. Given the extensive data sets recently (or about to be) collected by six geographically isolated institutes, we
REQUEST PCOM TO ESTABLISH A LAU BASIN WORKING GROUP.
Membership: Chairman should be WPAC panel member, not proponent but with local knowledge.
Members should be P.I.'s of the respective British, French, German, Japanese, Scripps and USGS data sets.

Suggested membership:	J. Gill (WPAC, UCSC, petrologist)	- Chair
	J. Hawkins (SIO, petrologist)	- or H. Craig
	Foucher (France, heat flow)	- or Sibuet or Maury
	J. Morton (USGS, MCS)	- or T. Vallier
	V. von Stackelberg (BGR, hydrothermal deposits	
	D. Cronan (U.K., metalliferous sediments)	- or R. White
	E. Honza (GSJ, geophysics)	- or T. Eguchi

Charges:

1) to integrate all the existing data, particularly petrology, bathymetry, magnetics, reflection seismics and heat flow.
2) to come back to us with a proposal for sites to address the problems of:
   a) petrologic development of the Lau Basin, including transitions between lava types,
   b) initial rifting
   c) geothermal processes, and possibly
   d) arc volcanic history (forearc site)

keeping in mind that we are not thinking of this as a leg for a bare rock hole
3) to do this in the context of one leg of drilling including downhole measurements, etc.

It is desireable for the first report of this group to be presented at our next (Nov/Dec?) meeting.
Leinen to revise existing Lau basin prospectus.

4.12 Bonin-Marianas

Four major objectives:
1) Backarc rifting (BON 1 & 2)
2) Forearc development (BON 3-6)
3) Serpentinite diapirs (BON 7, MAR 2 & 3)
4) Geochem. & SOHP reference site (BON 8)

Larson: Likely problems with drilling volcanoclastics? Tamaki: GSJ has had good experience with piston coring in Sumisu Rift. Taylor: Leg 60 had good drilling at sites 458 and 459 in Mariana forearc; BON 2 is isolated by rift edge uplift isolated from recent course arc volcanoclastics.
Panel: Are Mariana diapir holes really necessary? Taylor: Yes. Major omission (as unknown) from Leg 60 transect. Mariana diapirs bigger, more serpentinized (?), best studied, and in different position (near trench slope break) than Bonin lower slope diapirs.
Panel: Are all four Bonin forearc sites necessary; how can we meet essential goals while minimizing drilling time? Taylor: Lowest priority hole is Site 3 on the frontal arc high; next lowest is one of the two Mariana diapir holes, and third lowest is Site 4 on the upper forearc. Proposed MCS site survey is designed to define sites where objectives can be met in shorter drilling time. However, there is no way that all four objectives (or even three, if one of those is forearc developemtn) can be met in one leg. LITHP and TECP support two legs.
COMPROMISE: For voting on WPAC drilling priorities consider two legs:

Bonin Leg 1 = rifting and forearc objectives (sites 1, 2, 5A, 5B, 6 essential)
Bonin/Mariana Leg 2 = diapirs, reference site (and remaining forearc sites as time permits).

Taylor to modify prospectus to mention priorities and voting procedure. Pending SOHP reappraisal, Okada sites E and F are not a high priority and will not be included in prospectus.

4.13 Sulu Transect

For logistics reasons (imminent departure of 25% panel), the revision of this last prospectus was postponed until after the vote on the WPAC drilling program. It is included here for organizational simplicity.

Panel recommends refocussing of this prospectus on collision of Cagayan Ridge with Panay and, secondarily, Sulu Basin subduction at Negros Trench, with downplay of sites 6-8 looking at Sulu Arc and its possible reversal. Put in context of Philippine land geology and collage tectonics. Rangin to rewrite prospectus with input from Schluter.

5. VOTE ON WPAC DRILLING PROGRAM

Having reviewed the drilling prospectus for all areas (with the exception of the Sulu Transect noted above), and having agreed as a panel on the content of the drilling program in each area which we would support at this time, the 12 members of the panel then voted on their drilling priorities by ranking the 10 1/2 legs 1 through 11. Proponents of any leg, or portion thereof, could not vote for that leg, so each member's votes were reordered 11 through n + 1 (n = no. of non votes). The votes for each leg were first summed and then divided by the number who voted for that leg.

The resulting priority ranking was:

1.	Bonin - 1	9.8
2.	Japan Sea	8.6
3.	Sunda Backthrusting	7.6
4.	Banda-Sulu-South China	7.2
5.	Bonin-Mariana - 2	6.1
5.	Great Barrier Reef	6.1
7.	Nankai	6.0
8.	Lau Basin	5.8
9.	Vanuatu	5.7
10.	Zenisu (1/2 leg)	5.1
11.	Sulu Transect	2.6

Taylor notes that, these results are VERY consistent with WPACs previous rankings, even though the panel membership changed considerably, with only two exceptions:

a) the priority for drilling in the Sunda region rose considerbly (10th to 3rd) following requested refocusing of proposal on collision tectonics rather than toe processes.

b) passive margin drilling in the South China Sea was removed from the priority list following specific criticisms by TECP (with which WPAC agrees), and pending significant revision (data and model updates) by proponents.

6. REVIEW OF SITE SURVEY STATUS

Site survey requirements remain unchanged from last meeting.

Update on funded (and proposed) cruises in western Pacific:

France: 1987 MCS cruises to Sulu Sea and Vanuatu ($\geq$ 45 days total)

Germany: Feb.-April 1987 Sonne Seabeam and sampling in Lau Basin.
1987 MCS cruise to Sulu-southern South China Sea.

Japan: 1986 ORI:MCS Nankai
1987 ORI:MGG Mariana Trough (40 days), Japan Sea (14 + 60 days)

U.K.: Spring 1987: Washington Seabeam and sampling in Lau Basin.
Darwin cruise not yet scheduled.

U.S.: May-August ALVIN dives in Mariana-Bonins (Mariana: Trough axis and off axis, forearc diapirs, volcanic cross chains; Bonin:Sumisu Rift)
Proposals to NSF for Banda digital single-channel/Seabeam, Sunda MCS, Bonin MCS, Nankai two-ship MCS, Lau basin Seabeam/sampling/deep tow, Ontong Java Plateau SeaMARC/digital single channel. Funding decisions will be made before our next meeting.

At the request of SSP, WPAC assigns the following panel members as site survey watchdogs: Bonins - Taylor, Japan Sea - Tamaki, Sunda - Silver, Banda/Sulu/South China - Silver/Rangin, Great Barrier Reef - Sarg, Nankai - Taira, Lau - Gill, Vanuatu - Recy, Zenisu - Rangin/Taira, Sulu Transect - Rangin/Schluter.

7. CIRCUM PACIFIC CONFERENCE

The panel discussed the potential content of the WPAC poster session at the August meeting in Singapore. Suggested a regional map with arrows joining priority drilling areas to select color graphics/summary objectives. Taylor to contact individual proponents for input, e.g.:

Nankai - MCS from Taira
Sunda - model from Silver
Great Barrier Reef - seismics from BMR
Vanuatu - 3D bathymetry from Recy
- MCS from USGS?
Japan Sea - 3D bathymetry and cartoon with sites from Tamaki
Lau - bottom photos from von Stackelberg
- Valu Fa MCS?
Banda/Sulu/South China - geodynamics from Silver

8. NEXT MEETING

The next meeting is scheduled for December 13-15 in San Francisco. Taylor to request J. Ingle to host at Stanford. However Larson notes possible rescheduling of PCOM meeting to first week in December. In this event PCOM would request WPAC to meet in November. There was no period when all members could meet. Best compromise: 17-19 November in Tokyo following KAIKO conference and overlapping with TECP. This is definitely an undesirable alternative to many members, including chairman, and would place a significant burden on our Japanese hosts. Larson to sound out PCOM and get back to Taylor.

WPAC meeting concluded at 1700 on 21st June.