WESTERN PACIFIC PANEL MEETING
October 27-29, 1988
Lamont-Doherty Geological Observatory
Palisades, N. Y., USA

DRAFT MINUTES

Present:

Kent Brooks, ESF; Roger Buck, TECP; David Cronan, UK; Jim Eade, CCOP/SOPAC Member-at-Large; Bob Garrison, SOHP; Jim Gill, USA; Philippe Huchon, France; Roy Hyndman, PGC Member-at-Large; Rich Jarrard, LDGO; Hermann Kudrass, FRG; Audrey Meyer, TAMU; Ralph Moberly, PCOM; Greg Moore, USA; Jim Natland, USA; Lindsay Parson, IOS guest; Julian Pearce, LITHP; Steve Scott, Canada; Kensaku Tamaki, Japan; Brian Taylor, USA, Chairman.

1. Minutes of the April, 1988 meeting were approved without modification.

REPORTS

2. PCOM Report (Moberly)

The JOIDES office has moved to HIG for a two-year period beginning October, 1988.

Moberly reported on the new panel structure which emphasizes thematic panels, now four in number. The former SOHP panel is replaced by two panels, the Ocean History Panel (OHP, Chairman N. Shackleton, UK) and the Sediment Geochemistry and Sedimentary Processes Panel (SGPP, Chairman Irwin Suess, FRG). Proposals are first sent to all four thematic panels. New proposals are being sought on any theme, for any ocean, by any investigator for post-1992 drilling.

The next PCOM annual meeting (December, 1988 in Miami) will set the FY 1990 schedule and the approximate ship location for the subsequent three years.

3. LITHP Liaison report (Pearce)

LITHP endorsed the concept of geochemical reference holes and recommended a program as discussed later. They also requested that a meeting be held to develop plans for the Lau Basin based on new survey information.

The most recent LITHP meeting revised a draft of a long-range planning document which focuses strongly on ocean ridges. A concern was

expressed by WPAC members that the current strong focus on ridges will exclude important science in other settings.

The new LITHP chairman will be Rodey Batiza (US).

4. SOHP liaison report (Garrison)

NE Australian margin and Japan Sea remain top priorities for WPAC drilling. Some concerns were expressed about geochemical reference sites, reiterating statements at our April meeting.

5. TECP liaison report (Buck)

The EM experiment proposed for the Japan Sea is not supported because of doubt that a single point measurement is meaningful.

Zenisu Ridge proposal is not supported. The chosen sites have local complications and the proposal is not strong enough to displace other programs.

South China Sea drilling is not supported despite the new Chinese data.

Studies of the arc to backarc transition in the Japan Sea by means of downhole instrumentation is supported (Proposal 155F).

Lau Basin forearc drilling at Site LG-6 is supported.

Proposal 309F for vertical seismic profiling at BON1 & 2 is supported, but a larger than1000 cu. in. sound source should be considered.

Strong interest was expressed for the Nankai Trough, with pore pressure and permeability measurements seen to be critical. TECP recommends two legs in order to accomodate the program. Hole NKT-10 is endorsed and should go to basement for fluid-flow measurements.

A white paper for long-range planning is in its second draft. TECP has not included mid-ocean ridges in its mandate.

6. Logging Report (Jarrard)

The status of logging tools was summarized (see Appendix 1). Key items were the development of the Geoprops tool for testing on Leg 126, to be used later at Nankai, and planned leasing of high-temperature tools for the Lau Basin.

Concern was expressed about the adaptibility of the logging tools to the new slim-hole high-speed diamond drilling system. A gyroscope will be added to the University of Washington 3-component magnetometer/ susceptibility tool planned for use on Legs 125 and 126.

DMP passes the following information to WPAC:

Leg 124: Insufficient time to log all holes fully.

Leg 125: FMS not available. Televiewer is an alternative.

Leg 126: IP tool is not reliable. There will be a problem if BON-1 is very hot. Geoprops test requested.

Legs 127 and 128: DMP asks WPAC to move hole J1b hydrofrac experiment from Leg 127 to Leg 128 because of time pressure on Leg 127. WPAC recalculation of drilling times at this meeting showed that this is not necessary.

Geochemical Reference Sites: Deep crustal drilling at BON-8 requires a full basement logging program.

NE Australian Margin: The dual laterolog is withdrawn because vuggy carbonates are not expected to be commonly encountered.

Vanuatu: There is insufficient time to do all logs. Hydrology should be examined in two holes.

Lau Basin: All sites are generic so there are no changes in DMP planning.

7. TAMU report (A. Meyer)

The latest operation schedule was presented (up to Leg 129E).

Co-chief scientists for upcoming legs are as follows:

Leg 124: Silver, Rangin
Leg 125: Fryer, Pearce
Leg 126: Taylor, Fujioka
Leg 127: Tamaki, Pisciotto
Leg 128: Suyehiro, Ingle
Leg 129: Taira, Hill

Scientific Results (formerly Part B) of the Proceedings for Legs 101/102 will be published by December, and for Leg 103 in January.

A shipboard measurements panel (SMP) was created to advise TAMU on equipment for the ship. Changes have been made in laboratories and equipment. The paleontology lab has been enlarged. A new single-track, multi-channel, whole-round-core physical-properties logger is being installed on the ship. New AA and C-N-S machines will be installed during Leg 124E. Four new Macintosh computers and a laser-writer have been donated to TAMU for use on the ship.

DISCUSSION OF PLANS FOR LEGS

8. Leg 124

The Sulu and Celebes sites will take more time than planned because of co-chief scientists desire to increase emphasis on study of structure and fluids. The Cagayan Ridge site is problematical because of the necessity to spud into hard limestone, and is down-graded in priority. It is now considered a secondary, time-available objective. C. Rangin has replaced K. Hinz as one of the co-chief scientists.

9. Leg 124E (Engineering)

Three or four sites will be drilled. The first, in shallow water, will test the mining system. The second, repeating DSDP Site 453, will test logging equipment. The third, at DSDP Site 452, will test the ability to core intervals of chert and soft sediments. The fourth, to be done if time is available, will test deep-water drilling capabilities in the Mariana Trench.

10. Second Engineering Leg

Plans will remain tentative, both as to timing and objectives, until after Leg 124.

11. Lau-Tonga

Parsons presented results of a recent GLORIA survey. It shows a S propagator at 19° 20' S overlapping the N end of the eastern Lau spreading center. A short spreading segment lies between the two. A failed spreading center lies 50 km W of the eastern Lau spreading center.

The Lau Basin working group, convened by LITHP, adjusted the drilling program in response to the new GLORIA data, and recommended additional survey information be obtained by J. Hawkins on an impending cruise. The revised program maintains earlier requirements that holes be placed in old, intermediate, and young parts of the basin, but sites have been moved and one site (LG1) has been replaced (by LG10, 150 km further south). More survey data are needed to exactly locate the ridge jump boundary which sites LG10 and LG9 (our lowest priority site) are planned to straddle.

WPAC followed the TECP recommendation to retain the Tonga forearc site. However LG6 was replaced by LG6A as the prime forearc site because sediments are thinner at LG6A. Adjusted drilling times for LG2, 3, 7, 10, 6a, and 9 (in priority order) give 50-52 operational days and 57-59 total days for this leg, assuming a Suva-Pago Pago transit.

WPAC notes that the Lau Basin offers an excellent place for an engineering leg to drill young, glassy basalts at a propagating tip (19°20'S), a hydrothermal zone at a differentiated spreading ridge (Valu Fa), and thin, sedimented backarc crust . Other well-surveyed places for engineering tests in similar environments include (from south to north) the North Fiji, Woodlark, and Manus Basins, as well as the Bonin rifts.

WPAC suggestions for Lau-Tonga co-chief scientists are Hawkins, Gill, Von Stackleberg, Parsons, Cronan, Foucher, Scholl, Bloomer, and Stevenson.

12. Vanuatu

DMP wants to do more logging experiments and fluid sampling experiments in hole DEZ2 than are proposed.

SSP accepts the proponents velocity estimates at DEZ2 but considers that the drilling conditions and depth of this site may require re-entry and therefore more time. {Note: On 3.5 kHz records, there appears to be only 20-25 m of soft sediments overlying hard material at DEZ2. This is brought to TAMU's attention as a potential limiting factor, requiring free-fall, rather than full, re-entry at DEZ2}. New estimates of drilling time for DEZ2 need to be made based on the assumption that there is fractured hard rock in much of the interval that we wish to core.

WPAC proposes that DEZ2 be drilled before DEZ1. WPAC recommends allocating 16 days total for DEZ1 and DEZ2, using all of it if necessary to reach the decollement at DEZ2. If there is no offscraped section in DEZ2, there is no reason to drill DEZ1. Sufficient time must be available to drill IAB1 and IAB2 no matter what happens at DEZ2.

WPAC's suggestions for co-chief scientists are Jean-Ives Collot, Mike Fisher, Gary Green, Jacques Recy, and Sherman Bloomer.

13. NE Australian Margin

SSP reviewed the full data set and approved the sites.

WPAC received a written status report from Davies and Symmonds which is attached as Appendix 2.

PCOM is advised that the program needs 47-55 operational days at the minimum 8 sites (SOHP's highest priorities), and that this should not be compromised because of transit time. Another half of a leg would be required to drill all sites.

WPAC suggests the following as co-chief scientists: P. Davies, W. Symonds, R. Sarg, A. Droxler, W. Schlager, J. McKenzie, A. Bosselini, R. Ginsburg, N. James.

14. Geochemical Reference Sites

LITHP endorsed a program of three principal targets, BON-8, MAR-4, and an apron site. To PCOM's query about what could be accomplished in a single leg, LITHP responded that the first two of these could be drilled, and that an apron site probably would require time on an additional leg. To concerns about whether this would provide adequate information on sediment/crust variability, LITHP considered that the three sites would sample all volumetrically significant components entering the trench/subduction systems, although proportions of components obviously would vary within holes and from place to place. Representative recovery

would be sufficient in cherty intervals, and will be augmented by geochemical and other logging.

Two days have been added to a forthcoming cruise to survey western Pacific guyots, in order to run a track over site A2-2, alternate to BON-8.

Drilling times in days are estimated as follows: BON8 (20.2 drill, 5.8 log, 26 total days) + MAR4 (15.6 drill, 3.0 log, 18.6 total days) = 52.6 total days, allowing for for 6 transit days (Tokyo-Guam) and 2 contingency days. To this could be added the apron site MAR5 (7.5 drill, 2.6 log, 10.1 total days) = 63 total days.

WPAC suggests the following co-chief scientist nominations: Langmuir, Natland, A. Robertson, Staudigel, Leinen, Salisbury, Albarede.

15. Japan Sea (Leg 127)

TECP is negative about the electrical conductivity proposal because it was confined to a single point. Tamaki explained that the proposed experiment uses a new method and that TECP probably did not understand it. WPAC recommends that this proposal be re-evaluated by DMP.

SSP has cleared all sites but is concerned that oceanic basement has not been properly recognized in the seismic records, particularly at site J3b-1. The upper part of what has been identified as basement appears to be stratified, and may consist of interlayered sills and sediments, overlying the true basement of sea-floor-spreading ocean crust. WPAC concurs, and considers that J1b may have to be drilled to greater depths in order to reach true basement.

After seeing the new seismic records, WPAC expressed concern that the proposed site J3b-1 atop the Okushiri Ridge will not determine the time of thrusting, and that the section does not conform to the model presented for obduction. In view of this new seismic information, the interpretation of the tectonics at site J3b-1 is controversial. Also, in view of the known stratification in the upper level of basement in the entire Japan Sea basin, WPAC puts site J3b-1 as the lowest priority of the four sites on Leg 127, and gives the co-chief scientists the latitude to deepen Hole J1b if true ocean crust is not penetrated within the planned drilling depth. J3b will be drilled on a time-available basis.

16. Japan Sea Leg 128

Proposed sites J2a and JS2 and experiments at J1b are unchanged.

17. Nankai Trough Leg 129 and perhaps more:

The ONDO temperature-measuring experiment was considered by TECP and DMP. The system is not likely to work as planned because of

sea-water circulation in the hole, but can be modified to prevent this problem. DMP recommended that 2.5 days be allotted for deployment and testing.

Logging plus experiment time estimates for NKT-1 and NKT-2 range from 19-31 days, depending on different scenarios (Appendix 3). DMP's "Realistic Program" is 31.3 days; their "Abridged Program" is 20.7 days.

A new proposal by Karig, Moore, and Kastner presents a four-hole program for Nankai to measure fluid flow and mechanical properties both in vertical sections AND across the accretionary prism. The importance of determining the horizontal gradients was emphasised at the recent Accretionary Prisms DPG meeting. TECP endorses the proposal, and recommends that 1) the upcoming Kaiko 2 submersible program and ODP be coordinated; 2) pore-pressure and permeability measurements are essential and drilling should not be undertaken unless tools are operational; 3) time should be taken to drill NKT-10, a new site, to basement in order to obtain a complete picture of fluid flow; 4) drilling should be concentrated at the toe of the prism, drilling fewer holes upslope, if necessary, in order to have sufficient drilling time to reach basement at NKT-10.

WPAC considered two drilling scenarios, involving one-leg and two-leg programs as follows: 1) NKT-2 pilot hole plus re-entry to basement (21 drill +16 log days) plus NKT-1 (10 drill + 7 log days), for a total of 60 days with contingency and transit; 2) Leg 1: NKT-2 (21 drill +21 log days) plus NKT-10a,b (6 drill + 3 log days), total = 57 days with transit and contingency; Leg 2: NKT-10c (13.5 drill + 17.5 log days) plus NKT-1 (10 drill +10 log days), total = 61 days with 8 transit and 2 contingency.

As documented in Appendix 4, the two leg program is much better, from both a thematic and operational view!

For the two-leg option, WPAC recommends that there be at least 6 months, and preferably 1 year, between the legs, in order that the results of the first leg can be evaluated and tools can be modified accordingly. Logistics dictate that the lapse time between legs will likely be of the order of either 6 or 18 months.

WPAC suggests the following as co-chief scientists for a second Nankai leg: Dan Karig, Greg Moore, Miriam Kastner, Joris Gieskes, Y. Ogawa, Erwin Suess, Rhinus Wortel, Rob Knipe, Casey Moore, Jacques Boulegue, Bob White.

18. Bonin/Mariana (Leg 125) and Bonin (Leg 126)

Most BON and MAR sites are little changed from previous meetings except 1) BON-4 replaces BON-5a in priority; 2) BON-6 is moved further south and is now two holes, BON-6a and BON-6b. Leg 126 may return to Leg 125 site BON6A in order to log it with FMS and VSP (which will not be available on Leg 125).

Recent Geological Survey of Japan measurements show that heat flow at BON-1 and BON-1a is less than 100mW/m , thus there is little danger of encountering high-temperature fluids.

Karig requests that the Geoprops tool be tested on Leg 126 in an APC/XCB hole. WPAC proposes the pilot hole of BON-2 for this purpose. A technician will have to be trained to operate the tool on Leg 126.

VSP has been requested and approved for Leg 126. S. Swift and H. Hoskins were suggested as experienced persons capable of running it.

FUTURE OF OTHER MATURE PROPOSALS

19. PCOM requested that all mature, or nearly mature, proposals considered by WPAC, but which are not in the program, be identified. These are: 1) Zenisu; 2) South China margin; 3) Banda Sea and South China Sea basins; 4) Valu Fa; 5) Vanuatu backarc rifts.

20. WPAC emphasizes in as strong terms as possible that the WPAC drilling program, having been down-sized repeatedly by PCOM over the past three years, is now down to bone marrow and cannot be cut further without untolerable damage. The three SW Pacific legs in WPAC's program for FY90 respond directly to priority directives of the Thematic Panels. NE Australian Margin is SOHP's highest WPAC priority, Vanuatu is TECP's highest priority, and Lau-Tonga is a high priority of LITHP. WPAC will not further prioritize its program. WPAC notes that time in the Western Pacific is being lengthened by engineering legs and dry docking.

PRELIMINARY CRUISE TRACK FOR FY90 AND BEYOND

21. WPAC considered a possible preliminary cruise track following the first year of WPAC drilling.

			Japan
Jan 1990	1 mo.	Eng. II	
Feb-Mar	2 mo.	Geochem Reference	
			Guam
Apr-May	2 mo.	CEPAC*	
*** cyclone season starts in northern areas ***			Townsville
June-July	2 mo.	NE Australia	
			Nomea
Aug-Sept	2 mo.	Vanuatu	
			Fiji
Oct-Nov	2 mo.	Lau-Tonga	
*** cyclone season starts in southern areas ***			Samoa

* Ontong-Java Plateau transect
Old Pacific
Seamounts and Guyots

Nankai II is proposed to be done during CEPAC's Western Pacific drilling.

FUTURE OF WPAC

22. As of January 1, 1989, the new planning structure of PCOM comes into effect at which time WPAC becomes a Detailed Planning Group (DPG), together with CEPAC (which may be split into subgroups), accretionary margins, and ridges (sedimented and EPR). WPAC feels that it is premature to disband and should remain constituted to act at PCOM's pleasure.

23. Jim Gill is recommended to PCOM as the Western Pacific DPG's new chairman replacing Brian Taylor. Taylor is thanked profusely by the WPAC panel members for his enthusiastic and expert guidence over the past three years.

24. Adjourned 11:30, Saturday October 29.

Appendix 1

Logging Tool Status
10/26/88 Update for WPAC

Standard logs, conversion from 3 to 2 strings: field test on 124E planned. Chance of success: very good.

Televiewer: successful on latest 3 runs; more reliable tools to be purchased in 1990 or 1992.

Formation Microscanner: slightly ahead of schedule; field test successful; computer for on-board processing will be on ship Leg 125 or Leg 126; first FMS use planned for Leg 126. Chance of success: very good.

Temperature tool: now fully operational, requiring no ship time; successful several times on Leg 123.

Wireline packer: slightly behind schedule; first ODP test on 124E. Chance of success: fair-good.

Geoprops: construction underway; DMP recommended test on Leg 126.

Induced Polarization: have an analog tool of uncertain reliability and sensitivity; no luck finding a more reliable digital tool. Chance of success: fair-poor.

High temperature logging: maximum T 175°C for most tools, 60°C for temperature tool; test of cooling hole while logging planned for 124E; leasing of high-T tools planned for Lau.

Sidewall entry sub: repeated successful uses on Leg 122 permitted logging of poor holes.

Wireline heave compensator: working fine; improvements planned for 124E.

Appendix 2

Carl Brenner,
Bob Garisson,
Brian Taylor.

The Northeast Australia Data base
Position

1. All site survey seismic and navigation lines have been processed. Structure contour maps have been prepared for each site(up to 9 horizons). The seismic ties connecting all sites have been processed and displayed.
2. All seismic data and maps have been examined and accepted by the Site Survey panel at the October meeting in Swansea.
The resolution on the seismic data is good.
3. The position of all sites remain the same as indicated in Larry Mayer's December 1987 presentation to PCOM.
4. AT the SSP meeting in Swansea a suggestion was made that insufficient time had been allocated to the drilling because at site 6 the SSP considered that drilling to basement was a desirable objective. That objective was in fact part of the original proposal and the drilling time calculated accordingly.
5. We have been very conservative in our estimates of drilling times. Audrey Meyer can confirm this. We used the TAMU data as a guide only and then added a cushion.
6. Processing of the seismic data has made the scientific objectives even more exciting.
For example(1)at sites 1, 2 ,3 and 4 on the slope of the Great Barrier Reef we can now clearly differentiate high and low sealevel packages relating to two periods of shelf development i.e. prior to the mid Pliocene a pre shelf flooding phase of progradation and coastal onlap facies and post mid Pliocene after shelf flooding a series of outer shelf and slope aggradative and erosion phases. There is here an excellent high resolution sealevel story.
For example(2) at sites 13 and 14 on the Marion Plateau we can now define an absolute Late(?)Miocene eustatic sealevel change of 150m.
For example(3) at sites 8,9 and 10 on the Queensland Plateau the high resolution periplatform signal extends back to the mid Miocene with a boundary between temperate and tropical platform development in the early mid Miocene. There is here a thick and very high resolution paleoclimatic record. In addition, recent studies on Queensland Plateau cores by Andre Droxler showes an excellent climate-oceanographic record back to 125,000(the limit of the cores).
7. All our data has been tied to DSDP 209 on the northeast margin of the Queensland Plateau.
8. Cores from all the proposed sites are currently being processed in Australia.
9. Following a suggestion at SSP that the data quality merits publication as a seismic stratigraphic atlas, in conjunction with the drilling results, we are currently investigating Landmark analysis of data and presentation as three dimensional models.
10. We are continuing to process parts of the data set as suggested by SSP.

Peter J.Davies
Phillip Symonds

To: Brian Taylor, WPAC Chairman
From: Richard Jarrard, Borehole Research Group
Date: October 12, 1988
Re: Downhole-measurement times for Nankai

Last week, DMP looked in detail at downhole measurements for Nankai sites NKT-1 and NKT-2. I expect that you will receive a copy of their minutes just before the October meeting of WPAC. WPAC surely will be as surprised as DMP was to see that DMP is recommending 31.3 days of downhole measurement time rather than 20 days, in spite of virtually no changes in recommended tools. This letter is to clarify the scientific differences among the various logging time estimates that you now have for Nankai:

1. The 2/10/88 "Downhole Measurements for WPAC Programs" (Jarrard) which totals 11.2-12.6 days plus time for geoprops, OSE and temperature deployment;
2. The 4/13/88 Nankai strawman (Jarrard) which totals about 20 days;
3. The 9/2/88 Nankai proposal (Karig et al) which totals 22.0 days for NKT-1 and NKT-2;
4. The 10/6/88 "Realistic Program" (DMP) which totals 31.3 days; and
5. The 10/6/88 "Abridged Program" (DMP) which totals 20.7 days.

The following breakdown by categories shows the differences between the five plans:

	#1 2/10	#2 4/13 G	#2 4/13 noG	#3 9/2	#4 10/6 R	#5 10/6 A
Logging (standard, FMS, MCS)	4.6	5.6	5.6	8.2	5.9	5.9
Logging (BHTV, VSP, dual laterolog)	3.4	2.5	1.6	2.3	3.8	2.0
Meas. during coring (WSTP, geoprops)	+	5.0	.8	8.4	7.3	4.6
Fluid sampling & Permeability (wireline, rotatable, & straddle packers)	4.5	1.1	6.9	0	7.9	5.4
Temperature string & OSE	+	2.8	2.8	1.5	4.0	2.0
Extra hole cond. and/or washing hole	0	2.0	2.0	1.6	2.4	0.8
Total # days	12.6+	18.9	19.6	22.0	31.3	20.7
#WSTP & geoprops measurements	+	42	12	72	62	40
# wireline packer & packer meas.	10	4	16	0	18	12

Differences:

Logging (standard, FMS, MCS): logging pilot hole at NKT-2 in all plans except #1; apparent extra time in #3 may be actually for tools not listed in Karig proposal.

Logging (BHTV, VSP, dual laterolog): VSP at NKT-1 omitted from #2noG and #5; BHTV omitted from #2G, #2noG, and #3; dual laterolog omitted from #2G, #2noG, #3, and #5;

Meas. during coring: dramatic differences in number of geoprops measurements assumed (see totals above).

Fluid sampling & permeability: dramatic differences in number of measurements assumed (see totals above; note that #2G, #3, and #5 have none at NKT-1).

Temperature string & OSE: OSE included only in #3 and #4; temperature string in #2, #4, and #5 with differing contingency times.

Extra hole conditioning and/or washing hole: NKT-1 washed for logging in #2, #3, and #4; NKT-2 extra hole conditioning or washing #2, #4 and #5.

The most substantial differences are in number of fluid samples and measurements of permeability and pore pressure: my 4/13 strawman fit geoprops and no-geoprops options into 20 days, the Realistic Program of DMP includes both geoprops and other measurements, and the Karig proposal includes only geoprops and WSTP.

I can be at WPAC if desired, but only on Thursday and possibly on Friday A.M. I leave for Singapore (Leg 24) Friday P.M, and most of the other loggers leave for a Denver logging school Thursday or Friday.

Richard Jarrard

cc: Paul Worthington
(with attachments)

acronyms used:

FMS: formation microscanner
MCS: multichannel sonic (probably a shear-source tool for V_s measurement on Nankai)
BHTV: borehole televiewer
VSP: vertical seismic profile
OSE: oblique seismic experiment
WSTP: new Barnes water sampler
LAST: Moran lateral stress tool (in development now, assumed to require virtually no ship time)

Appendix 3

Leg 129: Nankai Optimum Program (31.3 days)

NKT-2 Pilot Hole to about 400m

# days	
1.0	8 LAST, 4 WSTP @ 30M, 6 geoprops
1.0	standard logging
0.3	FMS
0.2	dual laterolog
0.3	multichannel sonic (shear source)
2.8	

NKT-2, Main Hole (XCB then rotary to 1300m, with reentry cone & casing)

# days	
3.8	30 geoprops (if O.K.)
1.0	trip to release bit and insert rotatable packer
1.3	standard logging
0.3	FMS
0.4	hole conditioning
0.4	BHTV
0.3	dual laterolog
0.4	multichannel sonic (shear source)
1.0	4 packer
0.4	hole conditioning
1.9	6 wireline packer plus fluid tests
1.2	VSP
1.5	offset seismic experiment
1.0	trip to change to straddle packer
1.0	4 packer
2.5	deploy temperature string
18.4	

NKT-1 (XCB to 900m)

# days	
2.5	8 LAST, 4 WSTP + 18 geoprops (or 10 geoprops + 4 wireline packer)
1.6	wash hole for logging, or extra time for 2-stage logging
1.4	standard logging
0.4	FMS
0.4	BHTV
0.5	multichannel sonic (shear source)
0.3	dual laterolog
1.0	VSP
1.0	minicone and pipe trip for packer
1.0	4 packer
10.1	

Leg 129: Nankai Abridged Program (20.7 days)

NKT-2 Pilot Hole to about 400m

# days	
0.5	8 LAST, 4 WSTP @ 30M, 2 geoprops
1.0	standard logging
0.3	FMS
0.3	multichannel sonic (shear source)
2.1	

NKT-2, Main Hole (XCB then rotary to 1300m, with reentry cone & casing)

# days	
2.3	18 geoprops (if O.K.)
1.0	trip to release bit and insert rotatable packer
1.3	standard logging
0.3	FMS
0.4	hole conditioning
0.4	BHTV
0.4	multichannel sonic (shear source)
1.0	4 packer
1.4	4 wireline packer plus fluid tests
0.4	hole conditioning
1.2	VSP
1.0	trip to change to straddle packer
1.0	4 packer
2.0	deploy temperature string
14.1	

NKT-1 (XCB to 900m)

# days	
1.8	8 LAST, 4 WSTP + 12 geoprops (or 6 wireline packer)
1.4	standard logging
0.4	FMS
0.4	BHTV
0.5	multichannel sonic (shear source)
4.5	

Nankai Proposals

Note from Tectonics Panel: the top priority site should be NKT-2. NKT-10 should also be a high priority and that that site should be drilled to basement in order to obtain a complete picture of the fluid flow at the toe of the prism. To ensure adequate time for this site and for pore pressure measurements to be properly attempted at each hole, two legs are preferred, and the upslope holes should be given the lowest priority.

One Leg, 2 Holes

In this approach, two holes (NKT-2 near the deformation front, and NKT-1 the reference hole just seaward of the deformation front) are drilled to basement. There is a minimum logging and downhole measurement program. This is as in the original proposal.

These holes will provide information on the vertical variation in the critical parameters required to constrain accretion models i.e., pore pressure, permeability, mechanical properties etc. However, there is less assurance of meeting the objectives since the logging and downhole measurement time available is limited to about 23 days. 31 days was estimated by DMP to be required for a complete set. This timing also assumes no special difficulties in drilling, which is unlikely in this environment. The important seaward reference hole is drilled, but with the limited time, it may not be possible to complete both holes to basement as well as have adequate logging and measurements. This approach does provide limited horizontal fluid flow information, such as the fluid transport near the decollement seaward from the deformation front, but provides no information on horizontal deformation or physical property gradients.

Two Legs, 4 sites (up to 9 holes)

This senario is described in the Karig et al proposal.

This approach gives a reasonable definition of the horizontal as well as the vertical variations assuming that the variation occurs progressively and primarily over the region to be drilled. The proposed drilling of 9 holes at 4 sites probably does not allow time for an adequate program of logging and downhole measurements. A more reasonable program is drilling fewer holes at only 3 sites (NKT-1, NKT-2 and NKT-10 between 1 &2). This is in keeping with the Tectonics Panel recommendation that less time be spent on upper slope sites(NKT-3).

It is clear that two legs gives a much better chance of achieving the major objectives.

Part 1 88-397

WESTERN PACIFIC REGIONAL PANEL
1988 EXECUTIVE SUMMARY

WPAC reviewed and revised the drilling and logging plans of Legs 124-129 and formulated a second year plan which includes the highest priorities of the thematic panels.

LEG 124: SE ASIA BASINS (C. Rangin & E. Silver) 59 days

The Celebes and Sulu basin sites may require the whole leg, given additional logging requested by the co-chiefs and approved by DMP to study the state of stress and the formation fluids. The Cagayan Ridge site may be problematical because new bottom sampling results suggest the necessity of spudding into hard limestone. It is now considered a secondary, time-available objective.

LEG 124E: ENGINEERING TESTS 37days

Mining technology slim-hole drilling will be tested on Batuan Ridge. Logging tests will be conducted at a repeat site 453. Drilling and recovering chert will be tested at a repeat site 452. Deep water drilling tests may be conducted in the Mariana Trench.

LEG 125: MARIANA-BONIN (P. Fryer & J. Pearce) 57 days

BON6 has been moved south and is now two holes, BON6A and BON6B. This change retains the stratigraphic objectives but allows additional basement penetration in the same time. A re-entry cone may be set at BON6A to allow FMS and VSP logging on the subsequent leg. The priority sites in drilling order are MAR3A, MAR3B, BON6A, BON6B and BON7.

LEG 126: BONIN (K. Fujioka & B. Taylor) 57 days

A transect of heat flow measurements at BON1 & 1A show values less than 100mW/m^2, indicating that this is not an area of active hydrothermal discharge and high temperatures.
BON4 replaces BON5A in priority. This change retains the stratigraphic objectives but adds the objectives of penetrating a major deep basin unconformity and basement. Prime sites are now BON2, BON1A, BON4 and BON5B.
Karig requests that the Geoprops tool be tested on Leg 126 in an APC/XCB hole. WPAC proposes the BON2 pilot hole for this purpose and assigns a maximum of 6 hours for the complete test. TAMU personnel will require training to operate the tool.
Cooper's proposal for VSP at BON1 & 2 is approved.

LEG 127: JAPAN SEA I (S. Pisciotto & K. Tamaki) 57 days

SSP has cleared all sites but is concerned that oceanic basement has not been properly recognized in the seismic records, particularly at site J3b-1. The upper part of what has been identified as basement appears to be stratified, and may consist of interlayered sills and sediments, overlying the true basement of sea-floor-spreading oceanic crust. WPAC concurs, and considers that J1b may have to be drilled to greater depths in order to reach true basement.
After seeing the new seismic records, WPAC expressed concern that the proposed site J3b-1 atop the Okushiri Ridge will not determine the time of thrusting, and that the section does not conform to the model presented for obduction. In view of this new seismic information, the interpretation of the tectonics at site J3b-1 is controversial. Also, in view of the known stratification in the upper level of basement elsewhere in the Japan Sea basin, WPAC puts site J3b-1 as the lowest priority of the four sites on Leg 127, and gives the co-chief scientists the latitude to deepen Hole J1b if true ocean crust is not penetrated within the planned drilling depth. J3b will be drilled on a time-available basis, with J1b-1, J1d-1 and J1e-1 as the highest priority sites.

LEG 128: JAPAN SEA II (J. Ingle & K. Suyehiro) 41 days

Proposed sites J2a and JS2, and experiments at J1b are unchanged.

LEG 129: NANKAI TROUGH (I. Hill & A. Taira) 60 days

As previously planned, this is a one leg program at sites NKT1 (10 drill + 7 log days) and NKT2 (21 drill + 16 log days). This would accomodate DMP's abridged program, including a maximum 2 days for deployment and testing of the ONDO temperature-measuring experiment.
However, DMP's time estimate for a "realistic program" of logging plus experiments is 31.3 days. Futhermore TECP gives high priority to the newly proposed sites NKT10a,b,c and proposes a 2 leg program to meet their objectives of determining both vertical and horizontal variations in physical properties and fluid flow/geochemistry (see WPAC minutes appendix 4 and Accretionary Prisms DPG report).
Therefore WPAC recommends a revised Nankai drilling program as follows:
Leg 1: NKT2 (21 drill + 21 log/expt. days)
NKT10a,b (6 drill + 3 log days) Total=57 days (with transit & cont.)
Leg 2: NKT10c (13.5 drill + 17.5 log/expt. days)
NKT1 (10 drill + 10 log/expt.) Total=61 days (with 8 transit+2 cont.)
At least 6 months should separate the two legs.

2nd ENGINEERING LEG

Plans will remain tentative, both as to timing and objectives, until after Leg 124E. WPAC notes that well-surveyed places to drill either young, glassy basalts; hydrothermal zones on differentiated lavas; or sedimented back-arc crust; exist in (from south to north) the Lau, North Fiji, Woodlark, and Manus basins, as well as the Bonin rifts.

GEOCHEMICAL REFERENCE SITES

LITHP's three primary sites, BON8 (with 200m basement penetration), MAR4 (DSDP 452, 100m basement), and MAR5 (500m into a seamount apron) have sufficient site survey information and could be drilled in one long leg between Japan and Guam totalling 63 days. Without MAR5 the leg would be 53 days. To concerns about whether such a leg would provide adequate information on sediment/crust variability, LITHP and WPAC respond that the three sites would sample all volumetrically significant **components** entering the trench, although proportions of components obviously would vary wihin holes and from place to place.

NE AUSTRALIA

SSP reviewed the full data set and approved the sites.
PCOM is advised that the program needs 47-55 operational days at the minimum 8 sites (SOHP's highest priority sites NEA-1,2,3,4,5,9,10,12), and that this should not be compromised because of transit time. Another half of a leg would be required to drill all sites.

VANUATU

Primary sites DEZ-1,2,4,5 and IAB-1,2 remain unchanged and are passed by SSP. However SSP and WPAC consider current drilling time estimates at DEZ-2 to be minimal because of the likelihood of fractured hard rock in the section to be drilled. DMP wants to do more logging and fluid sampling at DEZ-2 than are proposed.
WPAC proposes that DEZ-2 be drilled first. WPAC recommends allocating 16 days maximum for DEZ-2 and DEZ-1, using all of it if necessary to reach the decollement at DEZ-2.

LAU-TONGA

The Lau Basin working group, convened by LITHP, adjusted the drilling program in response to the new GLORIA data. The revised program maintains earlier requirements that holes be placed in old, intermediate, and young parts of the basin, but sites have been moved and one site (LG1)

has been replaced (by LG10, 150 km further south). More survey data are needed to exactly locate the ridge jump boundary which sites LG10 and LG9 (our lowest priority site) are planned to straddle.
WPAC followed the TECP recommendation to retain the Tonga forearc site. However LG6 was replaced by LG6A as the prime forearc site because sediments are thinner at LG6A. Adjusted drilling times for LG2, 3, 7, 10, 6a, and 9 (in priority order) give 50-52 operational days and 57-59 total days for this leg, assuming a Suva-Pago Pago transit.

CO-CHIEF RECOMMENDATIONS

GEOCHEMICAL REFERENCE: C. Langmuir, J. Natland, A. Robertson, H.Staudigel, M. Leinen, M. Salisbury, F. Alberedi
NE AUSTRALIA: P. Davies, P. Symmonds, R. Sarg, A. Droxler, W. Schlager, J. McKenzie, A. Bosselini, R. Ginsburg, N. James
VANUATU: J-I. Collot, M. Fisher, H. G. Green, J. Recy, S. Bloomer
LAU-TONGA: J. Hawkins, J. Gill, U. von Stackelburg, L. Parsons, D. Cronan, H. Foucher, D. Scholl, S. Bloomer, A. Stevenson
NANKAI II: D. Karig, G. Moore, M. Kastner, J. Gieskes, Y. Ogawa, E. Suess, R. Wortel, R. Knipe, C. Moore, J. Boulegue, R. White

PROPOSED PROGRAM

WPAC notes that the following mature proposals are not in the program proposed to be drilled: 1) Zenisu; 2) South China margin; 3) Banda Sea and South China Sea basins; 4) Valu Fa; 5) Vanuatu backarc rifts.

WPAC emphasizes in as strong terms as possible that the WPAC drilling program, having been down-sized repeatedly by PCOM over the past three years, is now down to bone marrow and cannot be cut further without untolerable damage. The three SW Pacific legs in WPAC's program for FY90 respond directly to priority directives of the Thematic Panels. NE Australian Margin is SOHP's highest WPAC priority, Vanuatu is TECP's highest priority, and Lau-Tonga is a high priority of LITHP. WPAC will not further prioritize its program. WPAC notes that time in the Western Pacific is being lengthened by engineering legs and dry docking.

Following the first Nankai leg at the end of 1989, WPAC recommends that PCOM/TAMU consider the following drilling schedule: Geochemical Reference (Guam), Engineering II (Guam), CEPAC leg (Townsville), NE Australia (Noumea or Port Villa), Vanuatu (Suva), Lau-Tonga (Pago Pago). This would place the SW Pacific legs in the June-November window between the cyclone season. Nankai II would be drilled during CEPAC

Jim Gill is recommended to PCOM as the WPAC DPG chaiman.