JOIDES PLANNING COMMITTEE MEETING
19-23 January 1987
Hawaii Institute of Geophysics
Honolulu, Hawaii

AGENDA

	(white pages) page no.
Monday, 19 January: Commencing 8:30	
A. Welcome	
B. Introductions	
C. PCOM Minutes, 11-15 Aug 1986 (Corner Brook)	40 - 75
D. EXCOM Report, 15-16 Oct 1986 (Sidney, BC)	
E. NSF Report	
(Lunch break - 12:00-1:00 pm)	
F. JOI Inc. Report	
G. Science Operator Report (L.Garrison) Legs 110-112 reports	76 - 78
H. Wireline Logging Services Report	
Tuesday, 20 January: Commencing 8:30	
I. Annual Reports from Panel Chairmen	
LITHP,	
TECP, minutes	80 - 92
SOHP,	94 -108
DMP,	110-115
IOP	116-128
(Lunch - 12:00-1:00)	
SOP,	130-136
WPAC,	138-143
CEPAC,	144-157
ARP, TEDCOM,	158-172
IHP, SSP,	174-208
PPSP	
Wednesday, 21 January: Commencing 8:30	
J. COSOD II	210-221
K. Panel Chairmen's Meeting, 18 Jan.87	

L. 'Quick Fuse' Planning
   1. Legs 113/114
   2. New leg 115 program (Makran/NeogeneII/Mascarene Pl.) 222-224
   3. Leg 116: Red Sea/Intraplate Deformation status 226
   4. Leg 117: Neogene I
   5. Leg 118: SWIR 228-234

(Lunch - 12:00-1:00)

Wednesday afternoon -- (FIELD TRIP)

Thursday, 22 January: Commencing 8:30

M. Further Indian Ocean Planning (FY87-FY88 !)
   1. Kerguelen WG report 236-267
   2. Last half of Indian Ocean program: 268-272
      90 E Ridge, Broken Ridge, Argo-Exmouth

N. Long-term planning
   1. Pacific Ocean:
      a. Western Pacific
      b. Central and Eastern Pacific
   2. Thematic issues/drilling requirements
      - TAMU report on long-term engineering developments
      - Engineering development priorities of SOHP,LITHP, TECP, DMP and TEDCOM 274-278
      - Mining type drilling (small diameter)

Friday, 23 January: Commencing 8:30

O. Program Plan FY88 and PCOM's BCOM-Membership
P. TEDCOM's role in engineering development (see N.2) 280-281
Q. Sampling Strategy
R. Unsolicited proposals/lobbying/conflict of interests - guidance for the new JOIDES Office !
S. Panel Membership
T. Future Meeting Schedule
U. Other Business

Item D: SUMMARY FROM THE EXCOM MEETING, 15-16 OCT.86, B.C.:

Results from the last EXCOM meeting, that are of interest for this PCOM meeting are listed below:

* EXCOM accepted PCOM's Red Sea leg decision (deadline 19.Jan.)

* EXCOM accepted PCOM's prioritisation of budget FY87 enhancements

* EXCOM accepted purchase of the wireline packer as proposed by LDGO

* For appropriate input of all parties into future budget planning EXCOM developed a schedule for program plan development (attached; note,there are two versions : one general and one for next following year). Note impact on PCOM meeting schedule !

* EXCOM decided to install a 5 person Budget Committee (BCOM: 3 EXCOM members (1 U.S.,2 non-U.S.), 2 U.S. PCOM members incl. chairman)

* B.Buju-Duval expressed concerns about the sampling strategy (this is agenda item Q.; more explanations there)

* U.S.S.R. announced its readiness to join the ODP as soon as possible (Note: Recent developments make a fast decision on that problem unlikely; more details in NSF report)

ODP PROGRAM PLAN DEVELOPMENT
(EXCOM Meeting, 15-16 Oct. 1986)

Timetable for FY88 program plan:

Jan	5	NSF budget to JOI/JOIDES
Jan	19-23	PCOM plan & advice to JOI/EXCOM
Feb		JOI outline to NSF/JOIDES budget committee (BCOM) If no problems, mail to EXCOM, if problems, BCOM proposes solution
April	1	JOI plan for NSF admin review (includes JOIDES suggestions, if required)
April	7	JOI Revisions
April	28	JOI plan and NSF concerns to JOIDES/ODP Council
April	28-30	EXCOM/ODP Council meeting: JOI/BCOM give their input to EXCOM, EXCOM gives advice to NSF/JOI, ODP council is consulted
June		BCOM adopts revised program plan
July	15	NSF final review of revised JOI plan
July	22	JOI final modifications (if necessary)
Aug	1	NSF executes contract, JOI informs EXCOM and ODP Council (justifies changes), JOI informs PCOM
Oct	1	Start of contract year

ODP PROGRAM PLAN DEVELOPMENT
(EXCOM Meeting, 15-16 Oct. 1986)

Timetable (from FY89 on):

Aug/Sep		EXCOM advice to PCOM
Dec		PCOM plan & advice to JOI/EXCOM
Jan	5	NSF budget to JOI/JOIDES
Feb	2	JOI outline to NSF/JOIDES budget committee (BCOM) If no problems, mail to EXCOM, if problems, BCOM proposes solution
Feb		EXCOM meeting (if necessary)
April	1	JOI plan for NSF admin review (includes JOIDES suggestions, if required)
April	7	JOI Revisions
April	15	JOI plan and NSF concerns to JOIDES and ODP council
May	10	JOI review with JOIDES BCOM
May	15	EXCOM/ODP Council meeting: JOI/BCOM give their input to EXCOM, EXCOM gives advice to NSF/JOI, ODP council is consulted
July	15	NSF final review of revised JOI plan
July	22	JOI final modifications (if necessary)
Aug	1	NSF executes contract, JOI informs EXCOM and ODP Council (justifies changes), JOI informs PCOM
Oct	1	Start of contract year

Item J: COSOD II:

The COSOD II Steering Committee met in Strasbourg, Sept.30-Oct.2, 1986, chaired by Dr. Xavier LePichon. He can't attend the Hawaii PCOM meeting ; on behalf Miriam Kastner will give a detailed report.

General:

COSOD II is scheduled for July 6-8, 1987, in Strasbourg. Attendance will be limited to 350 participants (app. 150 US, 180 other ODP members (30 each), 20 unrestricted international participants). A statement (attached) is being send as publicity to EOS, Nature, Geotimes, Geological Society of London. Applications should be sent prior to 1.Feb.1987; choice of participants will be made by 1.Apr.1987. A final conference report will be printed by 31.Dec.1987.

Structure:

Opening plenary session with overview of goals, progress to date with ODP and COSOD I goals, technology presentations and the organization of 5 workshops (WS), each with app. 70 people (ideally: 30 U.S., 6 of each non-U.S. ODP member, 4 others):

	Chairman:
1. Global Environmental Changes	(John Imbrie)
2. Mantle - Crust Interactions	(Charles Langmuir)
3. Fluid Circulation and Global Chemical Budgets	(Graham Westbrook)
4. Brittle and Ductile Deformation of the Lithosphere	(Adolphe Nicolas)
5. Evolution and Extinction of Oceanic Biota	(Hans Thierstein)

Each theme has a working group (WG) of 7-8 members plus steering committee liaison to develop a "white paper" to initiate discussion. Presentation and discussion at meeting to develop final comprehensive report.
A closing plenary session will take place to discuss recommendations from WGs and develop overall priorities and goals and integrate technological requirements.

Time schedule:
1. Conference advertised by Dec.86
2. Applications received until 15.Feb.87
3. Chairmen choice of participants by 1.Apr.87
4. Position paper ready to send to WS participants by 1.Jun.87
5. Conference: 6.-8.Jul.87
6. WG and Steering Committee meeting 9.-10.Jul.87, Strasbourg
7. Revised position paper ready for 1.Oct.87
8. Final report printed by 31.Dec.87

Item L.1: LEG 113 (WEDDELL SEA) - LEG 114 (SUBANTARCTIC)

Note: Leg 113 started early January.
It remains a 65 day leg !
Ice conditions in Antarctic area are the worst since 10years;

LEG 114:

* SOHP recently presented a reversal of its priorities:

  1) Leg 114 should not be required to pick up left over objectives of Leg 113
  2) Leg 114 should be extended to maximum length logistically possible; longer drilling time is needed due to thicker sediment sequences (discovered during recent site survey) and new realistic steaming and drilling times.
  3) Basement penetration requirements (now: 50 m) should be relaxed for Leg 114

  Otherwise, if Leg will be conducted as planned now, only two Subantarctic sites may be drilled (see p.98-99).

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* SOP also recently presented a reversal of its priorities:

  1) Leg 114 should not be required to pick up W7 objectives SOP proposes 4 sites (SA2, SA3, SA5W, SA6 (alt.: SA8 !); PCOM priorities: SA8 - SA2 - SA3 -SA5W) needing 52 days drilling time; a shortened leg plan (33 days drilling; SOP minutes,p.135) compromises some science in SOP's view.

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* The revised Navidrill should be tested on leg 114; 3-4 days extension are necessary. In case the the Red Sea drops out and Makran remains on schedule this will be the only chance for testing before the postponed leg 118 SWIR !

** PCOM decided in Corner Brook , that W7 objectives should be picked up during Leg 114, if they are not achieved during Leg 113, because of higher priority. (Vote: 15:1:0)
The recent letter voting of the PCOM did not give a clear statement of whether PCOM is willing to change its decision !

PCOM IS ASKED TO MAKE A FINAL DECISION ON THE TRADE OFF AND SHAPE OF LEG 114 (SUBANTARCTIC):

1. DO WE REQUIRE W7 TO BE COMPLETED BY LEG 114 ?
2. WHAT ARE THE FINAL PLANS (SITES, PENETRATION, LOGGING, LENGTH OF LEG, ETC.) FOR LEG 114 ?

Item L:

STRAW-MAN 1987 - SCHEDULE FOR THE INDIAN OCEAN:

15 MAR 10 MAY (Mauritius)	114: Subantarctic	
15 MAY JUN (Colombo)	115: Makran *1/ Neogene II/ Mascarene *2	If Neogen II is drilled than duplication of 2 sites of 90 ER (sites 3,4)
JUL AUG (? Karatchi)	116: Red Sea/Intraplate	IOP recommends Intraplate as full leg: Then N-site of 90 ER not drilled
SEP mid OCT (? Mauritius)	117: Neogene I	
mid OCT NOV (Mauritius)	118: SWIR	
6 DEC 6 FEB (Mauritius)	119: Kerguelen I	

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*1 Note: MCS site survey in Nov/Dec 86 delayed/cancelled !
No timely SSP review! Contingency plan needed !
*2 Note: Site survey in March 87 ! No more PCOM meeting !
Contingency plan is needed !

Item L.2: NEW LEG 115 PROGRAM:

The majority of PCOM members accepted TAMU's proposal to postpone SWIR to leg 118 (letter voting in December). The initial idea to place the Neogene in the open leg 115 slot is unacceptable as it would suffer from the beginning of the monsoon in June.

Due to the uncertainties of various western Indian Ocean legs there are several options for leg 115 (Note:Based on the recommendations of both IOP and TECP on the status of the Makran and by request of some PCOM members the fate of Neogene II and Mascarene Pl. needs to be reconsidered):

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1. MAKRAN:

a. At its Oct.86 meeting TECP regarded this as a half leg program (sites 2,3,4 and 5). Regarding TECP's engineering priorities, this program is considered to be of great interest (in situ pore pressures: packers; see item N.2).

b. IOP at its Nov.86 meeting also regarded Makran as half a leg (incl. logging of sites 2,3,5 (3-4 days) a total of 20-25 days). As back up programs the IOP recommended either Neogene II or Mascarene Plateau.

c. The essential Makran site survey was delayed as Pakistani authorities did not allow the DARWIN to enter the survey area in late Nov. 1986. The British collegues were considering a rescheduling of the DARWIN. Survey probably will start mid Dec.87. Anyhow first data will not be available at the SSP meeting (13-14.Jan.87) and this PCOM meeting. PCOM members may note that the planned MCS survey is not covering the existing dense SCS grid but lying more to the East.

Some questions:
Is it possible to do some science based on the existing SCS profiles ? Has this program further to be shortened ? Can PCOM go on waiting with final evaluation ? Is it necessary to develop a contingency plan in case the site survey does not provide sufficient data ?

PCOM NEEDS TO CONSIDER THE CONSEQUENCES OF THE UNCERTAINTIES OF THIS PROGRAM IN THIS LATE STAGE AND COME TO A DECISION !

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2. NEOGENE II (Carbonate saturation profile, see p.222-224):

a. At its Oct.86 meeting SOHP considered this as very important, ranking higher than additional Argo Basin drilling. The panel recommends to add one site (M-3:carb. dissolution) from the Droxler et al.proposal (183/B). Discussed as 1/2 leg program.

b. At its Nov.86 meeting the IOP evaluated this as an excellent program with adequate site survey data. Drilling time estimates for the 4 sites are 14 days, with the M-3 site a total of 17 days. One site (Carb 1) with basement objectives needs some site survey scheduled for March 87 (SCS; DARWIN). Site 1 and 4 have been 'adjusted'. There are some ongoing efforts to shift the 'M-3 site' to the S to logistically more convenient places. Discussed as 1/2 leg program.

c. In case this program is scheduled, PCOM should consider whether there is some duplication with the depth transect sites of the 90 ER. The Neogene II depth-transect is thought to be the better choise because of optimal place (IOP). One solution would be to drop the two shallow sites at 90 ER (site 3,4). The advantage would be there might be enough time to complete 90 ER in one leg (new evaluation of Intraplate deformation objectives after recent site survey consider it to be one full leg; the N-site of 90 ER would not be done at that leg).

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3. MASCARENE PLATEAU:

a. The IOP considers this 3 site program more attractive with the additionally available industry data (2 basement wells). About 17 days drilling time needed. This program does not duplicate the 90 ER program because a different time frame is to be sampled, two hot spot tracks are needed to establish Indian plate motion and different geochemical objectives are addressed. Site survey is needed, scheduled Mar.87 (DARWIN); SCS data may be used immediately after cruise without processing (R.Larson).

b. At its Oct.86 meeting TECP shortly discussed this 1/2 leg program due to a letter from B.Duncan with additional information from industry. TECP decided not to comment unless requested to do so by PCOM.

c. Some input from LITHP is expected after its recent meeting in London (6-7.Jan.87).

** The IOP ranked both Neogene II and Mascarene Plateau equally as most attractive options for this leg. In case the Makran cannot be drilled it recommends that these two 1/2 leg programs be combined into a full leg.

PCOM IS ASKED TO:

(i) Consider the status of the Makran leg (site survey situation)

(ii) Consider the status of Makran, Neogene II, Mascarene legs.

(iii) Consider whether some combination of these legs can be scheduled as Leg 115.

If Neogene II is put on the schedule:

(vi) Decide whether the M-3 site be added to the Neogene II as recommended by SOHP.

(vii) Consider to shorten the 90 ER HPC depth transect because of duplication with Neogene II, which is thought to be the better choice.

Item L.3: LEG 116

1. RED SEA:

a. Clearance for working in the Red Sea is still pending. At its last meeting PCOM set an absolute deadline : 19.Jan.87. If clearance at that time is not available the Red Sea drops out of the planning.

In case it remains on the schedule:

b. Program consists of 7 sites (see attached sheet). The Sudanese Fan site has been dropped (no site survey). 17,5 N trough site needs some survey, all other sites considered to be okay,. IOP recommended that JOIDES RESOLUTION do the final seismic line for the 17.5 N trough site.

c. EXCOM decided that a 'more than usual' request of data/samples/cores by those countries providing clearance (as happened at a French Red Sea cruise) would not be acceptable.

d. Because of uncertainties PCOM should consider contingency plans as unexpected difficulties might come up in a very late stage, even if clearance should be available in time.

e. Japanese high temperature tools could be made available for the Red Sea. But they need a six month lead time to be ready.

2. INTRAPLATE DEFORMATION:

a. According to PCOMs decision in May 86, this program fills the open leg 116 slot, in case the Red Sea drops out.

b. Recent site surveys with excellent data quality led to a full leg science program recommended by the IOP (5 sites). SSP will consider this program at its 13-14.Jan.87 meeting (chairman will attend PCOM meeting). IOP recommended that the Northern site of 90 ER , previously included in the Intraplate leg, should be drilled at an extended 2nd Argo Basin leg (another solution might be to shorten the 90 ER program (depth transect: sites 3,4) , if the Neogene II is scheduled).

c. Up to now, there are no Intraplate leg Co-Chiefs !

PCOM IS ASKED TO:

(i) CONSIDER CONTINGENCY PLANS FOR THE RED SEA LEG FOR LAST MINUTE DIFFICULTIES, EVEN IF CLEARANCE MIGHT BE AVAILABLE
(ii) ACCEPT IOP RECOMMENDATION TO MAKE INTRAPLATE DEFORMATION A FULL LEG PROGRAM
(iii) SELECT CO-CHIEF NAMES FOR THIS LEG WHICH MIGHT TAKE PLACE AS EARLY AS JULY/AUG. 87

Item L.4: LEG 117 (NEOGENE 1)

Both SOHP and IOP consider this as one of the highest priority programs.

Sites 8 (E-Africa) and 9 (Aden) have no site survey. Besides this, the program is in good shape. Final site selection based on new good quality site survey data will be evaluated by SSP at its 13-14.Jan. 87 meeting.

Note: Neogene 1 should not be switched with SWIR to become a leg 115 program. The beginning of monsoon in June would affect this program. The need of excellent quality HPC cores for high biostratigraphic resolution is crucial to this program.

PCOM IS ASKED TO:

(i) CONFIRM NEOGENE I AS LEG 117 OR PLACE IT IN A 'MONSOON-FREE' SLOT ON THE SCHEDULE

Item L.5: LEG 118 (SWIR)

Note: Attached (p.228-234) is a short summary of SWIR objectives, a draft map with recent site survey results and a map with site locations as originally proposed.

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a. Because of Recent site survey results that favor bare rock guide base deployment to achieve the objectives of that program, TAMU requested to postpone SWIR to Oct.87 (navidrill-, logistics-, FY87- reasons). PCOM accepted this in early Dec.86.

b. The IOP at its Nov.86 meeting recommended as first priority to drill a 'deep mantle hole' on the elevated central ridge in the Atlantis II FZ. Second priority is to drill the N-transect (across fossil FZ trace). Note: The priorities of proponents differ from IOP recommendations (see R. Larsons letter,p. 228-9).

c. LITHP meets 6-7.Jan.87 in London and will provide advise on that program at PCOM meeting.

PCOM IS ASKED TO:

(i) RECOGNIZE THE POSTPONING OF SWIR AND DECIDE ON THE TIMING OF THIS PROGRAM (LEG 118 !?)
(ii) DECIDE ON PRIORITIES FOR SWIR LEG
(iii) DECIDE ON BARE ROCK GUIDE BASE USAGE

Item M.1: LEGS 119 - 120 (KERGUELEN 1 and 2)

a. Oct. 27, 1986 the Kerguelen WG met and defined a total of 12 sites (SKP-9 to be selected ! Total drilling time 86 days) as a framework for drilling on legs 119-120. The 4 Prydz Bay sites are included (Note: WG established that more MCS profiles exist at Prydz Bay, need of more data processing was stressed). 8 sites have mainly paleoenvironment objectives, 4 also have Kerguelen-evolution objectives. Modifications should be made if new data become available (Report p.236-267).

b. SOHP strongly supports the Kerguelen drilling, in particular Prydz Bay (1.Priority). The latitudinal transect concept should be preserved.

c. SOP endorses the WG report. The depth transect (SKP 5, 6A,8) should be retained. Probably not all of Prydz Bay sites can be drilled, if realistic velocities are used in interpretation. The Australian BMR asks for financial aid ($ 20 k) or manpower to assist in processing. French and Australian MCS processing should be encouraged.

d. The IOP endorses the WG results in general but recommends an additional basement site in central and northern part of plateau, because of unlikeliness to reach basement at two of suggested sites. More accurate time calculation is requested from TAMU.

e. SSP at its Nov.86 meeting expressed strong concern regarding the Prydz Bay sites (p.186): Data quality of profiles is poor, hole depth is close to multiple, there may be structural complications especially for site 1 and 3, no crossing lines ! There would be some crossing, if sites could be moved to a line to the E.

f. LITHP may add comments at its 6-7.Jan. 1987 meeting in London.

PCOM IS ASKED TO:

(i) ENDORSE THE KERGUELEN WG REPORT AS A FRAMEWORK FOR DRILLING OF LEGS 119 - 120

(ii) CONSIDER WHETHER THERE IS A PROPER BALANCE BETWEEN PALEOENVIRONMENT AND 'BASEMENT' OBJECTIVES

(iii) DEFINE PRIORITIES IF PROGRAM IS CONSIDERED TO BE TOO VOLUMINOUS FOR THE TWO LEGS

(iv) RECOGNIZE THE SITE SURVEY/DATA PROCESSING SITUATION, ESPECIALLY REGARDING THE PRYDZ BAY AND INITIATE THE NECESSARY ACTION

ADVICE OF OUTGOING PCOM CHAIRMAN

Someday my ship will come in... and with my luck, I'll be at the airport!

Item M.2: REST OF THE INDIAN OCEAN PLANNING

1. BROKEN RIDGE:

a. IOP recommends 6 sites in a N-S transect on the center of Ridge. It is unlikely to reach basement at any of the sites. Final site selection based on new good quality data pending.

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2. 90 E RIDGE:

a. IOP recommends to drill 3 sites (1,2,5 from previous program summary). All have been surveyed and await final site selection.

b. The IOP recommends a full Intraplate program, excluding the N-site of 90 ER. This should be drilled at a different leg.

c. In case the Neogene II will be drilled: There is a duplication with the two shallow penetration sites of 90 ER (sites 3,4). Neogene II is considered to be the better option. A shortened 90 ER program might fit into one leg !

d. Final site selection and SSP check might already be available at the PCOM meeting.

PCOM IS ASKED TO:

(i) RECOGNIZE THAT AN APPROVED FULL INTRAPLATE LEG EXCLUDES THE N-SITE OF 90 ER PROGRAM

(ii) CONSIDER A SHORTENING OF THE 90 ER PROGRAM, IN CASE THE NEOGENE II WILL BE DRILLED

(iii) CONSIDER WHETHER A SHORTER PROGRAM MIGHT FIT INTO ONE LEG (together with Broken Ridge !)

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3. ARGO/EXMOUTH:

a. This program is in good shape. IOP recommends three options:
   (1) If Red Sea stays in: Drill 4 sites in one leg (EP 7, -10A, -2A, and AAP 1B);
   (2) Two leg progam; Exmouth leg (EP 7, -10A, -9B, -2A) and Argo leg (2 deep holes, one reentry to achieve the LITHP objectives (cow/milk/grass hole)) with N-site of 90 ER;
   (3) without Red Sea the 2nd option would not extend the Indian Ocean schedule.

b. SOHP proposes two options for Deep Stratigraphic Test sites:
   (1) Slighty modified EP 5 location (hoping this time it may be acceptable to PPSP);
   (2) if 1st option is not approved: Shifted EP 7 and addition of deepened EP 6.

SOHP finds it difficult to justify 8-10 days extra drilling for a second Argo site (details see SOHP minutes, p.100)

c. LITHP has recommended (87)to drill a geochemical reference hole in the Argo Basin, therefore supports a deep penetration site at this basin. TECP recommended to drill a series of shallow holes (20 m) in descending oceanic crust.

PCOM IS ASKED TO:

(i) DEFINE THE LENGTH OF TIME AVAILABLE TO ARGO - EXMOUTH DRILLING (1 - 1.5 - 2 legs)

(ii) DECIDE ON THE BEST LOCATION FOR A DEEP STRATIGRAPHIC TEST HOLE (Argo vs. Exmouth)

(iii) RECOGNIZE THE TWO STRATEGIES ON GEOCHEMICAL REFERENCE HOLE DRILLING (Deep hole vs. series of shallow holes)

(iv) PUT THE CONTROVERSIAL ADVICE INTO A CONCISE DRILLING PLAN

CO-CHIEF RECOMMENDATIONS FOR INDIAN OCEAN LEGS:

Neogene I: already selected: W.Prell, Nijitsuma (J)

Makran: already selected: J.Leggett, B.U.Haq
Does this cover a combined Makran/Neogene II leg ?

Neogene II:
IOP Peterson, Curry, Thierstein (ESF), Baxter (UK)

Mascarene Pl.:
IOP Duncan, Fisher, Baxter (UK)

Intraplate:
IOP Curray, Cochran, Herb (ESF), Scrutton (UK)
TECP Curray, J.Peirce, Sclater
LITHP Sclater
Canada proposed: Ludden, Japan: Segawa

Kerguelen:
IOP Berggren, Wise, J.Hayes, Schlich (F), Falvey (A), Perch-Nielsen (ESF), Leclair (F), Schrader (now ESF), Coffin (A)
TECP Schlich (F), Falvey (A); J.Anderson

Broken Ridge/90 ER:
IOP Sclater, Weissel, Duncan, Curray, J.Peirce (C), Herb (ESF)
TECP Weissel, Duncan, Gradstein (C)
LITHP (90 ER) Curray, Duncan, J.Peirce (C), Whitmarsh (UK)

Exmouth/Argo:
IOP Exmouth: Mutter, R.Larson, von Rad (FRG), N.Exon (A), Williamson (A); Argo: Langmuir, Gradstein (C), Ludden (C), Honnorez (F ?)
TECP von Rad (FRG), Gradstein (C), Exon (A)

Item N.1.a: WESTERN PACIFIC

a. At its Dec.86 meeting WPAC updated the ranking of proposals; time estimates were added (see attached sheet). The highest ranking 7 programs add up to approx. 9 leg length in time (first 12 to 13 legs respectively; see p. 138-143)!

b. TECP rank-odered WPAC programs as follows (lower priority programs are listed in the minutes, p.80-92):

1. Bonin-1
2. Nankai
3. Japan Sea
4. Bonin-Mariana 2
5. Banda-Sulu-S.China Sea
6. Vanuatu
7. * Nankai (physical properties)
   * Lau Basin
9. Sunda Backthrusting

c. SOHP places the following priorities on WPAC program:

1. Great Barrier Reef (with 1000 m site 2)
2. Japan Sea
3. S.China Sea (SCS 1, part of Banda-Sulu-S.China Sea transect) (only with industry data !)
4. Sulu Sea

d. LITHP has interest in 4 WPAC programs; additionally a Geochemical Reference Hole is proposed seaward of Bonin-Mariana 2 with approx. 500m basement penetration, totalling to a at least 1/2 leg program (update from Jan.87 meeting at PCOM meeting):

* "Deep" reference hole
* Bonin 1
* Bonin-Mariana 2
* Japan Sea
* Lau Basin

PCOM IS ASKED TO:

(i) RECOGNIZE PANELS PRIORITIES AND DECIDE HOW TO USE WPAC's PROSPECTUS AS BASIS OF PLANNING

(ii) DEFINE NO. OF LEGS IN THE WPAC AREA

(iii) CONSIDER POTENTIAL ENGINEERING NEEDS FOR PARTICULAR PROGRAMS AND THEIR IMPACT ON BUDGET PLANNING

(iv) DEFINE PRIORITIES IN THE WPAC AREA

(v) AVOID HAVING IMMATURE PROGRAMS LATE ON THE SCHEDULE (NO FUTURE QUICK FUSE PLANNING)

(vi) CONSIDER W-CEPAC PROPOSALS FOR INCORPORATION INTO SCHEDULE

Item N.1: WESTERN PACIFIC

WPAC's updated list of priorities (Dec. 86):

		Score	Time (*3) (days)
1.	Banda-Sulu-S.China Sea	9.55	83
2.	Bonin I	9.42	79
3.	Lau Basin	8.80	60
4.	Vanuatu	7.42	76
5.	Japan Sea	7.08	74
6.	Nankai	6.69	52
7.	Great Barrier Reef	6.62	64
			approx. 9 legs (*2)
8.	Sunda backthrusting	6.00	55
9.	Bonin II (*1)	5.91	40
10.	Nankai Geotech	5.85	30-35
11.	S.China Sea margin	5.69	54-69
12.	Zenisu	3.42	13
			approx. 13 legs

Note: *1 Bonin II = reference hole, no deep hole; this definition is not identical with Bonin II in other panels' rankings

*2 Based on avarage of 54 days length of legs

*3 Time includes drilling, logging and transit time estimates

Item N.1: CEPAC PLANNING

a. CEPAC has prioritized existing proposals and in a second step 'drilling packages' (listed on separate sheet, minutes p.144-57).

b. TECP defined its (preliminary) priority targets in the CEPAC area, which are listed below (not in rank order; there are additional immature problems and lower ranking priorities):

* Age of oceanic crust; horizontal kinematics of ocean plates
* Vertical motions and flexure of oceanic lithosphere
* Ridge-Trench interactions
* Geochemical relations between descending oceanic crust and superjacent volcanoes
* Determining subduction rate by drilling trench sediments

c. SOHP has developed 6 preliminary themes for CEPAC drilling (for details see minutes p.8-10):

1. High-Low latitude and depth transects (Paleosecs)
2. Old Pacific Crust
3. Atolls and Guyots
4. Episodicity of Volcanism
5. Fans and Depositional Processes
6. Fluid Circulation

d. LITHP defined 8 thematic objectives (Jul.86) in the CEPAC area, the first of them being considered of <u>highest priority</u> (see attached list; an update from the Jan.87 meeting will be available at PCOM meeting):

1. Magmatic, tectonic and hydrothermal processes at mid ocean ridges
* Deeper structure and composition of the oceanic crust and upper mantle
* Lithospheric flexure and rheology
* Intraplate volcanism (atolls, guyots and hotspots)
* Crustal and lithospheric aging
* Mantle heterogeneity
* Global geochemical fluxes

PCOM IS ASKED TO:

(i) RECOGNIZE THE PANELS PRIORITIES AND STIMULATE FURTHER DISCUSSIONS TO COME TO A CONSISTENT PLANNING PHASE FOR CEPAC (joint CEPAC/Thematic panels meetings are one possibility)

(ii) CONSIDER WHETHER PARTICULAR PROPOSALS FROM W-CEPAC AREA SHOULD BE INCORPORATED INTO A WPAC DRILLING SCHEDULE

CEPAC MEETING, ANN ARBOR 20-22 OCT. 1986:

Ranking of top - scored drilling proposals:

No.	Proposal No.	Description	Score
1.	232E	JdFuca middle valley, sedimeted zero age crust	1.10
2.	199E	N-Pacific subantartic gyre, paleocean-environ	1.45
3.	-203E	Guyots, central Pacific	1.50
	-222E	Ontong Java, sediment hist., crustal origin	1.50
5.	76E	13 N fast EPR spreading center	1.60
6.	195E	Bering Sea Paleocean-environ	1.75
7.	253E	Black shales, Shatsky Rise	1.78
8.	202E	Marshals, guyots/atoll pairs	1.80
9.	-233E	Oregon accretionary processes	1.90
	-231E	N-Pacific crustal reconstruction	1.90
11.	142E	Ontong Java depth traverse	2.04
12.	237E	Vancouver margin, decollement zone	2.20
13.	3E	Hawaiin crustal flexure	2.23
14.	258E	Galapagos Ridge stockwork	2.27
15.	37E	Costa Rica underplating	2.41
16.	-221E	Equator. Pacific, L.Cenozoic paeocean-environ	2.50
	-182E	Sounder Ridge, test Bering Sea entrap origin	2.50
18.	248E	Ontong Java deep crustal test	2.55
19.	213E	Aleutian clastic wedge, rapid rate accretion	2.60
20.	214E	Aleutian forearc evolut., backstopping geometry	2.65
21.	250E	Navy fan lithofacies	2.68
22.	225E	Sounder Ridge, tectonic evolut. Bering Sea	2.70
23.	234E	Alaska accretion - modelling	2.77
24.	247E	NE Pacific paeocean-environ	2.90
25.	8E	Chile triple junction, ridge-trench collision	2.93

Note: see also CEPACs ranking of
'drilling packages' next page

CEPAC MEETING, ANN ARBOR 20-22 OCT. 1986:

CEPAC named 'drilling packages' to more clearly define and combine high ranking thematic objectives with inclusive regional grouping (each panel member was allowed to select 7 packages):

Ranking	Drilling Packages	Number of votes received (11 voting members)
1.	Atolls and guyots	11
2. -	N-Pac paleocean & plate reconstr.	10
-	Ontong Java general	10
4. -	Zero-age barerock crust	8
-	Sedimented zero-age crust JdFuca	8
6.	Old Pacific (E.Cret - Jura)	7
7.	Bering Sea paleocean-environ	6
8. -	Lith flexure	3
-	Costa Rica underplating	3
-	South Pacific tect - sed	3
11.	Aleutian/Alaskan convergence/accretion	2
12. -	Cascadia accretion/convergence	1
-	Gulf of Alaska terranes	1

no votes for:
- Equatorial Pac paleocean-environm
- Sedimentary processes
- Chile triple juntion
- California margin tect

Item N.2: THEMATIC ISSUES/DRILLING REQUIREMENTS

a. The Thematic panels formulated their long term engineering priorities (for details see p.274-278):

LITHP: 1. Improved drilling and coring methods in young, fractured crustal rocks (reduced hole size, small diameter mining diamond coring technology; side-wall coring techniques; short term: More experience with HRGB, improved downhole coring motors). Long-term development plan will be introduced by TAMU at PCOM
2. Drilling and logging techniques for high-temperature hydrothermal conditions (high-temperature and corrosive resistant bits and logging tools; steam-flash blow-out prevention)

TECP: FY88: In-situ pore pressure measurement (and permeabilities) (reliable packers, wire-line packers)
Long term: In-situ physical properties (needed instruments and techniques outlined in Physical Properties of Marine Materials WS report)

SOHP: Short term: Improvements should lead to a complete recovery of drilled and cored sections:
* HPC/APC recovery in sandy sediments (incl. unconsol. carbonates)
* Undisturbed recovery of gassy sediments
* Enhanced recovery in mixed lithology sections

Other priorities:
* Pressure core barrel
* Recovery of samples in high-temperature environments

Long term:
* Deep (2500-3000m) stable drillholes in > 3000m WD
* Drilling through salt

WPAC:
* Navi-drill adapted to the APC/XCP
* Nankai Drilling - deep drilling in sandy sediments
in situ phys. props. measurements
drill stem packer
wireline packer
* Lau Basin - high temperature drilling tools
* GBR - drilling cemented, fractured rocks, drilling soft/hard rock units.
* BONIN - drilling coarse grain unconsolidated turbidites.

DMP: Will introduce its priorities during the PCOM meeting !

b. TEDCOM outlined improvements for fractured rock drilling (higher rotating navidrill, diamont/narrow cone bits; see summary & Minutes, p.158-172)

PCOM IS ASKED TO:

(i) CONSIDER THE FY88 ENGINEERING DEVELOPMENT

(ii) RANK PRIORITIES AS THERE WILL SURELY NOT BE ENOUGH FINANCIAL SUPPORT TO ACHIEVE ALL

(iii) DEFINE LONG-TERM ENGINEERING DEVELOPMENT PRIORITIES

(iv) CONSIDER IMPACT OF SMALL DIAMETER DRILLING TECHNIQUE ON SAMPLING POLICY

Item O: PCOM's BCOM MEMBERSHIP:

At its Oct.86 meeting EXCOM decided to install a Budget Committee that should review the budget in terms of proper incorporation of scientific needs.

This Budget Committee (BCOM) should consist of three EXCOM members (1 U.S., 2 non-U.S. members) and two PCOM members.
Both PCOM members should be U.S. representatives, one of whom the present PCOM chariman.

PCOM IS ASKED TO:

(i) SELECT THE SECOND MEMBER FOR THE NEW BCOM, WHO SHOULD BE A U.S. REPRESENTATIVE

Item P: TEDCOM's ROLE IN ENGINEERING DEVELOPMENT

After a hiatus, TEDCOM has been revived with J. Jarry as Chairman. TEDCOM's expressed goals are to:

- assist TAMU Engineering and Drilling Operations (EDO) to fulfill ODP science objectives, and
- inform PCOM (and NSF) on the feasibility of science objectives

As upcoming legs will need bare-rock drilling and other new technology, TEDCOM's role will assume more importance in planning for major budgetary items. Technical workshops, including industry representation outside of ODP, will help define proposed techniques; one such workshop on riser drilling is planned to take place before COSOD II. TEDCOM is now scheduled to meet every eight months (The next meeting is tentatively scheduled in Houston on 4-7 May 1987.)

TEDCOM members have usually come from oil/marine engineering. TAMU has indicated that mining-engineering expertise will help with the bare-rock drilling problems and W. Svendson, from Longyear Corporation, is proposed by TEDCOM as one of three new members (see Item S on Panel Membership). TAMU has also indicated that a representative from SEDCO on the panel would bring needed insight on the requirements/limitations of the JOIDES RESOLUTION when planning new technologies.

PCOM IS ASKED TO:

(i) FORMULATE A MECHANISM FOR TIMELY IMPUT FROM TEDCOM ON ENGINEERING DEVELOPMENTS, ESPECIALLY ONES WITH MAJOR BUDGETARY CONSEQUENCE, OR DELEGATE A SUBCOMMITEE TO DO SO.

(ii) REVIEW TEDCOM MEMBERSHIP IN VIEW OF UPCOMING TECHNICAL REQUIREMENTS; MAKE SUGGESTIONS TO TEDCOM ON REPLACEMENTS FOR THE PANEL, INCLUDING THE POSSIBILITY OF ADDING A SEDCO REPRESENTATIVE EITHER AS A MEMBER OR IN A LIASION ROLE.

(iii) APPROVE THE PROPOSED RISER DRILLING WORKSHOP (SEE ATTECHED LETTER FROM J.JARRY)

Item Q: SAMPLING STRATEGY

SAMPLING STRATEGY:

At the October EXCOM meeting, Bernard BLJU-DUVAL (France) explained, that his request of a review of the sampling strategy had only partially been addressed by POOMs Corner Brook statement.

In his view POOM and the Thematic Panels should give advice on sampling* strategy to best address scientific objectives of a cruise. Also post cruise studies should be considered and incorporated into the sampling plan. Thematic cross leg science planning will benefit from this.

(* this includes logging data handling and distribution)

POOM IS ASKED TO:

(i) RECOGNIZE BLJU-DUVALS CONCERNS AND FORWARD APPROPRIATE ADVICE TO THE THEMATIC PANELS TO ACHIEVE THEIR INPUT ON THAT SUBJECT

(ii) FORMULATE A RESPONSE TO HIS CONCERNS

Item R: UNSOLICITED PROPOSALS/LOBBYING/ CONFLICT OF INTERESTS

1. PCOM members expressed concerns about proposing two PCOM members as co-chiefs for the SWIR leg. Looking at the attached list of previous co-chiefs quickly makes this concern a generic one.

PCOM SHOULD CONSIDER WHEITHER THE SELECTION OF CO-CHIEFS NEEDS SOME (ADDITIONAL) GUIDELINES TO AVOID CONFLICT OF INTERESTS !

2. Some drilling proposals do <u>not</u> follow the appropriate path to the ODP; proponents sent single copies to particular panels without informing the JOIDES Office. Appropriate distribution of copies to the relevant panels is not possible, differnt proposal versions are circulating. Panel chairmen should get some advice, what to do.

PCOM SHOULD ADVICE THE PANEL CHAIRMEN NOT TO CONSIDER PROPOSALS COMING THROUGH THE WRONG CHANNEL, EXEPT WHEN AGREED TO BY PCOM CHAIRMAN

3. TAMU occasionally receives last-minute requests of scientists to add minor programs and sampling request to an upcoming leg. TAMU would like to get some advice how to handle this subject.

Item R:

LIST OF CO-CHIEFS:

Leg 101: Austin, Schlager
Leg 102: Salisbury, Scott
Leg 103: Boillot (F), Winterer
Leg 104: Eldholm (S), Thiede (FRG)
Leg 105: Arthur, Shrivastava (C)
Leg 106: Detrich, Honnorez
Leg 107: K.Kastens, J.Mascle (F)
Leg 108: W.Ruddiman, M.Sarnthein (FRG)
Leg 109: W.Bryan, T.Juteau (F)
Leg 110: C.Moore, A.Mascle (F)
Leg 111: K.Becker, H.Sakai (J)

Leg 112 (Peru): R.v.Huene, E.Suess
Leg 113 (Weddell Sea): J.Kennett, P.Barker (UK)
Leg 114 (Subantarctic): P.Ciesielski, J.LaBrecque
Leg 115 (SWIR): P.Robinson (C), R.v.Herzen
Leg 116 (Red Sea): J.Cochran, Guennoc (F)
Leg 117 (Neogene I): W.Prell, Niitsuma (J)
Leg 118 (Makran): J.Leggett (UK), B.Haq

Total no. of co-chiefs: 36
Panel members (underlined): 21

5 out of 18 legs with both co-chiefs from panels

Is ODP a closed shop ?

Item S: PANEL MEMBERSHIP

CHANGES IN PANEL MEMBERSHIP FOR PCOM CONSIDERATION

ARP
- Rotating Off: J. Mutter
- Nominations: D. Sawyer (UTIG)
  C. Keen (BIO, Canada)
- New non-U.S: H. Okada (Japan)

CEPAC
- New non-U.S.: H. Schrader (ESF)

IOP
- Non-U.S. rotating off: U. von Rad (FRG)

LITHP
- New non-U.S.: C. Mevel (France)
- Note: Next appointee should be a sedimentary geochemist per PCOM, August, 1986

SOHP
- New non-U.S: A.Schaaf (France)
- Future rotation: M. Arthur, W. Hay, and L. Tauxe

SSP
- Rotating off: J. Mutter
- Nomination: S. Lewis (LDGO)

SOP
- Rotating off: J. LaBrecque
- Nomination: S. Cande (LDGO)

TEDCOM
- Rotating off: T. Gardner, W. Bingman and M. Newsom
- Nominations: P. Stanton (EXXON) for Gardner
  W. Svendson (Longyear Corp) for Newsom
  (Bingman's replacement as yet unnamed)

WESTPAC
- Rotating off: Eli Silver
- Nomination: G. Moore
- Future Rotation: J. Ingle and J. Recy

Item T: New ODP Sediment Classification:

SOHP endorses the proposes classification but has recommended a number of changes to be implimented befor adoption. See Pages 107-108.

POOM IS ASKED TO:

ACCEPT OR REJECT THE SOHP MODIFICATIONS AND CONSIDER ADOPTION OF THE NEW ODP SEDIMENT CLASSIFICATION SCHEME.

Item U: FUTURE MEETING SCHEDULE:

1. Proposed next PCOM meeting:

   1st week of April 1987
   Venue: ?

2. Summer meeting:

   End August/Begin September 1987
   JAPAN

3. Winter meeting:

   1st week of December 1987

Note: Meeting dates have to be in accordance with budget plan development (see item D.), leaving little room to move.

There are no page numbers 34-39 !

Missing Pages 34 – 39

JOIDES PLANNING COMMITTEE MEETING
11-15 August 1986
Corner Brook, Newfoundland, Canada

MINUTES

Members:

R. Larson (Chairman) - University of Rhode Island
K. Becker - University of Miami (alternate for J. Honnorez)
J-P. Cadet - France
W. Coulbourn - University of Hawaii
O. Eldholm - ESF Consortium
T. Francis - United Kingdom
S. Gartner - Texas A&M University
M. Kastner - Scripps Institution of Oceanography
M. Langseth - Lamont-Doherty Geological Observatory (alternate for D. Hayes)
R. McDuff - University of Washington
N. Pisias - Oregon State University
P. Robinson - Canada
T. Shipley - University of Texas
A. Taira - Japan
R. von Herzen - Woods Hole Oceanographic Institution
U. von Rad - Federal Republic of Germany (alternate for H. Beiersdorf)

Liaisons:

G. Brass - National Science Foundation
J. Clotworthy - Joint Oceanographic Institutions Inc.
L. Garrison - Science Operator (ODP/TAMU)
R. Jarrard - Wireline Logging Services (ODP/L-DGO)

Guests/Observers:

W. Bryan - Leg 109 Co-chief Scientist
D. Butler - Memorial Univ. of Newfoundland
E. Kappel - Joint Oceanographic Institutions, Inc. (alternate for T. Pyle)
L. Horne - Canadian ODP National Committee
J. Malpas - Memorial Univ. of Newfoundland

JOIDES Office:

D. Keith - Science Coordinator

606 INTRODUCTION AND OPENING REMARKS

R. Larson, PCOM Chairman, convened the 11-15 August 1986 meeting of the JOIDES Planning Committee which was held in Corner Brook, Newfoundland, Canada. Meeting participants were welcomed by P. Robinson (Canadian PCOM representative) and L. Horne (Coordinator of the Canadian National Committee for ODP).

After the opening remarks, Larson introduced and welcomed the following people to the meeting: K. Becker - Univ. of Miami (substituting for J. Honnorez), W. Bryan - WHOI (Leg 109 Co-chief), O. Eldholm - ESF Consortium, R. Jarrard - Borehole Research Group at L-DGO, E. Kappel - JOI, Inc. (substituting for T. Pyle), M. Langseth - L-DGO (substituting for D. Hayes), U. von Rad - Fed. Rep. of Germany (substituting for H. Beiersdorf). In closing this section of the meeting, Larson reported that in response to a request from EXCOM during their January 1986 meeting, the responsibility for the printing and distribution of the JOIDES Journal has been transferred from the JOIDES Office at URI to JOI Inc. in Washington, D.C.

607 ADOPTION OF MEETING AGENDA

Larson requested that an item entitled "PCOM's Role in the Budget Review Process" be added to the discussion of the FY 87 Budget. Larson also proposed that, during the presentation of "General Issues Arising from Panel Reports", only general panel topics be discussed and that specific planning questions be withheld until the planning phase of the meeting.

After discussion of the proposed amendments to the agenda, M. Kastner moved that the agenda be adopted. The motion was seconded by S. Gartner.

Vote: 15 for, 0 against, 0 abstain (1 absent)

608 NATIONAL SCIENCE FOUNDATION REPORT

NSF BUDGET

G. Brass (NSF Liaison) reported that the NSF Budget for FY 87 has been examined by the US House of Representatives with the recommendation for full funding. However, the budget has not been examined by the US Senate. In closing, Brass commented that although the budget has been favorably received it is still subject to reductions which are the result of Gramm-Rudman-Hollings legislation.

PROGRAM PLAN FOR FY 87

Brass also reported that JOI, Inc. has delivered to NSF a detailed program plan for FY 87 which is much improved over that presented earlier this year at the April EXCOM meeting.

RED SEA POLITICAL SITUATION & RED SEA OPERATIONS PROGRAM (Appendix A)

After conferring with the US Dept. of State on conducting a drilling program in the Red Sea area, NSF received correspondence from W. Erb, the tone of which was discouraging. The Dept of State has indicated that should ODP could continue to plan to operate in the Red Sea those plans should be able to be changed at very short notice. Erb recommended that if equally good work could be done elsewhere then he would opt for that. In closing, Brass commented that the Dept. of State is not overly optimistic for ODP operating a program in the Red Sea and that French, German and British site survey cruises to the Red Sea have been stopped because of clearance problems. Brass suggested that at some point, perhaps at this meeting, JOIDES should make a decision to either continue Red Sea planning or eliminate it from the schedule.

AVAILABILITY OF FUNDING FOR SEAFLOOR REFERENCE BEACONS ON SWIR SITE SURVEY

The Science Operator has asked NSF to provide funding for seafloor reference beacons to be deployed during the site survey of SWIR since TAMU had no funding for their purchase. This request was made after the 1 August deadline for funding requests and NSF was not able to provide funding. However, arrangements have been made through USSAC.

CO-CHIEF DISTRIBUTION

In closing the NSF Report, Brass noted that the division of non-US co-chiefs through Leg 114 shows the following: 4 France, 2 FRG, 1 Canada, 1 UK, 1 Japan and 1 ESF Consortium. Brass cautioned that a more even distribution is desired under the contractual terms of the MOU and ODP should attempt to even out the situation. Brass closed by stating that this was his last meeting and that at the next meeting R. Buffler would represent the NSF.

Discussion:

von Herzen: What are the contractual arrangements under the MOU?
Brass: Under the MOU each partner is allowed 1 co-chief/yr on average.

Robinson: How do the MOU arrangements coincide with the right of the Science Operator to choose scientific personnel?
Brass: There is a moral but not contractual obligation on the behalf of the Science Operator to see that over the period of a year the numbers average out.

609 JOINT OCEANOGRAPHIC INSTITUTIONS REPORT

J. Clotworthy reported that JOI had received comments from the EXCOM Budget Subcommittee in response to the 2 July memo from T. Pyle concerning the FY 87 Program Plan. The Program Plan was completed and delivered to NSF on 1 August where it is under review. The program plan will be printed and

distributed generally after the NSF review and after JOI has had time to respond to the review.

After examining the program plan, the EXCOM Subcommittee requested that at this meeting, PCOM examine and prioritize the proposed enhancements, to be added as more funds become available. The base budget for FY 87 as set by NSF was $34.25M and this is an increase of $1. 745M over FY 86. The increased costs are attributable to three items: engineering and logging, start-up of publications at ODP/TAMU and the operation of RESOLUTION in the more remote parts of the globe. JOI considers the base budget to be a conservative minimum level that will deliver basic program elements over the long term. The philosophy used to develop the budget was to establish a base budget and to divide the enhancements into three categories: (I) those which provide program improvement (i.e. do it better), (II) future development and (III) contingencies. At TAMU, the enhancements total $3.25M and involve all three categories. At L-DGO, the enhancements total $184,000 and include back-up logging tools. At JOI, the enhancements total $119,000 and consist of Category I enhancements (e.g. increasing the hiring of personnel at the Data Bank and hiring of an international project specialist at JOI).

The base budget was developed after discussions with the subcontractors in which each was asked for their best estimates, with no target figures in mind. The discussions on the development of the base budget between JOI, TAMU and L-DGO required that all items outside the target figure were either added as enhancements or dropped completely from the program. In reviewing the base budget of TAMU Clotworthy noted that the most important reduction taken to accommodate the increased program costs at TAMU ($1.52M over FY 86) was the reduction in the number of SEDCO shipboard personnel. An analysis of this reduction is found in the meeting papers under FY 87 Program Plan Draft Budget Overview. In examining the base budget of JOI, the ODP budget was reduced by $25,000 relative to FY 86, however, these costs are covered elsewhere through an increase in JOI's involvement with NASA and USSAC. Further, JOI has maintained the FY 86 level of funding in view of increased funding for the ODP Databank, funding the JOIDES Office at Oregon State Univ. and the JOIDES Office move from Univ. of Rhode Island, and is committed to fund COSOD-II in FY 87. The proposed FY 87 base budget for L-DGO reflects an increase of $250,000 over FY 86 with the major increase in the purchase of permanent equipment (i.e. the Wireline Packer).

In reviewing the Enhancements, Clotworthy requested that the PCOM label each enhancement with a ranking so that as additional funds become available they can be restored in the order of their importance to the program. NSF supported the suggestion and requested that in the future a list of priorities covering 4-5 pages with specific recommendations be provided with the Program Plan. This request was supported by a number of PCOM members. TAMU indicated that they feel they can operate within the base budget although unforseen problems will require additional monies.

Discussion of Base Budget:

Kastner: Why is the reduction in shipboard personnel occurring now in these relatively healthy fiscal times and will the reduction lead to a decrease in lab services?

Garrison: The extra people initially were put on board by SEDCO at no cost to TAMU and their removal may be the result of a change in management driven by the present oil situation or acquisition by Schlumberger. In addition, there may be a reduction in lab services if extra funds become available then the reductions may be minimized.

A number of members indicated that more information concerning the base budget was needed (i.e. information on the Navidrill and on a high pressure core barrel) in order to evaluate the enhancements.

Discussion of Pressure Core Barrel Development:

Several members felt that the pressure core barrel was critical to the program in order to conduct geochemical analysis and that its development would allow for the measurement of volumes and in situ pressures for organics and gas geochemistry. In discussing the lead time and costs for development, the Science Operator had no idea at present of the time and costs involved but would confer with ODP engineers. M. Kastner indicated that G. Claypool (USGS-Denver) has expressed a willingness to confer with TAMU engineers and that perhaps a committee should be established to oversee the design and development of a pressure core barrel before the Leg 112 sailing date.

PCOM Consensus:

The PCOM agreed that a committee be established to confer with the ODP/TAMU engineers on the design of a new pressure core barrel with the meeting to be held before the Leg 112 sailing date. The committee will consist of G. Claypool (USGS-Denver), K. Kvenvolden (USGS-Menlo Park) and W. Bryant (TAMU).

INCLUSION OF NAVIDRILL ON LEG 115 (SWIR)

The development of the Navidrill has been discussed between W. Bryan (WHOI) and S. Howard (TAMU) while both were on Leg 109. These discussions indicated that the present motor is too light for the stresses involved. Although the Navidrill was used on Leg 104, it has had to be modified and upgraded and it might not be ready for Leg 115. Land tests are scheduled in December 1986 with sea trials set for Leg 114. It was pointed out in discussion that if successful, the Navidrill will significantly aid in the recovery of alternating hard and soft lithologies, land tests indicate 80-90% recovery rates. W. Bryan indicated that recovery rates in mid-ocean ridge (MOR) environments rock will probably increase if coring could be done with a smaller diameter hole which would yield a smaller probability of sticking and disturbance. Further, he believes that a Navidrill with a thick walled core barrel will operate much better in MOR areas. It was pointed out that for Leg 115 two solutions to spud-in in an MOR environment

existed either use a coring motor with a standard rotary bit or use the redesigned Navidrill.

When asked if the PCOM agreed that planning/funding for Leg 115 was in accord with the objectives planned or should be redirected, a number of members indicated that objectives should be specifically known, and before the objectives can be specified the committee needed more information from TAMU. In response, the Science Operator indicated that the drilling of one or more deep holes could be done, however, he was not confident in the proposed "pogo" drilling operations until site survey information is available. Several members then asked the Science Operator if more money was needed for engineering development to ensure better recovery at MOR areas. TAMU responded that additional money would translate into more people for the development of future projects (TAMU also indicated that Engineering Developments in also short on manpower) but the biggest hurdle at this time is the lack of experience in spudding into MOR environments. It is hoped that more experience will be gained at other areas. It was then asked if the PCOM should, in planning future hard rock legs in the Indian Ocean, require that specific tests be done to gather as much information as possible in order to more fully evaluate drilling in MOR environments? It was generally agreed that as much information as possible should be gathered to evaluate MOR environments before engineering tests begin.

Several members expressed concern that Engineering Developments has not been adequately allotted sufficient funds in the base budget to develop several programs that in the near future will be important (e.g. riser drilling, high temperature drilling) to the program. Several members agreed that a report is needed from TAMU which covers the resources specifically needed to accomplish engineering developments and requested that this report be presented at the next PCOM meeting. Pisias indicated that LITHP has promised to produce a "white" paper to specifically address problems anticipated during hydrothermal drilling. Discussion indicated that this was a good start but the report should also cover the guidelines for hydrothermal drilling as well as the engineering requirements.

PCOM Consensus:

It was agreed that at the next PCOM meeting, TAMU should present an explanation of the $135,000 budgeted in the base budget for hydrothermal drilling and a report, to be distributed beforehand and presented at the meeting by an ODP engineer, on long range engineering and development plans based on present resources. At this meeting, the LITHP "white" paper on hydrothermal drilling will also be presented.

PCOM Consensus:

It was agreed that the three thematic panels, TEDCOM and DMP be requested to present their priorities for long term engineering development. These will be presented with the results of the TAMU Engineering Workshop as background information.

PRIORITIZATION OF BUDGET ENHANCEMENTS (Table 1)

The enhancements were divided into 4 categories of high priority items, medium priority items, low priority items and those items that were not applicable to prioritization, starting with a draft list devised by the PCOM Chairman.

PCOM initially considered those items which were not applicable to prioritization (e.g. day rate increases, fuel and port call increases and contingencies) and questioned why these were not in the base budget. TAMU indicated that these items may or may not occur and to put them in the budget would potentially tie up funds that could be used elsewhere in the budget. However, the Science Operator did indicate that if these monies were needed they would have to come from somewhere in the budget. JOI suggested that the adjustments could be made within the lowest priority enhancements. Several PCOM members expressed concern that there was no planned contingency fund and that any major problem (e.g. loss of the drill-string) could potentially result in significant losses/delays to the program. NSF, on the other hand, indicated that within a program at the level of $35M, $1M could be shifted about to cover contingencies. This sentiment was supported by TAMU who cautioned the committee to wait and see if contingency funds are needed (i.e. these are "forced measures" to be dealt with as the situation arises), otherwise the base budget may be affected. It was agreed that under this plan any changes in the budget would have to be dealt with immediately and that a mechanism was needed to make decisions quickly.

PCOM Consensus:

PCOM will ask JOI, Inc. to consult with the PCOM Budget Subcommittee before significant adjustments occur to the budget because of contingencies that might arise.

After this discussion, the PCOM proceeded to prioritize the high priority items (Table 1). In considering the SEDCO personnel, their effectiveness and salary. PCOM agreed to place a minority of the SEDCO people (i.e. the electronics techs) in the high priority category with an increase to the budget of $150K. The remainder of the SEDCO people would remaining the medium and low categories. A number of PCOM members and the L-DGO logging liaison expressed support for keeping the back-up borehole televiewer (BHTV) and the digital televiewer as a package and as a high priority item. PCOM then internally prioritized the high priority items. In considering the medium priority item, PCOM moved $150K of the low priority SEDCO people to medium priority. PCOM then internally prioritized the list. The low priority list was not internally prioritized.

ROLE OF PLANNING COMMITTEE IN BUDGET REVIEW PROCESS

In reviewing the situation agreed to by JOI and NSF for FY 87, the PCOM Chairman indicated that in Fall 1985 JOI agreed to produce an initial budget for review by NSF. After this review, this draft budget would be passed to the EXCOM for comment and if EXCOM thought appropriate, to ask the PCOM to review all or parts of the draft budget. The budget would then

be referred back to EXCOM. Larson indicated that he feels the Planning Committee's role in the process should be more definitive and that the PCOM should enter into the budgetary process sooner than that agreed upon by NSF and JOI. He proposed that at the PCOM winter meeting, the committee develop a science plan and any additional prioritization statements necessary to describe potential budget items for the upcoming FY. This would be used by JOI who would then confer with the subcontractors and develop a budget to be reviewed by NSF. After NSF review, the budget would be simultaneously forwarded to EXCOM and PCOM for independent review. In addition, under this process the PCOM would have the flexibility/freedom to consult the JOIDES panels for advice. That advice would be forwarded to EXCOM for transmittal to NSF.

Discussion:

The Committee generally agreed that the proposed plan was a good idea as long as the level of detail in the draft program plan is sufficient to satisfy the PCOM and EXCOM. However, NSF noted, while supporting the plan, that the Foundation's obligation is to supply a draft program plan to EXCOM and that EXCOM and PCOM will have to decide how PCOM gets the information. Further discussion did indicate that some of the membership were concerned that PCOM will spend too much time doing budgetary matters of the program. In response to this sentiment other members indicated that PCOM has the right and obligation to review the Program Plan and that without PCOM input major program goals will not be accomplished.

Discussion was ended with the following motion, proposed by Larson and seconded by Kastner:

PCOM Motion:

It is moved that the following sequence of events be adopted and recommended to the EXCOM as PCOM's role in the ODP Budget Review process. At the Winter PCOM meeting, generally held in December or January, PCOM proposes its goals and priorities for the upcoming fiscal year in a science plan and any additional prioritization statements needed to describe potential budget items. This information will be used by JOI and the ODP subcontractors in developing an initial fiscal year program plan. After review and initial approval by NSF, this initial draft program plan will be simultaneously transmitted to EXCOM and PCOM in time for their deliberate reviews. PCOM may call upon other specific expert advice to focus its review on the program plan's potential to accomplish PCOM's science plan and priorities as originally proposed at their Winter meeting and as they have subsequently evolved. This review is then transmitted to EXCOM for use in the formulation of the final program plan.

Vote: 16 for, 0 against, 0 abstain

610 SCIENCE OPERATOR REPORT

LEG 109 REPORT

Drilling Operations:

W. Bryan (Co-chief) reported that the prime goal of Leg 109 was re-enter and deepen Hole 648B and recover core. In summarizing operations during the cruise, Bryan indicated that the first 2 weeks were spent fishing two broken drill-strings out of the drill hole due both times to broken drilling jars. The hole was eventually deepened 50 meters before running out of drilling jars. The drilling jars proved to be a weak link in the drilling operation as four were used and four ultimately failed. Also the drill-string was afflicted with severe sticking problems that were hard to overcome. However, the crew felt that significant technological advances had been made at this site and geologically, the science party believed they sampled ponded lava that underlies an upper zone of pillow lavas. Leg 109 then traversed to Site 669 (near the Kane Fracture Zone) to conduct drilling operations. This area was selected because an ALVIN field program, coincidentally conducted with Leg 109, had indicated 2 km of gabbroic outcrops, the water depth was the minimum necessary to drill Layer 3 and speed up pipe trips, and the site would provide an opportunity to test the possibility of spudding into material that may be encountered on Leg 115 (SWIR). However, once on station, troubles began after 4 meters of drilling into the sediment/rock rubble cover because the core barrel buckled and jammed. The roller bits were quickly worn away and the gear was not adequate for spudding into the hard plutonic rocks. Bryan strongly emphasized that a guidebase was needed to drill in this environment. Also near the Kane Fracture Zone, the ALVIN dive program reported an outcrop of serpentinized peridotite on the western wall of the median valley. Leg 109 drilled this area (Site 670) with no spud-in problems through 5-6 m of sediments to the peridotite. Although drilling operations were successful until the core barrel jammed, core recovery was very poor (8-10%). Drilling did show that as depth increased the amount of serpentinization decreased while that of fresh peridotite increased. The hole was later reentered with no reentry cone.

In summarizing the main lessons learned from Leg 109, Bryan stated that the guidebase could be redesigned to be smaller and more simply constructed with the same capability for re-entry and casing. A guidebase is not necessary at all times because the natural proclivities of some MOR rocks actually aid the spudding-in process. In addition, drill bits and core barrel designs need additional work but the coring motors, the Navidrill concept and diamond drill bits are all promising ideas that need to be integrated into the operations program. In closing, Bryan noted that the ODP engineers and the SEDCO personnel were very responsive and co-operative and are anxious to innovate. Bryan closed by stating that at the beginning of Leg 109 the XRF did not work well because the machine had parts that had deteriorated over the past year due to sporadic use and he was not optimistic for the at-sea potential for the XRF. Bryan emphasized that there is a need for a duplicate XRF at the shore-based lab at TAMU.

Logging Operations:

K. Becker reported on the logging and downhole measurements program that was conducted on Leg 109 at DSDP Site 395A. The results of this section of the cruise are found in Appendix B.

LEG 110 REPORT

L. Garrison reported on the progress of Leg 110, which was at sea at the time of this meeting. Garrison indicated that the prime site objective of the leg was to drill the decollement at the Barbados forearc. At the prime site (LAF-1A, Site 671), the soil test was drilled to a depth of 44 m at an area north of DSDP Site 542. At Site 671B operations cored through the decollement down to 691 m depth, the decollement is located at 500 m depth. However, there were no indications of water flow or back pressures. The upper section of the hole which passed through the accretionary wedge contained Pleistocene age material and was logged but not to total depth. A bridge was encountered at 424 m depth and logging operations were terminated as the hole was not in condition for logging. At Site 671C the TAM packer was used and 2 cores were taken from 495 to 514 m. The packer experienced problems as it would not seat properly. Current theory is that the packer inflated before it was set and the mudline HPC core is thought to be the culprit that prematurely activated the inflation mechanism. Logging operations were abandoned due to a bridge. At Site 672 (LAF 2), an oceanic reference hole was drilled and cored to 493 m. Heat flow was measured at three intervals and water samples were taken. The hole was logged to 350 m until the logging tool failed. A second logging tool was dropped downhole but it too failed at the same spot. Site 673 (LAF 3A) drilled to Miocene age material which are thought to be associated with thrust faults and an overturned sequence. Site 674 (LAF 3) reached Oligocene-Eocene sediments before the bottom hole assembly was lost at the base of the non-magnetic drill collar.

611 WIRELINE LOGGING SERVICES OPERATOR REPORT

R. Jarrard reported that the logging effort had greatly increased since the May PCOM meeting with logging scheduled for Legs 109, 110, 111, and 112. In the future the Borehole Research Group anticipates a decrease in activities on Legs 113, 114, 116, and 117. An increase is expected on Leg 115. Jarrard further reported that past experience has shown that the standard tool suite has evolved to 3 combinations of tools with 2 types of combinations mainly used, a seismic-stratigraphic combination and a geochemical combination. The third combination, a mineralogical combination is used less often.

In addition, after an internal organization evaluation, L-DGO concluded that for the first nine legs, the 400 m rule was observed when it was applicable, the full Schlumberger suite was seldom used, the program is losing 23% of loggable hole to bridge problems and 16% of loggable hole is skipped because of not logging in the drillpipe. Lastly, the BRG indicates that much more logging effort and success has occurred at the basalt sites

compared to the sediment sites. In order to solve the problem of bridges, the BRG will revise the mud program on Leg 110 to include the use of freshwater mud salted with KCl to minimize swelling in clays in the borehole. In addition, the BRG intends to use the Side Entry Sub to solve the bridging problem. A prototype sub was tested on Leg 108 and a standard sub was made for Leg 110. However, the tool to be used on Leg 110 was below specifications and will have to be rebuilt. The tool could be ready for the second half of Leg 111 and will be routinely used as of Leg 112.

Jarrard closed this section of the report by stating that the Al clay tool used on Leg 109 will on Leg 111 and that the Repeat Formation Tester is completed and in the testing phase. This tool will be available for Legs 111,112 and 115.

TAM WIRELINE PACKER AND ODP MEMORANDUM OF UNDERSTANDING

R. Larson opened discussion of the potential patent problem that may result from the purchase of the TAM wireline packer by indicating that R. Anderson misstated the problem at the May PCOM meeting. Larson stated that the PCOM is not faced with an MOU violation if the instrument is an off-the-shelf item when it is purchased. A violation would occur if a manufacturer built the packer for ODP, obtained a patent on it and then sold the design for profit, having used ODP funds for research and development to generate a patentable item in which ODP participants did not share in the patent rights. Larson noted that the possibility also exists that patents will occur from development of the tool with ODP responsible for their costs. If patents already exist then there is no problem but if additional patents are forthcoming then MOU problem exist. It was the position of L-DGO that ODP is buying the first instrument and that its cost would include developmental costs and not include profit. Therefore there is a difference between letting a contract for development and the actual purchase of an item off-the-shelf. This position was supported by several PCOM members. It was also stated that TAM will continue to develop and sell the instrument regardless if ODP purchases it or not. Some members thought that this was an EXCOM matter and should be decided on by them.Discussion closed with the following consensus:

PCOM Consensus:

It is agreed that the Wireline Logging Subcontractor should get written assurance from TAM International that ODP is not allocating development funds and that once the wireline packer is available it will be sold openly at a price fixed at the ODP purchase price. Furthermore, Wireline Logging will confer with the PCOM chairman. After these discussions, the issue will be presented to the EXCOM Chairman for discussion and a decision for more discussion or purchase. This decision will be forwarded to NSF.

612 JOI PERFORMANCE EVALUATION COMMITTEE REPORT - PCOM COMMENTS

CHANGES TO ITEM 4.3

R. von Herzen suggested that the text be more strongly worded to emphasize that petrophysics is already being conducted within the ODP logging program.

CHANGES TO ITEM 6.1

S. Gartner requested that following be added: "further attempts will be made to fine-tune the panel structure in the near future."

CHANGES TO ITEM 6.4

Larson proposed this addendum: and PCOM has not found an unfinished target with sufficient priority to justify the elimination of an entire leg.

CHANGES TO ITEM 6.10

At their last meeting, IHP proposed that the logging and barrel sheets should be juxtaposed in the Volume A series. The PCOM accepted this proposal in the following statement:

PCOM Consensus:

The PCOM accepts the combined advice of the Borehole Research Group, TAMU and IHP that logging data be printed after the lithologic information (i.e. the barrel sheets) in the Volume A ODP Reports. The logs will be keyed to the barrel sheets by core numbers and will be unprocessed. This sequential rather than juxtaposed format for the lithologic and logging data will allow additional data to be displayed for ready visibility without encouraging spurious correlations between the two data sets.

PCOM Consensus:

It was agreed that the PCOM Chairman will produce a final draft of the Terms of Reference for distribution to the EXCOM for comment and that they should respond by the next meeting. The Chairman will include the cover letter to EXCOM an explanation that the PCOM feels that in the future it should be presented with the entire PEC report and not portions thereof.

613 RATIFICATION OF NEW ODP SEDIMENT CLASSIFICATION

PCOM Consensus:

It is agreed that the ratification of the new sediment classification scheme will be deferred to SOHP for review and revision. In addition, SOHP is free to solicit additional or outside expertise if needed.

614 GENERAL ISSUES ARISING FROM PANEL REPORTS

LITHOSPHERE PANEL

Pisias indicated that LITHP is concerned about a long-term engineering solution to sampling the earth's crust at spreading centers.

INFORMATION HANDLING PANEL

Gartner indicated that a major effort presently at DSDP is the indexing process. This procedure has led to the development of 2 volumes of material that are approximately the size of 2 DSDP Initial Report volumes. Gartner also indicated that IHP believes there is no clear statement on the publications program and that a written statement should be produced. Brass also indicated that EXCOM is waiting for a report on publications by PCOM.

It was agreed that the Publications Report presented at the May meeting should be mailed to EXCOM members (Appendix C).

S. Gartner proposed the following motion, which was seconded by M. Langseth:

PCOM Motion:

The Planning Committee endorses the report on publications by R. Merrill and urges that the publications program proceed according to the plan presented therein.

Vote: 16 for, 0 against, 0 abstain

Gartner also indicated that IHP is aware of the efforts at DSDP and requested that an expression of gratitude be made to those at DSDP. Gartner proposed the following motion which was seconded by von Herzen.

PCOM Motion:

The PCOM wishes to express its gratitude to L. Musich, P. Woodbury, J. Blakeslee, T. Wood for their faithful and efficient efforts at DSDP and during ODP.

Vote: 16 for, 0 against, 0 abstain

615 SHORT TERM PLANNING

LEG 111

K. Becker reported that Leg 111 is on schedule with no problems at this time. Current plans are to drill and core for 30 days and to conduct 10 days of logging. 5 days will be devoted either during/or after initial activities at 504B for sediment coring, with heatflow and double APC coring to basement, at a site near 504B. Current plans do not call for the sidewall entry sub but if it is needed L-DGO will shuttle it to the ship. The leg will include a set of high-temperature logging tools with logging

scientists from the UK, US, Japan and France. Also, USSAC is funding the rental of a downhole seismometer. Leg 111 will also try to improve recovery rates by using new diamond rotary drill bits and will attempt heat flow measurements using the von Herzen heat flow tool and pressure measurements using the new Barnes tool.

M. Langseth reported that a detailed survey in May 1986 produced a grid for heat flow surveys which focused on areas of anomalous heat flow. In relation to the drill hole, which is located in the center of the grid, there is a systematic and contourable distribution of heat flow of below average (170 mW/m2) values in topographic troughs and above average (230 mW/m2) values on ridges. The average heat flow value is 200 mW/m2. These values can be further correlated with upwelling water (with flow rates approaching 5 mm/yr). In the low areas detailed temperature measurements (particularly in the lower part of the hole) indicate hydraulic "drawdown" effects. At the ridges, the high temperatures are thought to be associated with fractures in the basement. Basement temperatures along the highs were 85 degrees C compared to 55 degrees C in the troughs.

Discussion:

Kastner: What are the XRF plans for Leg 111 and what are the long-range plans for the machine?

Garrison: At this time the XRF is functional and the software problem has been solved. A continuing problem has been the training of technicians. At the end of Leg 110, one tech will go to school at ARC for training and another will go to Massachusetts for training in Mike Rose's XRF lab. Currently there are 2 techs that are well-trained and 2 techs that are partially trained. For the future there are no plans to replace the unit because of finances.

LEG 112

Garrison reported that staffing is complete for Leg 112. Clearances are pending but TAMU is confident they will be granted. Garrison also reported that the ship schedule has been amended. RESOLUTION will now arrive in Barbados at the end of Leg 110 on 16 August and leave on 17 August. The ship will then transit to Panama arriving on 23 August with a 3 day portcall. 2 extra days previously assigned to Barbados were carried to Leg 112. Leg 112 will begin sometime between 24-26 October in Callao. At the last PCOM meeting, TAMU was asked to add 5 days to Leg 112. This has been added in the body of the cruise and not as a mini-leg after Christmas. If the ship leaves on 24 October, it should arrive back in Callao on 15 December. If the ship leaves on 26 October, it should arrive on 17 December. The ship will arrive in Punta Arenas on 2 January 1987 to begin Leg 113.

On Leg 112, the shallow water SOHP sites will be done initially, and then to the deeper TECP objectives will be attempted. However, the shallow water nature (less than 100 m) of the SOHP sites may cause positioning problems for the drillship. If the ship is more than 3% of water depth off

the hole then damage may occur to the drill-string and the bottom hole assembly may break. If this is the case, Garrison indicated that the crew will fallback to options at deeper water sites.

R. Larson reported that PPSP gave the go-ahead at all the prime sites (including Site 3) on the Lima Basin and Yaquina Basin transects but warned of bottom simulating reflectors (BSRs). PPSP extensively discussed the gas hydrate problem and concluded that if small amounts of gas hydrates are recovered and if there were no BSRs below, drilling could proceed cautiously if subsequent gas hydrate recovery was minimal.

Discussion:

In discussing options for Leg 112, Larson stated that R. von Huene had acquired a very good seismic section from Shell Oil parallel to the Lima Basin transect. A site on this line called 7A is near Sites 6 and 7, and contains an expanded lower sedimentary section , relative to Site 7. von Huene would like to first drill Site 7, and if the upper sequence at that location is not well represented, default to Site 6, where it is expanded. If the lower sequence is not well represented at Site 7, he would default to Site 7A. von Huene has asked the PCOM for approval of this site as an alternate due to time limitations, although this request bypasses the normal review process. Several members were uncomfortable with this request.

PCOM Consensus:

The PCOM agreed that the request should be approved subject to review by the TECP Chairman and that he is free to consult outside sources if needed.

LEG 113

Garrison reported that the ship will leave Punta Arenas on 4 January 1987 and arrive in the Falkland Is. on 10 March. 24 days for transit and an increase in operation time have been added to the previously scheduled 61 days to give a maximum of 65 days. The co-chiefs meeting resulted in an operations schedule (Table 2). Garrison also showed the proposed ship track (Figure 1) with the locations of W1, W2, W4, W5, W6, W7, W8 and W 10. Ice problems, particularly pack ice, are anticipated at Site W4 but no pack ice problems are indicated for W5 or W6-8. However, at W10 there is a BSR. PPSP has reviewed W10 and restricted drilling to 200 m of APC coring or to APC refusal. SOP has proposed an APC site at W11 as an alternate and W12. However W12 is not a serious consideration because of location.

Staffing:

Ten invitations have been issued and staffing is almost complete although a second paleomagnetics person and a palynologist are needed. Canada indicated that it will try to fill the paleomagnetics slot and the ESF Consortium indicated that it will try to fill the palynologist slot.

Support Vessel for Leg 113:

Garrison indicated that ODP has contracted with AP Moeller in Copenhagen for an ice support vessel, either the MAERSK MASTER or the MAERSK MARINER. These vessels are 1600 gross tons with 15-16K horsepower in 2 main engines and 4 thrusters. The vessel is also capable of dynamic positioning. The vessel can carry a crew of 8-9 with bunks for approximately 20 people and there is emergency space for the entire RESOLUTION drilling crew. The ice support vessel crew has also been trained in survival techniques and to respond to an emergency within 3 minutes of receiving an alarm. TAMU is confident in the support vessel and an option exists for its use on Leg 114. An ice observer will be on board and ODP has purchased a Neil Brown current meter to collect data for input into the ice drift program. Finally, the day rate is $6100/day without fuel.

TAMU also reported that applications were received for use of the support vessel for science. 3 prime suggestions were a study by D. Biggs (TAMU) to conduct plankton biology studies, a proposal to run a series of magnetometer lines by P. Barker (UK) and L. Lawver (UT) and a proposal to run a series of seismic lines by A. Maldonado (Spain). The final decision was made by the co-chief scientists and the science operator who favored the magnetometer and plankton studies. Garrison proposed that the scientists on the support vessel be considered part of the Leg 113 science party so that the data collected would be integrated into the total data set and also for financial considerations. This proposal was supported by the PCOM.

PCOM Consensus:

It is agreed that the shipboard scientists on the ice support vessel will be considered as members of the Leg 113 science party.

Portcall in the Falkland Islands:

Garrison reported that the arrangements for the portcall look favorable and permission has been obtained from the Falklands and the UK. Travel arrangements for the crew change are not yet complete and TAMU is looking for a charter to carry air freight cargo and 120 people. These arrangements are expected to be become more firm in the next 2 months although first indications are that a DC-10-sized aircraft will be necessary for the supplies and the range necessary to fly from Ascension Island to the Falklands. Presently, plans call for a 1 day turnaround due to logistical limitations of the area (i.e. no hotels to accommodate 120 people). The support vessel contractor has indicated that they will share space on the support vessel for the transport of cargo and fuel.

Relocation of W5 (Weddell Sea):

At the May meeting, PCOM recommended that Site W5 be relocated to an area with thinner turbiditic beds or justified at its present location. The co-chiefs (Barker and Kennett) reviewed the recommendation and state that while alternates exist, they lie at deeper basements depths than W5 and this jeopardizes the Paleogene objectives. Therefore they wish to keep the

original location for W5.

Also at the May meeting, the PCOM requested an explanation of how the scientific objectives would be attained. P. Barker responded that W5 is the only basin site of all the proposed sites that potentially holds a complete record of paleoclimate and is free of shelf erosion. The site is critical to the understanding of Antarctic Bottom Water evolution. Barker contended that the post-Paleogene stratigraphy at this site (distal turbidites and hemipelagics with ice rafted debris) would be dated by examination of the reworked biota, magnetic remanence measurements and Sr isotope ages from fish teeth. This stratigraphy he maintained will contain a record of Antarctic vegetation, glaciation and young slope sedimentation, as well as the onset of Antarctic Bottom Water formation.

Request to Omit Logging at all sites except W4-W5 and to discontinuously core the upper 500m of W5:

Larson indicated that this request was made by the Leg 113 co-chiefs but the reasons for the request differ. Both agree to log W5 but Kennett would like to conduct discontinuous coring in the upper 500 m of the hole in order to preserve time for the So Orkney transect. Barker would like to core all of W5 and also log W7.

Discussion:

von Herzen pointed out that DMP proposed that logging be conducted at six sites (W1, W4 and 5, and W6-8) for 3 days total, now the schedule calls for 3.7 days to do 3 sites. Jarrard responded that estimated times are more than that actually needed. Further discussion indicated that the co-chiefs consensus was to log W4 and W5 and if additional time is available, then follow the DMP recommendation and log W6-8 and abandon the 400 meter rule if there is insufficient time. It was generally agreed that logging of W4 and W5 was important and that there would either be no time to log W6-8 or all three sites would have to be logged. Since W1 and W2 are less than 400 m perhaps they should be absolved from logging.

PCOM Consensus:

The PCOM agrees that logging requirement for W1 and W2 (Maud Rise) should be waived.

PCOM Consensus:

The PCOM agrees that the logging requirement should not be waived for W7 (So. Orkney). In addition, PCOM agrees that although the logging of W6 and W8 (So. Orkney) is desirable, the decision to do so will reside with the co-chiefs.

It should be noted that a minority of the membership argued for logging either W6,7 or 8 because of the prospect of logging in high latitude sediments.

PCOM Consensus:

It is agreed that continuous coring should be required at all sites, including W5 (Weddell Sea).

Sites W6, W7 and W8:

The PCOM rearranged the order of drilling of Sites W6-8 to follow the recommendation of SOHP, that is (1) W7, (2) W6, and (3) W8.

LEG 114

Garrison reported that Leg 114 is scheduled to be 56 operations days with a 24 day transit from the Falkland Islands to Mauritius. The Co-chiefs are J. LaBrecque (L-DGO) and P. Ciesielski (Univ. of Fla.). Leg 114 is scheduled to leave the Falklands on 15 March 1987. Otherwise no additional planning will occur until site surveys are completed.

Discussion:

von Herzen: At the May PCOM meeting, the possibility of including into Leg 114 sites not drilled on Leg 113 (i.e. W4, W6-8) was left open. Do we want to exercise this option?

Larson: The 114 co-chiefs and the Science Operator probably do not think that this is logistically or financially a good idea.

During further discussion several members queried whether Leg 113 objectives were strong enough to reorient the Leg 114 program. If W6-8 could not be done on Leg 113 should low priority objectives on Leg 114 be dropped in favor of their inclusion on 114. It should be noted that the PCOM established the primary objectives for Leg 114 at the May meeting.

PCOM Consensus:

The PCOM agrees that SOP, SOHP and the co-chief scientists for Legs 113 and 114 should be asked for their views on the scientific and logistical tradeoffs of devoting 15 days of drilling time on Leg 114 for the accomplishment of those objectives not achieved on Leg 113. It is also agreed that a report on these views should be presented at the next meeting. In addition TAMU should also present at the next meeting the logistical and operational costs of conducting the tradeoffs.

PCOM Consensus:

The PCOM agrees that if a tradeoff is made the present co-chiefs on Leg 114 should be asked if they wish to remain so and if so, could they assemble a crew for Leg 114?

PCOM Consensus:

It is agreed by the PCOM that the above consensus is contingency planning that will only be implemented if none of W6, W7, or W8 is done on Leg 113.

It was then pointed out by Larson that the next PCOM meeting was too late in the planning process to decide on this potential trade-off. The

decision must be made now on the information available so that Legs 113 and 114 can plan their drilling strategies and staff their scientific parties with this potential trade-off either definitely included in the program or definitely excluded. The trade-off discussion was then re-opened with an explanation by Garrison of the additional support vessel costs which were implied.

Garrison reported that the support vessel would probably be required anyway for the start of Leg 114 because floating ice is normally a problem in the Southern Atlantic in mid-March and later. The support vessel would certainly be required on Leg 114 if they were to initially go to W6-8 and then return to their track at SA2. If, by chance, the Southern Atlantic were ice-free in mid-March but we required Leg 114 to return to W6-8 the total excess cost would be approximately $6100 X 20 days, plus fuel, totaling approximately $140K. If the boat is released at the end of Leg 113, the support vessel will cost a total of $800K. Garrison does not anticipate any other logistical problems, however, a decision must be made in January to release the boat at the end of Leg 113 or to retain for W6-8 drilling.

The trade-off option was then debated with those favoring the previous PCOM position that all objectives on Leg 113 are more important than any objectives on Leg 114. Arguments against indicated that it is unfair to the Leg 114 scientific party to impose Leg 113 objectives on them at the last minute in their plans. A compromise was considered by agreeing that W7 was the most important site on the So. Orkney transect and that Leg 113 should attempt the So. Orkney sites in priority order of W7, W6 and W8. If none of the So. Orkney objectives were achieved by Leg 113, PCOM should ask Leg 114 to return and achieve at least W7, but PCOM could not expect them to complete the entire transect.

Kastner proposed the following motion which was seconded by von Herzen:

PCOM Motion:

The PCOM recommends that if Leg 113 does not achieve the objectives of W7 (a high priority site which should be drilled first on the So. Orkney transect) then they should be accomplished on Leg 114. If they are achieved on Leg 113 then Leg 114 should proceed as planned with Southern Atlantic sites.

Vote: 15 for, 1 against, 0 abstain

Kastner then proposed the following motion which was seconded by Francis:

PCOM Motion:

The PCOM recommends that if Leg 114 returns to do the So. Orkney transect then W7 should be done first (with the logging program) with a maximum of 10 days spent on site at W7.

Vote: 15 for, 1 against, 0 abstain

616 MEDIUM RANGE PLANNING

LEG 115

It was reported, by Brass and von Rad, that IOP is concerned that site surveys, as planned, will not locate the kinds of sites necessary for drilling and suggests that photographic surveys, piston cores and seismics are needed before drillholes are sited. W. Bryan expressed concern over the lithology that drilling will spud into since the sediment troughs may have to deal with substantial amounts of rubble. IOP also suggests that the vertical seismic experiment be done another time due to time and the lack of a "shooting" ship. It was suggested that a re-entry cone be left on the seafloor. Pisias reported that LITHP also concurs with IOP and is also concerned on the "pogo" drilling technique, the limitation of the TV camera system (they suggest that operations be done in shallower water) and that if gabbro is present, then the guidebase should be on the ship. Robinson reported that DMP has strongly recommended a full suite of downhole logging similar to that conducted at DSDP 395A in a 500 m deep hole and the oblique seismic experiment.

Use of Second Guidebase:

In discussing the use of the bare-rock guidebase on Leg 115 some members felt that with the number of objectives proposed there would be no time to set the guidebase. Conversely, several members supported giving TAMU as much experience as possible with the guidebase system but thought that the 47 days operations days is not much to do this and to accomplish other objectives. PCOM members generally favored deployment of the guidebase for gaining experience and to drill a deep stratigraphic hole.

PCOM Consensus:

The PCOM agrees that the second guidebase should be available on RESOLUTION for use on Leg 115 (SWIR), pending site survey results.

Oblique Seismic Experiment on Leg 115:

In discussing the oblique seismic experiment, it was suggested that the results will illustrate the seismic character of the uppermost crust along with physical properties and seismic structure. Discussion further indicated that in order to obtain results, the experiment would have to be conducted with one deep hole and at several levels within the hole and that the time involved would be approximately 10 days. It should noted that there was a general feeling that this was too detailed an operation for a first-pass in the area and that perhaps a deep hole should be drilled and a re-entry cone dropped for a later oblique experiment.

PCOM Consensus:

It is agreed by the PCOM that we are not ready for an oblique seismic experiment on Leg 115.

In discussing the downhole logging program several members supported logging operations as it would provide a unique opportunity for deep hole logging, if a deep hole is drilled.

PCOM Consensus:

The PCOM supports the downhole logging program for Leg 115 if the hole is at a depth considered reasonable for logging to be conducted.

Co-chief Recommendations:

The following names were forwarded to the Science Operator:

LITHP	IOP	TECP	DMP	PCOM
Cann	Bostrom	von Herzen	Hyndman	Malpas
Dick	Dick		Olhoeft	Robinson
Hyndman	Malpas		Stephen	von Herzen
Nicolas	Natland		von Herzen	
Robinson	Robinson			
Salisbury	von Herzen			
von Herzen				

RED SEA

Garrison reported to PCOM that it is critical that a decision be made at this meeting concerning the Red Sea. Garrison indicated that for most of the sites at least 2 clearances will be needed with clearances needed from Saudi Arabia and Egypt for the northern sites and clearances from Saudi Arabia and Sudan needed for the southern sites. Garrison stated that the committee could plan as scheduled but there is no guarantee that ODP would hear of a result, in terms of clearances. Garrison requested that, if planning continued, he be allowed to set a deadline around the end of January 1987 to hear about clearances. After that time, if there is no word or at least one refusal the program would automatically default to Intraplate Deformation and N. 90 E Ridge. Brass also reminded the PCOM of the State Dept.'s feeling that operations there are a "risky proposition" with security and clearance problems and the suggestion that if the science could be done elsewhere then it should be done so.

Site Surveys:

Francis reported that DARWIN is not doing site survey work in the Red Sea because the UK failed to get clearance permission from Saudi Arabia. Cadet reported that France has not received an answer for the site surveys and IFREMER has decided to cancel both of their campaigns for this year and will try next year. Garrison recommended asking for the clearances but with a deadline in mind. He said that although he was pessimistic, the possibility of doing the Red Sea program was worth the prolonged uncertainty.

The PCOM next reviewed the Red Sea science program, site surveys and discussed the political situation.

Discussion of Science Plan:

31 days of drilling and logging can be planned for Site Surveys already in hand according to SSP Chairman John Peirce.

Kastner reported that after conferring with Cochran, he is less optimistic that the main objectives will be achieved. Cadet and Langseth on the other hand reported that they thought Cochran has more positive attitude. Robinson agreed with Kastner and added that perhaps the importance of a Red Sea program has diminished in the past year as its uniqueness has diminished because of the discovery of hydrothermal and metallogenic areas elsewhere. On the other hand, several members expressed support for a Red Sea program as the program is still very important and unique from the focus of rifting and stretching a passive margin and the possibility that the new METEOR could still get to the area in time to conduct a seismic line in the Sudan waters. Discussion closed with following motion proposed by Robinson and seconded by Cadet.

PCOM Motion:

The PCOM proposes to reiterate the plans outlined for the Red Sea hoping that a site survey will conducted at 17.5 deg. N. If these data are not obtained then the PCOM will then devise a leg based on present site survey information and will not attempt to set up a natural laboratory in the area. The Committee will ask that TAMU continue to seek permission to operate in the area with a deadline set for late January 1987. The FRG is also advised to continue attempts to obtain site survey clearance for METEOR.

Vote: 15 for, 0 against, 0 abstain

Co-chief Recommendations:

IOP	LITHP	TECP	PCOM
Backer	Backer	Backer	Backer
Bonnatti	Bonnatti	Bonnatti	Cochran
Cochran	Cochran	Cochran	Guennoc
Guennoc	Pautot	Pautot	
Pautot			
Whitmarsh			

INTRAPLATE DEFORMATION - N90^{o}E RIDGE

Larson reported that the N90^{o}E Ridge was surveyed successfully by J. Curray but no results have been presented. Concerning the Intraplate program, the site survey was successfully done and indicated areas with high heat flow, however, SSP has required additional bottom navigated heat flow data. It was agreed that site survey results are needed before further planning could occur.

Co-chief Recommendations:

IOP	LITHP	TECP
Curray	Currie	Curray
Herb	Duncan	Peirce
Peirce	Peirce	Sclater
Scrutton	Sclater	
Weissel	Whitmarsh	

NEOGENE I

Larson reported that Prell had conducted a successful site survey cruise with the results presented at the last IOP meeting.

Discussion of Science Program:

Presently 53 days are planned with 45 on site days. 3 sites have been selected for 200 m penetration with double HPC coring on the Oman margin. 2 sites have been selected on the Owen Ridge, one to be drilled to the Miocene, 2 sites have been sited on the distal portion of the Indus fan and 2 Hominid sites have been located in the Gulf of Aden or in the Somali Basin. TAMU requested that priorities be established in order to trim the drilling time from the 45 proposed to 34 days available. PCOM then reviewed the SOHP priorities for Neogene I. These were: 1) Oman Margin 2) Owen Ridge 3) Indus Fan 4) Gulf of Aden and 5) E. Africa.

PCOM Consensus:
It was agreed that the IOP needs to explain their estimated drilling time of 45 days when only 34 days are available. Further IOP needs to prioritize their drillsites, in a manner similar to SOHP.

Co-chief recommendations:

IOP	SOHP	PCOM
Cochran	Prell	Kelts
Kenyon		Mayer
Prell		McCave
		Niitsuma

MAKRAN

Francis reported that DARWIN is scheduled to conduct a site survey of the Makran area (with R. White as chief sci.) in Nov/Dec 1986 with multi-channel seismics (MCS), seismic refraction, and heat flow. In addition, a GLORIA survey in scheduled in Jan/Feb 1987. Francis closed by stating that the processed MCS data will be available in time for drilling.

It was reported that IOP believes that Makran can be drilled in a half leg and proposed as alternates an attenuated Makran program, a Carbonate Saturation Profile program and Mascarene Plateau basement drilling. The PCOM was asked to choose two. IOP also had reservations on the quality of

the Makran data and which of the proposed 7 holes were actually needed. Larson indicated that the problem with the Makran program is that the main target is to drill thrust faults on the deformation front, however, those faults are not observed on the single channel seismic data. Also, BSRs are observed on the SCS data limiting Makran drilling to less than 400 m holes. Francis cautioned against prejudging the data and suggested that the IOP should consult J. Leggett rather than R. White if questions exist. Some PCOM members were skeptical of this as White is one of the proponents and the one most familiar with marine seismic data.

Discussion of IOP Alternates:

Carbonate Saturation Profile:

The plan consists of 4 short holes (max. 300 m) with double HPC and XCB coring. The objective is to study carbonate saturation in a depth transect in an equatorial setting. This site was chosen because of better depths, higher fertility in the water column, and less mass wasting and disturbance than on 90° East Ridge. Larson emphasized that the Carbonate Saturation Profile is not an extension of the Neogene package.

Discussion indicated that SOHP had not reviewed in detail the Carbonate Saturation Profile at their last meeting for SOHP interests, however, SOHP has indicated that this area is a better place to do a carbonate saturation experiment rather than 90o East Ridge.

Mascarene Plateau:

This program is a hard rock program based on the Duncan proposal. It is intended to study petrologic and geochemical variations associated with the Reunion hot spot and compare them with Deccan trap flood basalts. A subsidary program would be to study the subsidence of the Mascarene Plateau in the overlying sedimentary record. It was pointed out that both the Carbonate Saturation Profile and the Mascarene Plateau are scheduled for site surveys by DARWIN. LITHP indicated that if given a choice between Mascarene Plateau and 90° East Ridge, they would prefer 90° East.

PCOM Consensus:

It was agreed to eliminate Mascarene Plateau as an alternate since the program to address the age of a hot spot trace in the Indian Ocean is duplicated at 90° East Ridge. The remaining alternates will consist of the Carbonate Saturation Profile and Makran.

At this time, J-P. Cadet requested that his abstention be reflected in the above consensus.

Robinson proposed the following motion which was seconded by Shipley:

PCOM Motion:

It is moved that the PCOM follow the advice of the IOP for the Makran with 4 sites and the carbonate saturation program and the times proposed.

Vote: 6 for, 8 against, 1 abstain

Several members expressed reservations on mixing a tectonics program with paleoenvironmental objectives and others expressed support for the IOP program. Further discussion of the Makran program as a full leg indicated that several members thought it a mistake to make a full leg without further knowledge on age, seismic structure, and gas deposits. However, it should be left on the prime drilling plan as a full leg at present. Francis proposed the following motion which was seconded by Robinson.

PCOM Motion:

The PCOM recommends that a full leg with 35 days of drilling be devoted to the Makran program. The Committee also recommends that the site survey chief scientists contact the IOP and TECP Chairmen to discuss the Makran situation and present a report to PCOM at the next meeting.

Vote: 8 for, 6 against, 1 abstain

TECP was also asked to address the IOP priorities and to review the site survey data with a view presenting their results at the next PCOM meeting.

Co-chief recommendations:

IOP	TECP	PCOM
Hesse	Cowan	Haq
Leggett	Leggett	Moore
White		Niitsuma
		Suyehiro
		Tauxe

KERGUELEN I AND II

At the May meeting, PCOM asked IOP and SOP to organize a working group of six members (3 from each panel) to provide a detailed drilling program and to establish priorities for the legs. This was established and consists of R. Schlich (IOP), D. Falvey (IOP), W. Prell (IOP), J. Anderson (SOP), P. Ciesielski (SOP) and D. Elliott (SOP). Prell is the chairman. The working group will meet in late October (27-28) and will report to PCOM at the next meeting either through correspondence or with a representative. PPSP has also reviewed a seismic profile from the Prydz Bay are and sees no problems.

Logistics:

PCOM asked, at the May meeting, that the issue of finances for a crew change in Kerguelen vs. Mauritius be re-examined by TAMU and reported on this meeting. The results of comparing the crew using the M. DUFRESNE vs. JOIDES RESOLUTION are in Figure 2. During this discussion, Cadet indicated

that the crew transport by M. DUFRESNE should be reduced by $50K to a total of approximately $550K. In considering these costs, PCOM indicated that even with the $50K reduction, the cost of using M. DUFRESNE would still be $475K more than if JOIDES RESOLUTION were used to conduct the crew transfer. Therefore, based on these figures the cost of using M. DUFRESNE was deemed to be too expensive. von Rad also indicated that the IOP considered the Kerguelen program to be very important since it was a COSOD objective and therefore the 15 days that may be gained using the RESOLUTION for the crew change are very important to the program. Based on the comparison, Robinson proposed the following motion which was seconded by Kastner.

PCOM Motion:

The PCOM recommends that the crew change between Kerguelen 1 and Kerguelen 2 be conducted using the JOIDES RESOLUTION around a normal port call.

Vote: 14 for, 2 against, 0 abstain

BROKEN RIDGE - 90^{O}e RIDGE

Larson reported that site surveys are funded and are occurring. The issue of co-chief recommendation was deferred until the next meeting.

ARGO/EXMOUTH

Larson reported that IOP was asked to consider an extension of the leg up to a two leg program with SOHP objectives for stratigraphic deep hole tests. Larson recommended that planning be deferred until SOHP has met to consider the IOP recommendations. He indicated that he had presented the proponents prime site data to PPSP in a preliminary fashion and that there were no obvious problems, although complete documentation will eventually be necessary on Exmouth Plateau.

617 LONG RANGE PLANNING

WEST PACIFIC (9 leg drilling plan)

Larson reported that WPAC made some minor revisions of their drilling package and brought together a viable, reprioritized program. The resulting priority list consists of:

1. Bonin-1
2. Japan Sea
3. Sunda Backthrusting
4. Banda-Sulu-So. China
5. Bonin-Mariana-2
5. Great Barrier Reef
7. Nankai
8. Lau Basin
9. Vanuatu

10. Zenisu Ridge (1/2 leg)
11. Sulu Transect

The main change from the first 9 leg listing was that the So. China Sea, justified by WPAC on tectonic grounds, was not seen as viable by TECP. In the revised listing, deep basin holes are proposed in the Sulu, Banda and So. China Sea Basins for this leg and the Sunda Backthrusting proposal, by E. Silver, for the Sunda Timor region was inserted into the program. This proposal will investigate the accretionary processes at the wedge front, backthrusting processes behind the front and the vertical history of Timor island. TECP requested more collisional experiences in drilling and this satisfies that request. WPAC has recognized that the most unfocused program is Lau Basin drilling and has asked that a working group be established to develop a drilling plan.

Discussion:

Kastner expressed concern that there is a lot of overlap between the Sulu Transect and the Banda-Sulu-So. China program and suggested that WPAC merge them into a unified/uniform program. This sentiment was supported by Cadet who indicated that France feels the West Pacific drilling program is too dispersed and should be reviewed by TECP to make sure that COSOD objectives are being addressed in the most effective fashion. France feels the program should be concentrated to address more geographically focused objectives. Several other members, while commending WPAC on an excellent job, supported Kastner and Cadet and suggested that the drilling plan be concentrated on thematic interests and not spread over a wide geographical area.

PCOM Consensus:

The PCOM commends the WPAC for their excellent job in developing the revised drilling plan and accepts the plan as an operational document but is referring it to the 3 thematic panels for their views on how successfully this plan addresses the thematic objectives for the region.

It was proposed by von Herzen that DMP be asked at their next meeting to address the drilling plan with a view towards establishing a natural laboratory in the western Pacific.

WESTERN CENTRAL PACIFIC PLANNING

At the May meeting, CEPAC was asked to develop a drilling plan from the standpoint of interweaving it with western Pacific legs for logistical reasons. CEPAC, at their last meeting, responded to this Request with 2 potential programs. These are an Ontong-Java Plateau leg to investigate the age of nature of the plateau and SOHP objectives in the sedimentary section and an atoll drilling leg in the Marshall Islands area. It should be noted that CEPAC and TECP are not interested in Ontong-Java as a collision zone.

Discussion:

Francis indicated that he would like to see the interweaving occur on a scale grander than just the west Pacific and perhaps this should be an agenda item at the next meeting. Several members supported this sentiment and suggested that maybe the panels should be asked to provide PCOM with specific programs that include potential problems and techniques and specific recommendations. Discussion closed with the suggestion that at the next meeting the panel chairmen present their views on which specific programs are needed to accomplish future plans and that this information be relayed to TAMU. TAMU would then report to PCOM on their feasibility and a time table of development.

GENERAL LONG TERM PRIORITIES FOR THE PACIFIC BASIN

Tectonics Panel (TECP):

Robinson reported that TECP has developed the following major themes for the western-central Pacific:

1. Dating ocean crust
2. Plate motion and kinematics
3. Hot spots and guyots
4. Age and vertical relations
5. Lithosphere flexure
6. Oceanic plateaus

Robinson also reported that TECP has not yet dealt with the central Pacific.

Sediments and Ocean History Panel (SOHP):

Gartner reported that SOHP has only generally considered general long term priorities but has developed 2 objectives. These are:

1. High latitude vs. low latitude sedimentation problems with comparisons from the Jurassic to Neogene in the Bering Sea vs. Ontong-Java.

2. Sea level influences on sedimentary processes using guyots as general indicators.

Lithosphere Panel (LITHP):

McDuff reported that LITHP thematic objectives for the Central and Eastern Pacific are:

1. Magmatic, tectonic and hydrothermal processes at MORs
2. Deeper structure and composition of oceanic crust and upper mantle
3. Lithospheric flexure and rheology
4. Intraplate volcanism-magmatism, tectonic history
5. Crustal structure and origin of oceanic plateaus
6. Crustal and lithospheric aging
7. Mantle heterogeneity
8. Global geochemical fluxes

Central and Eastern Pacific Panel (CEPAC):

Shipley reported the CEPAC sees itself in the role of stimulating interest in the form of workshops. Therefore they have arranged their objectives into "packages" to combine parts of proposals into single thematic objectives. From the "packages", they tried to make a tentative ranking which resulted in many objectives. CEPAC will closely examine these rankings to reduce the drilling time and will strongly favor those that accomplish thematic objectives. This more complete review will occur at the next meeting. The listing is as follows:

1. EPR 13 deg.
2. Ontong-Java Plateau (excluding collision)
3. No. Pacific Paleoplate reconstructions
4. Atolls and guyots
5. NE Pacific (INPAC) convergence
6. Juan de Fuca Ridge
7. No. Pacific paleoocean-envir-climate
8. Bering Sea paleoocean-envir and tectonics
9. Eq. Pacific paleoocean-envir
10. Crustal flexure- Hawaiian moat
11. Old Pacific crust and seds
12. Gulf of Calif.
13. NE Pacific (INPAC) paleoocean-envir
14. Aleutian convergence
15. Chile triple junction
16. Costa Rica convergence
17. Calif. margin
18. Gulf of Alaska seds and tectonics

Discussion:

Discussion indicated that fracture zone drilling was falling between the cracks and it was suggested that LITHP and TECP combine their efforts to produce a "white" paper on fracture zone drilling. The committee was also concerned that there was no mention, by SOHP, of drilling on deep sea fans, margins and other clastic problems. PCOM urged SOHP to develop a more defined and specific program from this first attempt. It was generally agreed that all panels should be specific on how the problems/questions they propose in their drilling programs will be answered.

618 ODP SAMPLING POLICY

At the April EXCOM meeting, B. Biju-Duval (France) requested that the current ODP sampling policy be reviewed, especially the impact of the policy on the long term scientific goals of the Program. This matter was referred to the IHP for consideration (Appendix D).

Gartner reported that IHP undertook a general review of shipboard and shorebased sampling at their 10-12 July 1986 meeting. At this meeting the IHP reviewed the ODP " Shipboard Scientist's Handbook" which contained present policy and guidelines. The review indicated some of the problems encountered to date due to this policy:

1. The perception on the part of the co-chiefs that they are subordinate to the curatorial representative in sampling policy and that the Cruise Sampling Plan is rigidly enforced. (While such a problem did occur on Leg 109, mostly through a lack of communication, TAMU indicated that this is generally not true.)

2. The sampling policy is often violated with far more samples taken than could be used for study and preparation of Parts A and B of the ODP Proceedings. (Occurred on Leg 108)

3. The sample-intensive nature of some cruises (e.g. paleo-oceanographic legs) poses a problem.

4. The deferral of inordinate numbers of sample requests to post-cruise sampling at the repositories during the 12 month moratorium. (As an example, Gartner noted that after Leg 108, the East Coast Repository at L-DGO was overwhelmed by sample requests, totalling 17K, which were deferred by the scientific party until after completion of the cruise.)

5. The need to emphasize to co-chiefs that the Cruise Sampling Plan must carefully constructed to accomplish the best science without overtaxing personnel and budgets.

After discussion, IHP proposed the following guidelines:

1. Co-chiefs are urged to formulate the sampling strategy for their cruises to avoid overloading the core repositories, so that delays to sample requestors will be minimized, and overloading the shipboard scientists with sampling which degrades both the scientific experience of the individual and return on the community's investment in the cruise.

2. The scientific party should note there is an upper limit of 20K soft sediment samples that can be taken per leg. The marine techs will be occupied with routine analytical and other unassigned tasks that preclude them from sampling. It should be noted that the 20K may be raised to 35K with the activation of a second core-lab sampling station, however, with this activation a science

berth will occupied by a second curatorial tech and the assignment of an additional 2 scientists, 24/day to sampling. This reduces that number of berths available to active (non-sampling) scientists by five.

3. The Panel also notes that the limits on hard rock sampling remain 3000/cruise with 100/individual scientist/cruise.

IHP and the curator have emphasized that sampling is not a completely rigid business and that the co-chiefs have the responsibility for changes during the cruise.

Discussion:

Cadet indicated that he felt that although Duval's letter had been answered, the feeling in France is that although much time is devoted to planning the science for a cruise there is no long term policy for sample distribution. He suggests that the most competent labs should be in charge of samples regardless of their size. He indicates that this would avoid duplication of studies, encourage collaboration between groups with labs that operate using specialized techniques. Further, he suggested that a special invitation be issued to special individuals/labs to perform specific studies and that the JOIDES structure and panels should be included in the process to make sure that the best labs will receive the samples. Kastner expressed support for the expressed views but indicated that sample management is not a function of PCOM and that the task of leg management lies with TAMU and the co-chiefs. Other members expressed support for the present sample policy and indicated that the 1 yr moratorium is a privilege for those who participate in the cruise and the higher quality labs will have to wait during that period to receive their samples. Several members strongly disagreed with doing sampling for the "best" labs because it will result in constant disagreements and arbitration over who gets samples.

PCOM Consensus:

The PCOM agrees that the response of the IHP is a reasonable statement of ODP Sampling Policy and adequately addresses the Biju-Duval concern. PCOM requests that a compilation of post cruise data distribution be produced by TAMU and L-DGO for review of the long term use of the primary information of ODP.

619 COSOD II STEERING COMMITTEE PROGRESS REPORT

Larson reported that all the prime candidates for the COSOD-II Steering Committee have accepted their nominations and X. Le Pichon has accepted the Chairmanship post. Le Pichon, ESF Consortium and France have been briefed on the meeting arrangements and first meeting of the steering committee will occur on 30 September - 2 October 1986 in Strasbourg, France. At that meeting the following additional people will be invited:

R. Larson - COSOD-1 Chairman/PCOM Chairman
R. Anderson - Logging Program Subcontractor
L. Garrison - Science Operator
D. Heinrichs - NSF Representative
D. Hammitt - Long Range Riser Drilling Plans
B. Dennis - High temperature Hydrothermal Drilling Plans

Larson indicated that the ESF (including UK, France and FRG)is attempting to raise $40-50K to cover the cost of the meeting and the publication of the results. The budget for the Secretariat will covered by co-mingled funds from the ODP Budget.

PCOM Consensus:
The PCOM requests that LePichon address the committee at the next meeting to present an interim report.

620 PANEL MEMBERSHIPS AND PCOM LIAISONS

PANEL LIAISON STRUCTURE

In responding to the positions of SOHP and TECP concerning the general panel liaison structure as agreed at the May meeting, the PCOM reached the following consensus:

PCOM Consensus:
The PCOM recommends that an ad hoc system should be established for regional panel liaison attendance at thematic panel meetings and that each panel chairman should determine specific areas of discussion before his meeting and then invite the appropriate regional liaisons.

PANEL CHAIRMANSHIPS

Central and Eastern Pacific Panel:

Votes tabulated at the JOIDES Office indicate a preference for S. Schlanger with E. Davis as a back-up, which was confirmed at the meeting.

Southern Oceans Panel:

In view of the future resignation of J. Kennett, the PCOM agreed that P. Barker (UK) should asked to chair the panel.

Information Handling Panel:

In view of the future resignation of D. Appleman and to fill vacancies, PCOM agreed that R. Ingersoll be asked to join the panel. PCOM also agreed that T. Moore (Exxon) be asked to join, if he refuses then J. Hayes(L-DGO) will be asked.If Moore accepts the invitation,the PCOM recommended that he be appointed as panel chairman. If Moore refuses the chair then R. Ingersoll will asked to be chairman.

Pollution Prevention and Safety Panel:

PCOM agreed that M. Ball (USGS) should be asked to chair the panel.

Downhole Measurements Panel:

In view of the future resignation of M. Salisbury, PCOM held a straw vote, proposed by Robinson, to approve the prioritized list of nominations. Results were: 1. Worthington
2. Becker
3. Oldhoef

Results of the straw vote were: 15 for, 1 against, 0 abstain

RESIDUAL PANEL MEMBERSHIP ISSUES

Lithosphere Panel:

J. Cathles refused invitation to join
A. Saunders replaced by J. Pearce (UK)
M. Leinen rotated off

PCOM Consensus:
It is agreed that the panel membership for LITHP is out-of-balance and that LITHP should be asked to revise their membership with a view of including a sediment geochemist. It is agreed that J. Mutter should be asked to join the panel to replace M. Purdy.

Sediments and Ocean History Panel:

PCOM agreed to confirm R. Garrison as a member. The PCOM also requested that SOHP propose an organic geochemist replacement at the rotation of L. Tauxe off the panel. PCOM also expressed concern that the panel lacks an oceanographer and requests an addition of one with the rotation of W. Ruddiman off the panel.

For a clastic sedimentologist, PCOM proposed W. Normark as the prime candidate and A. Shor as the back-up.

Tectonics Panel:

PCOM confirmed D. Davis as a new member.

Central and Eastern Pacific Panel:

PCOM was informed that H. Schrader will serve as the ESF Consortium representative as of 1 Jan. 1987. Until that time, C. Sengor (the official alternate) will be the representative.

PCOM suggested that M. Flower be asked to join the panel with D. Clague as the back-up.

Indian Ocean Panel:

PCOM proposed that L. Keigwin (WHOI) be the first priority replacement for L. Tauxe.

Technology and Engineering Development Committee:

PCOM agreed to accept the following new people to TEDCOM:
M. Chenevert (UT)
K. Millheim (AMOCO)
D. Wilson (Chevron)
C. Sparks (France)
A. McLerran

INTERPANEL LIAISONS

Central and Eastern Pacific Panel:

to SOHP= W. Slider
to LITHP=E. Davis (preferred) or M. Flower (back-up)

Western Pacific Panel:

to LITHP= S. Scott

Inidan Ocean Panel:

to SOHP= W. Prell
to LITHP=R. Duncan
to TECP= J. Curray

DISBANDMENT OF RED SEA WORKING GROUP

Action postponed until the next meeting.

ESTABLISHMENT OF LAU BASIN WORKING GROUP

Several members were against its formation until specific targets have been established and because it is not a high priority program for WPAC. However, other members favored its establishment due to the geographic distance involved for data evaluation and site determination. Others suggested that instead of a full working group, an ad hoc working group could be established or that WPAC encourage a proponents meeting to consolidate ideas. It was agreed that such a meeting should not be supported by JOIDES funds. Voting yielded the following:

Vote to establish a formal Lau Basin WG: 3 for, 9 against, 2 abstain

ESTABLISHMENT OF PHYSICAL PROPERTIES WORKING GROUP (as requested by DMP)

Action postponed until the next meeting.

621 FUTURE MEETING SCHEDULE

Planning Committee Meeting with Panel Chairmen
19 - 23 January 1987
Honolulu, Hawaii

622 OTHER BUSINESS

ODP MANAGER PRESENTATIONS AT PCOM MEETINGS

L. Garrison reported that the managers at TAMU feel that direct communication with PCOM may enable them to better understand committee decisions and enable them to get their points across better. Garrison asked PCOM if they are willing to schedule one extra day/year so that ODP Managers could interact directly with PCOM. Several on the committee responded that Garrison is an effective liaison and there was no need for any additional interface. The PCOM suggested that they continue to invite ODP managers as problems arise on an ad hoc basis.

PCOM Consensus:

The PCOM agrees that attendance to PCOM meetings by ODP Managers will be on an ad hoc basis at PCOM's invitation and not on a regular schedule. The PCOM will always welcome the views of the managers communicated through Lou Garrison.

In closing the meeting, Larson thanked P. Robinson and L. Horne for hosting the meeting and the strawberry picking adventure, and J. Malpas and D. Butler for conducting the field trip. Larson also thanked J. Honnorez, R. von Herzen and D. Hayes for their service to the PCOM. During the closing, the PCOM thanked R. Larson, T. Mayer, M. Burdett and D. Keith for their service over the past two years and welcomed N.Pisias as the new PCOM Chairman.

G. 4a

076

October 10, 1986

MEMORANDUM

TO: PCB Workshop Attendees

FROM: Lou Garrison

Enclosed are the minutes of your meeting of 1 October which I am very sorry to have missed. It appears to have been a good exchange of ideas and Mike Storms feels that we have the basis to start a design study.

The timing of what happens next is a little uncertain. We won't have a design engineer free to start on it until early next year, and of course we can't have funding for any significant costs until FY88. Consequently, if all goes well, we might hope for a working prototype in early 1989.

I have so informed to PCOM and if this plan is acceptable we may get back to some of you later on for further advice. Meanwhile, thanks very much for your time and your ideas. I believe this will be a very important tool for the future program.

pvs

cc: P. Rabinowitz
B. Harding
M. Storms
N. Pisias

Ocean Drilling Program
Texas A&M University
College Station, TX 77843-3469
(409) 845-2673

Workshop on the Design of a new Pressure Core Barrel
College Station, October 01, 1986
Minutes and Recommendations

Attending: B. Bryant (TAMU), G. Claypool (U.S.G.S. Denver), W. Dunlap (TAMU), K. Emeis (ODP), D. Huey (ODP), K. Kvenvolden (U.S.G.S. Menlo Park), M. Storms (ODP), E. Taylor (ODP), J. Whelan (WHOI)

Following a directive of PCOM, ODP Science Operations organized a meeting of ODP engineers with scientists interested in applications of a wireline tool to recover sediments at original formation pressures (Pressure Core Barrel, PCB). The aim of the meeting was to instruct the ODP engineering team on desirable features of this tool, so that these attributes may be incorporated in the design.

Attending the meeting were geochemists interested in research of volatile components and gas hydrates, and scientists working on geotechnical properties of marine sediments. An introductory talk by Kvenvolden reviewed previous PCB design and employment during DSDP drilling campaigns. An early version of the tool was used since Leg 19 in 1971, which in the following years was extensively modified. The PCB never attained the status of a routinely used tool, however, because shortcomings in the design limited the range of possible use.

Major limitations were the size of the tool, which prevented easy temperature control after recovery and the limitations in maintaining pressure. Most unsatisfactory was that sediment could not be accessed without dismantling the PCB and depressurizing the barrel, although gas and interstitial waters could be obtained through a sampling port. The outer dimensions of the tool restricted its use to a rotary coring bottom hole assembly. It could not be used with the Hydraulic Piston Corer or the Extended Core Barrel. Kvenvolden concluded that a new PCB should be smaller, should permit visual or other whole-round scanning of the sample under pressure for texture and structure, and should incorporate sensors for temperature, pressure, and density of the enclosed sample. The most important improvement to be made remains the design of a system that subsamples gas, interstitial waters, and sediments without depressurizing the sample. Compatibility with current and anticipated coring technologies should be ensured.

Claypool addressed the needs for a PCB from a safety standpoint. In order to detect potentially dangerous accumulations of interstitial hydrocarbon gas or gas hydrates, the amount of gas evolving from a given volume of sediment is the most important factor. A tool enabling scientists to establish a material balance between solid, liquid, and gas phase has to be designed to meet these requirements. In order to achieve this goal, the sample does not necessarily have to be kept at constant pressure, but the tool has to prevent components from escaping. This point was extended to scientific reasons by Whelan. She stated that no reliable data on gas production in the sediments and on total abundance of hydrocarbon gas in marine sediments are available at present. The loss of dissolved gas in conventional cores due to decreases in hydrostatic pressure precludes true quantification.

Bryant gave a short presentation on a PCB designed for work in shallow water. An interesting aspect of this presentation was the

combination of the retrieving tool (PCB) with a mating pressure chamber on the vessel, in which subsampling and analyses can be carried out. Subsamples can be transferred to shorebased laboratories or can be depressurized according to need.

Huey briefly described features and capabilities of the new Barnes/Uyeda in situ water sampling tool, which was first successfully used during ODP Leg 110. This very versatile instrument incorporates thermistors and pressure sensors, and samples interstitial water at ambient formation pressures. Clogging of stainless steel filters seems to be a problem in recovering enough water in some sedimentary facies, but it is an example of an instrument which can be used for a variety of research interests.

In the ensuing discussion on the nature of the new PCB, two approaches emerged. While sampling for the material balance and most aspects of organic geochemistry would be relatively easy to accomodate with existing technologies, the attempt to make the instrument and supporting peripheral devices complex enough to accomodate all needs increases the amount of money and design necessary exponentially. Apart from the mere retrieval of pressurized sediment, we also discussed possible in situ measurements. It is conceivable that many physical and chemical properties could be measured in situ. Among these are shear strength, compression, compressability, velocity, porosity, permeability, and thermal conductivity, as well as pressure and temperature. Chemical parameters to be measured downhole include salinity, pH, O_2, H_2S, stationary gases, and dissolved ions by ion specific electrodes. The amount of research and development to be invested in this type of tool, however, obviously exceeds the capabilities and the scope of ODP.

All attendants reached a basic consensus, that states the need for a tool to retrieve sediment under pressure. The following requirements were formulated as a guideline for the designers of the new tool:

1) The tool should be able to recover a volume of sediment (range from 100 to 3000 cc) at in situ pressure in order to establish material balance between the phases in the sample and perform experiments at this pressure, either on the ship or on shore.
2) The tool must be compatible with all drilling techniques.
3) Access to sample must be easy, and support equipment (subsampling devices, storage containers etc.) must be included in the design. The tool must be designed as an open system so that future techniques and instruments can be added and implemented in the basic frame.
4) Sample disturbance should be kept to a minimum.
5) Range of stability and safety should be keyed to water depths of 3000 to 6000 m (mid-slope depths).

It was argued that because of the relatively unsophisticated requirements of geochemists the ultimate solution would be to design a simple tool to recover small quantities of sediment for composition of gas and material balance. A second, more versatile and complicated instrument will take a long research and design phase and will be much more costly. Current techniques of sidewall coring might be adaptable to fulfill the needs of geochemists at relatively low cost.

EXECUTIVE SUMMARY
TECTONICS PANEL MEETING
29-31 October 1986
Geological Survey of Canada, Ottawa

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1) RECOMMENDATIONS CONCERNING MAKRAN LEG

TECP endorses an abbreviated (half-leg) drilling program at proposed sites 2, 3, 4, and 5, which are designed to penetrate thrust ramps. These holes will address the following thematic problems: (i) the temporal and spatial development of imbricate thrusts; (ii) the pressures, chemistry, and migration of fluids in a mud-dominated prism; and (iii) the physical properties of variably consolidated muds.

2) RECOMMENDATIONS CONCERNING DRILLING IN OCEANIC CRUST TO TEST MODELS OF ARC MAGMATISM

We strongly support a <u>series</u> of shallow holes(~20m penetration) in oceanic crust descending beneath arcs, rather than a single deep hole (~500m) as advocated by LITHP.

3) EVALUATION OF WPAC "SECOND DRILLING PROSPECTUS"

We rank ordered nine drilling legs based on their overall attractiveness from a thematic standpoint: Bonin-1 (1); Nankai (2); Japan Sea (3); Bonin-Mariana-2 (4); Banda-Sula-S. China (5); Vanuatu (6); Nankai hole dedicated to physical property measurements (tie for 7); Lau Basin (tie for 7); Sunda backthrusting (8).

4) PRELIMINARY HIGH-PRIORITY THEMATIC OBJECTIVES IN CENTRAL & E. PACIFIC

Well defined global problems that should be profitably addressed by drilling in this area are (not listed in rank order): (i) Age of oceanic crust; horizontal kinematics of ocean plates; (ii) Vertical motions and flexure of oceanic lithosphere; (iii) Ridge-trench interactions; (iv) Geochemical relations between descending oceanic crust and superjacent volcanoes; (v) Determining subduction rate by drilling trench sediment.

JOIDES Tectonics Panel Meeting
Geological Survey of Canada, Ottawa
29-31 October, 1986

Panel members present: Darrel Cowan (USA), Chairman
Ian Dalziel (USA)
Dan Davis (USA)
Karl Hinz (FRG)
David Howell (USA)
Kenneth Hsu (ESF)
Jeremy Leggett (UK) (29-30 October)
Bruce Marsh (USA)
Kazuaki Nakamura (Japan)
Robin Riddihough (Canada)
Francois Roure (France)
Peter Vogt (USA)
Tony Watts (USA) (30 October)

In attendance: Christian Auroux (ODP)
Nik Pisias (PCOM)
Paul Robinson (PCOM) (30-31 October)
Jean-Claude Sibuet (ARP)
David Scholl (CEPAC)
Brian Taylor (WPAC) (29-30 October)

AGENDA

1. Minutes of previous meeting
2. Reports from liaisons and guests
3. Makran: Length and scope of leg
4. Responses to LITHP proposal for deep holes in ocean crust
5. Fracture zones
6. Report on Workshop on Physical Properties of Marine Rocks
7. Evaluation of WPAC "Second Drilling Prospectus"
8. Discussion of thematic objectives in C. & E. Pacific
9. Report on April 1986 workshop on future drilling in the S. Pacific & Antarctic
10. Next meeting

MINUTES

The meeting began at 9 a.m.

Cowan welcomed Dalziel, Davis, and Hsu, our new panel members, and guests from other panels, PCOM, and ODP.

1. MINUTES OF THE PREVIOUS MEETING

The minutes of the last meeting were approved without changes.

2. REPORTS FROM LIAISONS AND GUESTS

2.1 PCOM

Nik Pisias reminded us that the JOIDES office is now at Oregon State. USSR is scheduled to join ODP in January. Red Sea drilling will be dropped from the Indian Ocean schedule if clearances are not received by January. TECP should inform PCOM at the January meeting of any required engineering so it can be considered for the FY 1988 budget. PCOM and EXCOM are concerned about allegations of vested interest (by proponents of proposals) on some panels and urged panels to take care. Pisias also urged TECP to state specifically how drilling can address its high-priority thematic objectives.

2.2 ODP

Christian Auroux reported on Legs 109 and 110 and said that the RESOLUTION just finished drilling on 504B.

2.3 ARP

Jean-Claude Sibuet reported that the ARP is recommending five workshops to formulate drillable problems well ahead of the return of the drillship to the Atlantic. The first, on the S. Atlantic, will be held in April 1987. ARP requests TECP input with respect to thematic objectives preferably after this meeting and before the first workshop. Cowan said that the Atlantic would have to be considered in our next meeting, because of time constraints.

2.4 WPAC

Kazuaki Nakamura reported that at their last meeting WPAC produced a second drilling prospectus, with their top 11 legs listed in order of priority. The main change from the first prospectus is that

Vanuatu has dropped to number 9, because of uncertainty over data availability. They are waiting our reaction to the second prospectus.

2.5 CEPAC

Dave Scholl said that CEPAC very much wants to meet jointly with TECP, Jan. 12-16 at Scripps, just before PCOM. He described the new "culling" procedure adopted by the panel. There are basically 3 categories:

Marks 1.0-2.5 - accepted for further consideration
2.6-3.0 - accepted for further consideration if modified
3.1-4.0 - eliminated

On this basis CEPAC produced a list of proposals, in order, scoring <3.0. Juan de Fuca mid-valley was top; for others see CEPAC report. A straw-vote identified their most highly favored "drilling packages." Atolls and guyots were top; for others see CEPAC report.

CEPAC is waiting avidly for TECP input. Robin Riddihough, who also attended as liaison, also stressed this need.

3. MAKRAN LEG: LENGTH AND SCOPE

Cowan had received a letter from PCOM forwarding criticism of the proposed leg by the Indian Ocean Panel. We are asked to address whether a whole (albeit short) or half-leg should be drilled. Leggett reviewed the basic framework of the margin and the proposed drilling sites. Important thematic problems that can be addressed here include: 1) Fluid escape: Makran has a BSR, which would provide interesting comparisons to the methane-poor Barbados toe in terms of fluid regimes. The temperature and pressure of fluids could also be measured; 2) The compaction and deformation history of mud-rich sediments (porosity, fabrics); 3) The rate of accretion and uplift. Slope deposits are much better defined on the Makran margin than on Barbados, but uncertainty about the fossil content of the sediments means we may not get a handle on paleobathymetry and biostratigraphy; 4) Contrast in lowermost slope vs. upslope deformation. Compared with Barbados, the Makran offers the opportunity to look at a linked series of ramps; 5) Comparison of offshore and onshore record: the latter is much more extensive than that of Barbados. Leggett summarized the advantages of Makran drilling: Good opportunity for physical-property measurements; shallow water; good drilling conditions predicted; and a

simple structural framework for linked thrusts and ramp anticlines. And the disadvantages: BSR, but holes can reach objectives shallower than the BSR; short lead time for MCS processing; question whether amount of processed MCS will be adequate; uncertainty over biostratigraphic zonation.

Cowan excused Leggett from the room while the panel formulated its recommendation to IOP and PCOM.

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TECP Consensus

TECP notes that the Makran accretionary prism is distinct from other prisms because it is dominated by terrigenous muds (cf. hemipelagic and pelagic muds in Barbados Ridge), moderate convergence rates (~ 5 cm/yr; cf. 2 cm/yr on Barbados Ridge); and well-defined ramp anticlines, probably related to imbricate thrusts, that define a fold-and-thrust belt structural style. We endorse an abbreviated (half-leg) drilling program at sites 2, 3, 4, and 5, which will penetrate postulated thrust ramps and that may address the following thematic problems:

(1) The temporal and spatial development of imbricate thrusts. Do thrusts progressively develop at the toe of the slope and then become inactive, or are thrusting and contraction active throughout the submerged part of the prism? In this regard, drilling results can be compared with results of field studies in the exposed, onshore part of the prism that indicate massive, out-of-sequence thrusting. TECP recognizes that this objective can be more easily achieved if: a) high-quality MCS data that define the geometry of thrust-related structures are acquired; and b) it is demonstrated that sediments at the proposed sites can be zoned biostratigraphically.

(2) The pressures, chemistry, and migration of fluids in a mud-dominated prism; physical properties of variably consolidated muds.

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TECP then discussed a letter from R. Duncan concerning drilling on the Mascarene Plateau. He has access to volcanic rocks from two industry wells, which he feels would greatly increase the benefit of the three basement sites in the original one-half leg proposal. TECP noted the new data, but decided not to comment unless requested to do so by PCOM.

4. RESPONSE TO LITHP PROPOSAL FOR DEEP HOLES IN OCEAN CRUST

PCOM asked TECP to evaluate a new proposal by LITHP to drill the holes seward of the Bonin arc, and in the Argo abyssal plain, deep into basement--500m into oceanic crust in the case of the Bonin site. The purported goal is to acquire geochemical data useful for understanding the origin of magmas in adjacent arcs. Cowan asked Bruce Marsh to review this topic for the panel. He emphasized the importance of understanding the geochemistry of oceanic crust going into subduction zones. In terms of understanding mixing paths on $^{143}Nd/^{144}Nd$ vs. $^{87}Sr/^{86}Sr$ discrimination diagrams, the arc processes are more-or-less understood, but the composition of the crust going in (in terms of variations arising from weathering, hydrothermal alteration) is not. But in his view, a systematic approach to sampling in a number of holes would be better than one deep hole. In fact, just 10m would be enough. Bruce feels deep holes waste the opportunity of additional insights into the arcs concerned, and that little is gained from the tremendous investment in time required for a 500m hole in basement. Another problem is that the extent of exposed arc lavas is not as great in the Bonins as in the Aleutians.

TECP decided that Bruce Marsh should draft a letter to PCOM and LITHP on this issue.

5. FRACTURE ZONES

PCOM had specifically requested TECP to ask itself whether fracture zones are receiving enough attention in the program. Karl Hinz emphasized some of the numerous problems that MCS surveys over fracture zones routinely expose. Peter Vogt outlined the limited returns that have come from submersible studies.

A wide-ranging discussion followed. Several panelists felt that if good proposals emerge, there would be support for them. Peter agreed to review fracture zone problems and report back. Ken Hsu recommended that the appropriate COSOD-II working group be asked to address drilling in fracture zones.

6. REPORT ON WORKSHOP ON PHYSICAL PROPERTIES OF MARINE ROCKS

Dan Davis reported on the USSAC Workshop on Physical Properties and Mechanical State of Marine Rocks, held at Cornell 26-28 June (report will be circulated soon). The idea was to open a discussion about a possible hole

dedicated to physical properties, and of procedures for improving the ways in which physical-property data can be generated more meaningfully in the program.

One key approach favored by several panelists might be a pair of holes, one cored and logged conventionally, one immediately next to it, cored with the Navidrill, with whole core segments preserved in wax for subsequent measurements.

Further discussion was deferred until Karig's proposal for a Nankai hole dedicated to physical properties comes up under agenda item 7.

7. EVALUATION OF WPAC "SECOND DRILLING PROSPECTUS"

PCOM had asked whether TECP thought the 10-1/2 leg plan of WPAC was spread too thin geographically, and whether in a 9-leg plan more time should be spent addressing selected thematic issues in fewer geographic areas. Brian Taylor, the chairman of WPAC, also solicited our response to three specific questions: How we rated the Hayes proposal to drill in the South China Sea; how we ranked Nankai with respect to other accretionary prisms in the Pacific; and how we thought the overall process of accretion could be addressed by the drill. He stressed that WPAC urgently needed a clear indication of how we rank the proposed legs from a thematic standpoint.

A long discussion followed, focused on the S. China Sea and general thematic issues.

7.1 South China Sea Passive margin

Dennis Hayes had submitted to PCOM a justification for passive margin drilling on the north margin of the SCS. Two sites from his proposal are part of a package ranked 4th by WPAC, but these (SCS 7 & 5) are on the oceanic crust.

Ken Hsu presented a justification for drilling here because of the implications for both passive margins AND Tethyan history. Dalziel echoed Hsu's comment and said data on the stratigraphy and subsidence history of this margin would be valuable for understanding the evolution of the Andean margin. Additional justifications would be the youth of the basin (permitting a clearer assessment of stretching models than is possible in the Atlantic), and the regional problems it would solve (exact age of the oceanic crust). If Hsu were designing a drilling program, he would also put sites on the southern margin. The point about no

ODP drilling of conjugate margins was made. Because of the complexities of collision between the Reed Bank/Dangerous Grounds block (sliver of ancient China rifted off when the SCS opened in the ? Oligocene) and Palawan, several panelists questioned the suitability of this area for the first conjugate drilling.

Brian Taylor opined that the SCS drilling should not be held hostage to its suitability - or lack thereof - for conjugate drilling.

Tony Watts raised the concern that the setting of the proposed sites with respect to deeper-level crustal structures is not yet as clear as on some other margins. Also, the industry data just to the north of the proposed northern SCS transect is not on the table. Brian Taylor responded that we are three years away from drilling; industry may be more forthcoming if it knows ODP is going to the area. Watts made the point that <u>were</u> a deep industry hole in the shelf to be married with one of the proposed SCS holes to basement, we could obtain very significant subsidence information. We should avoid at all costs a transect of holes that stopped short of the basement.

The majority view, he feels, is that the real modeling problems will be solved in the Atlantic.

Leggett asked whether other panelists shared his own reservations: 2 hours re-examining a difficult decision we made at a previous meeting, with essentially the same data on the table, in the face of a strong Lamont lobby. Several did. Voting was deferred until other items on drilling prospectus were considered.

7.2 Accretionary prisms

Darrel Cowan reviewed diverse objectives that could be addressed by drilling in clastic-dominated prisms and suggested that the most important thematic problems at this stage are the structure of the decollement-zone and the changes in physical properties in situ that accompany the subduction and accretion of sediments at <u>deep</u> levels in a prism. He advocated both the proposal by Taira for deep drilling through the decollement at the Nankai trough, and a Karig's proposal for a companion hole to be dedicated to the measurement of physical properties and acquisition of whole round core for later study. The Nankai sites have the advantages of: a deep target that can still be reached by the

drill, and an extensive grid of high-quality MCS data that beautifully image geometrically simple fold-and-thrust belt structure. In comparison to Nankai, drilling in the Aleutian or Cascadia prisms is downgraded because the decollement and subducted section is excessively deep. Costa Rica might be an eventual back-up, but the structural geometry is not as clearly imaged as on the Nankai and Cascadia seismic profiles.

Francois Roure expressed the reservation that Nankai drilling would not reveal much beyond what we learned on Leg 110 off Barbaros. Leggett supported the dedicated hole and thought Nankai is the best margin for extensive physical-property measurements. There is apparently still uncertainty over whether the ODP drilling, and an NSF-funded two-ship ESP site-survey cruise, will be located as specified in the Taira proposal, or over Site 583 (Leg 87).

7.3 Collisions

Brian Taylor reviewed the options for drilling in collisional settings and mentioned that a new proposal concerning the collision of the Ogasawara Plateau is imminent. He was interested in how TECP thought the collisional process could be studied with the drill. Dave Howell emphasized that the effects of a collision are extraordinarily large-scale and wide-ranging, in both space and time, and that a sustained and comprehensive drilling program in a variety of settings is needed to study a collision. Hsu noted that determining the age of crust in small basins is important for evaluating models. Specific areas discussed included Vanuatu, the Louisville Ridge, Ontong-Java Plateau, and Sulu-Negros-Palawan region.

7.4 Lau Basin

Taylor and Scholl reviewed a brand new drilling proposal advocated by a six-nation ad hoc working group. Most proposed drilling addresses backarc-spreading processes; one general site would penetrate outer forearc basement on the Tonga Terrace.

In order to respond to WPAC's urgent need for our thematic prioritization of proposed legs, it was suggested that we rank-order drilling targets by voting. Candidates included not only the legs on the WPAC drilling prospectus, but also the South China Sea transect, a Nankai physical properties

hole, and additional legs at any of the geographic locations already on the prospectus. Each panel member was asked to rank order nine potential legs on the basis of their thematic attractiveness. In the tabulation, nine points were awarded to each first place ranking; 8 to each second place, and so on; a leg which did not appear in a panelist's list received 0. Thirteen panelists voted. The results are tabulated below:

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TECP RANK-ORDERED DRILLING LEGS IN THE WESTERN PACIFIC

Rank	Leg (whole or part)	Votes
1	Bonin-1	90
2	Nankai	72
3	Japan Sea	68
4	Bonin-Mariana 2	64
5	Banda-Sulu-S. China	57
6	Vanuatu	49
7 (tie)	Nankai (physical properties)	39
7 (tie)	Lau Basin	39
8	Sunda Backthrusting	35

The consensus of TECP is that drilling all of the above legs will make an outstanding contribution to the solution of global thematic problems.

It is also the consensus of TECP that the following legs or targets are of a distinctly lower priority from a thematic standpoint:

S. China Sea transect	21
Zenisu Ridge	19
*Vanuatu - 2nd leg	8
*Bonin-deep hole in ocean crust	8

(NB: Legs marked with an asterisk don't appear on the WPAC Prospectus but were included by one or more panel members in their list of 9).

Note also that we did not include Great Barrier Reef among the legs to be ranked. Although we recognize the potential importance of drilling here from a tectonic standpoint, we have as a panel, never discussed or evaluated the proposal.

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8. THEMATIC OBJECTIVES IN THE CENTRAL & EASTERN PACIFIC

At our June 1986 meeting in Seattle, we identified several thematic issues of global importance that we

felt could profitably be addressed by drilling in this region. Some issues were clearly of higher priority; others needed more discussion (see minutes for a list). We also agreed to prepare a White Paper for PCOM and CEPAC summarizing our rationale and recommendations. Certain panel members were asked to prepare and distribute a draft of their section in advance of this meeting so we could discuss the issues in Ottawa.

Each of the thematic issues was summarized in turn by its "proponent" and then discussed by the entire panel. Subsequently, we attempted to re-prioritize the thematic problems by selecting two simple categories reflecting whether a topic was of high or low priority. Within each of these groups we established the "maturity" of the problem: How well is it identified, based on existing proposals, and how satisfactorily will drilling resolve it? Rather than summarize the entire discussion on each topic, the thematic issues and their "proponents" are listed below in two groups.

GROUP A: HIGH PRIORITY

Mature problems:

- Dating oceanic crust; horizontal kinematics of ocean plates Peter Vogt distributed a draft of his section of the White Paper

- Vertical motions and flexure of oceanic lithosphere. Tony Watts reviewed the evidence that seamounts induce flexure of the lithosphere. Some questions were raised about how the linear trend of the Hawaiian archipelago might affect flexure and whether an isolated seamount elsewhere in the Pacific might be a better place to drill. The need for datable sediments in the moat was recognized.

- Ridge-trench interactions. Roure recommended drilling where the Chile rise intersects the trench to address a variety of problems concerning this tectonic process.

- Relation between descending oceanic crust and sediments, and superjacent volcanoes. The panel agreed with Marsh's recommendation that crust in front of arcs must be sampled and completely analyzed, preferably in a series of shallow holes distributed along and in front of an arc such as the Aleutians.

- Subduction rate. Kazu Nakamura outlined a simple but elegant way to determine rates by dating horizontal and tilted sediments in a trench.

Immature problems:

- Oceanic plateaus. Karl Hinz emphasized that although the identity of basement on plateaus is an outstanding problem, merely drilling a deep hole through volcanic caps isn't the answer. Holes should be intelligently sited based on their relation to plateau structures. More and better MCS data are needed.

- Structures in oceanic crust. Robin Riddihough stressed that although the Pacific is replete with excellent candidates, it is premature to select targets until they have been surveyed with new, and still-developing, ocean-floor surveying techniques (e.g. SEAMARC).

- Deformation and physical properties deep within accretionary prisms. Cowan concluded that deep holes on the Nankai prism, if successful, could address outstanding problems concerning the structural styles and changes in physical properties deep within a clastic-dominated prism. Hsu, Dalziel, and others wish to leave the door open for even deeper drilling, perhaps on the Cascadia margin, regardless of results at Nankai. Scholl pointed out that there are a host of other problems concerning the evolution and architecture of convergent margins - e.g. structure and vertical tectonics of forearc basins, nature of the "backstop" of the prism - that could be addressed by drilling, but the consensus of TECP is that these are less important than probing the deep levels of a prism.

GROUP B: DISTINCTLY LOWER PRIORITY

- Transcurrent margins. Howell reviewed several problems, some of local interest, that could be addressed offshore California. The panel felt that the one with potentially the most global significance concerns refined dating of the Neogene change from convergence to transform motion. Submarine fans are also an attractive target, but Hsu proposed, and the panel agreed, that SOHP should have the responsibility for evaluating and endorsing drilling on fans.

The next step is for each proponent to revise his draft for the White Paper in light of discussions at this meeting. Cowan will contact proponents, assemble a draft of the complete document, and distribute it for panel review prior to our next meeting. It is hoped we can approve the

document then and expeditiously distribute the final White Paper to PCOM and CEPAC in the late Spring.

9. REPORT ON APRIL 1986 WORKSHOP ON FUTURE DRILLING IN THE S. PACIFIC & ANTARCTIC MARGIN

Ian Dalziel selected items from the workshop report that were of tectonic interest and gave us an illuminating review of the present and past tectonics of southern S. America, the Scotia Sea, and Antarctic Peninsula.

10. NEXT MEETING

We had a request from CEPAC via Scholl that our next meeting be a joint one with CEPAC in January, just prior to the PCOM meeting. There was little enthusiasm among TECP panel members for such a joint meeting so soon after this one, especially since we are still formulating our thematic recommendations. We left the door open for a future joint meeting; meanwhile, enough communication can be accomplished through our liaisons and the upcoming meeting of panel chairmen. ARP, via Sibuet, asked that we meet to formulate tectonic priorities in the Atlantic before their first workshop scheduled in April. TECP would rather not endorse any particular objectives at this early stage; rather, we encourage ARP to come up with their drilling targets independently.

We will schedule our next meeting, sometime in the Spring, to be in advance of the Spring PCOM meeting. Ian Dalziel offered to host the meeting at the Institute of Geophysics, University of Texas at Austin, pending a check with the local management.

Cowan asked if someone would substitute for Leggett at the next meeting of the Indian Ocean Panel; no one volunteered. Dave Howell agreed to attend the December WPAC meeting as a substitute for Nakamura, who is unable to go.

The meeting adjourned at 12:30 p.m. on 31 October.

Sediments & Ocean History Panel Meeting

University of Michigan
Ann Arbor, Michigan
(October 20 & 21, 1986)

EXECUTIVE SUMMARY OF DRAFT MINUTES

1. SOHP Engineering Priorities:

Short term:

A. Complete recovery of sections, in particular (prioritized):
   1 - HPC/APC and drilling recovery in sandy sediments (including unconsolidated carbonates)
   2 - undisturbed recovery in gassy sediments
   3 - enhanced recovery in sections of consolidated and mixed lithologies
B. Pressure core barrel
C. High temperature environment drilling

Long Term:

A. Ability to drill deep (2500-3000 m), stable holes in water depths > 3000 m
B. Ability to drill through salt

2. Sediment Classification Scheme:

The SOHP endorses the adoption of a standardized ODP sediment classification scheme and applauds the efforts of Mazzullo et al. We essentially agree with the proposed sediment classification scheme but recommend several changes before it be accepted. These changes are briefly outlined in the minutes and discussed in more detail in Appendix A.

3. Legs 113 and 114:

The SOHP recommends that:

1 - Leg 114 be extended to the maximum length logistically possible
2 - PCOM reconsider the requirement for Leg 114 to drill the S. Orkney transect in the event that Leg 113 cannot drill at least Site W-7
3 - the requirement for 50 m of basement drilling at each Leg 114 site be relaxed

4. Indian Ocean:

1 - the SOHP endorses the concept of a carbonate saturation transect in the Indian Ocean and urges the PCOM to reconsider the IOP recommendation to combine the Seychelles transect with the Makran program.
2 - the SOHP urges that the final selection of sites for Legs 119 and 120 include Prydz Bay sites and maintain the latitudinal transect.
3 - the SOHP is sympathetic with the need for complete and detailed Mesozoic stratigraphy but found it difficult to justify the 8-10 days of drilling necessary for the Argo A.P. extension.
4 - the SOHP recommends a slightly modified Exmouth Plateau/Argo A.P. program that can meet the objectives of our Deep Stratigraphic Test proposal.

Option 1:

	Section drilled
1 - Move EP-5 seaward past shot point 2000 on line WA-176-1	2000 m
2 - AAPIB as proposed	1000 m

Option 2:

1 - EP-7 moved to shot point 3200 on line GSI 76-22	1400 m
2 - EP-6 as proposed but deepened to 1000 m	1000 m
3 - AAPIB as proposed	1000 m

5. WPAC

Overall SOHP priorities are:
1 - Great Barrier Reef (with 1000 m Site 2)
2 - Japan Sea
3 - So. China Sea (with industry data)
4 - Sulu Sea

Great Barrier Reef: extremely important to SOHP objectives - critical to have at least one deeply drilled site in slope area. Prioritized site list: NEA1, 2 (deepen to 800-1000 m), 3, 4, 5, 6, 9, 10, 7, 8, 11, 12, 13, 14

Japan Sea: JS-2 is highest priority - should be double HPC'ed

So. China Sea: SOHP recommends that every effort be made to obtain industry data. If this data is not available, new sites will have to be sought to address key questions of margin development.

Bonin-1: SOHP ranks Site 6 as highest priority site but requests that WPAC explore possibility of moving it latitudinally to maximize thickness of sedimentary section.

6. CEPAC: SOHP has developed 6 preliminary themes for CEPAC drilling (prioritized)

1 - Hi-Low latitude and Depth Transects (Paleosecs)
2 - Old Pacific Crust
3 - Atolls and Guyots
4 - Episodicity of Volcanism
5 - Fans and Depositional Processes
6 - Fluid Circulation

The objectives, approaches, site criteria and example sites for these themes are presented in the minutes.

7. Joint CEPAC/SOHP meeting:

Numerous ideas, concerns and specific questions were discussed. The two Panels are on track in many ways, but the joint meeting pointed out a major SOHP theme overlooked by CEPAC (Paleosecs) and an important topic of concern to CEPAC but not discussed by SOHP (fluid circulation). The joint meeting was extremely valuable and will greatly facilitate future CEPAC planning.

Sediments & Ocean History Panel Meeting

University of Michigan
Ann Arbor, Michigan
October 20 & 21, 1986

Draft Minutes

Members present:

L. Mayer (Canada), Chairman
M. Arthur (URI)
A. Droxler (S. Carolina)
M. Goldhaber (USGS)
W. Hay (U. of Colorado)
P. Meyers (U. of Michigan)
W. Normark (USGS)
I. Premoli-Silva (ESF)
T. Saito (Japan)
R. Sarg (Exxon)
M. Sarnthein (Germany)
A. Schaaf (France)
N. Shackleton (England)
L. Tauxe (SIO)

In Attendance:

R. Buffler (NSF)
P. Ciesielski (SOP)
B. Clements (ODP)
S. Gartner (PCOM)
J. Ingle (WPAC)
J. LaBreque (LDGO - Leg 114 Co-Chief)
C. Moss (JOIDES Office)
H. Okada (ARP)
D. Rea (NSF)

Absent:

R. Embley (NOAA)
R. Garrison (UCSC)

1. Opening Remarks and Approval of Previous Minutes

1.1 The meeting began at 8:30 a.m. Due to the extremely large number of first time attendees (12), introductions were made. The Chairman welcomed new members and expressed the Panel's thanks to PCOM for responding to our long-standing request for additional members.

1.2 The minutes of the last meeting were approved.

2. Liason Reports

2.1 NSF Report (Buffler)

- U.S.S.R. to join 1 January 1987
- Congress has approved budget ($34.25 M)
- now is an important time for Panel input on matters affecting the budget
- Red Sea: if clearances not in hand by January, Leg will be cancelled
- COSOD II: July 6-10, 1987, Strasbourg - to address post 1991 drilling objectives. Five working groups, 300-350 people, applications will be distributed shortly
- Five field programs funded for FY 87: Bonins, E. Sunda, Old Jurassic Crust, Nankai, Hawaii Moat

2.2 PCOM Report (Gartner)

- PCOM needs input on engineering priorities
- Leg 112 may need to move some shallow sites because of 3% excursion limit. SOHP questioned why this wasn't brought up earlier so that panels could have input ... alternate site selections
- Leg 113/Leg 114 - if final sites of 113 cannot be completed (W6, W7, W8) they should be drilled on Leg 114 (at least W7)
- Neogene I Package - one Indus Cone site may be dropped
- Exmouth/Argo - SOHP should evaluate possible extension and how it fits in with Deep Stratigraphic Test Proposal
- SOHP needs to clarify objectives and priorities to PCOM
- SOHP should review WPAC proposed program

2.3 Operators Report (Brad Clements)

- reported on Legs 110 and 111
- briefly outlined proposed program for 112
- described Indian Ocean program options
- publications:
  - 101A & 102A will be joint volume
  - 103A galleys and art sent off
  - 104A partially edited
  - 105A editting beginning
  - some problems with final DSDP volumes

3. Other Matters

3.1 Conflict of interest: the Chairman read PCOM's conflict of interest statement to the Panel. All agreed that good judgement was necessary in evaluating conflict of interest.

3.2 COSOD-II and SOHP: a brief outline of the proposed COSOD II structure was presented. The Panel was pleased to note that three of the five working groups would cover, at least in part, SOHP themes. It was not clear from the proposed outline where physical processes and physical properties would be covered. In addition, it was not clear how key questions of technological developments would be addressed. The idea of a SOHP 'white paper' was discussed and rejected. Lengthy documents have, in the past, not had much impact. Instead, the SOHP will produce short summaries of objectives related to each working group. In light of the large component of new members on SOHP, a summary of the previously established SOHP objectives was distributed; Panel members were asked to think about these and other possibilities and come prepared to discuss them at our next meeting.

3.3 Engineering Priorities

Short term: The primary objective of almost all ODP related drilling operations is the recovery of samples. Any problem that prevents the recovery of COMPLETE sections thus undermines the primary objectives of the program. The SOHP believes that the highest engineering priority should therefore be directed at ensuring the complete recovery of drilled and cored sections. In particular we would like to see engineering efforts directed to (in order of priority):

1 - HPC/APC (and drilling) recovery in sandy sediments (including unconsolidated carbonates)
2 - undisturbed recovery of gassy sediments
3 - enhanced recovery in sections of consolidated and mixed lithologies (i.e. interbedded cherts and carbonates).

In addition, the SOHP recommends high priority be given to the development of:

- a pressure core barrel
- the ability to recover samples in high temperature environments

Long Term:

- the ability to drill deep (2500-3000 m), stable holes in water depths greater than 3000 m
- the ability to drill through salt

3.4 Sediment Classification Scheme

The SOHP believes that the adoption of an 'official' ODP sediment classification scheme is extremely important in that it provides a standardization of descriptions that greatly facilitates the comparison and interpretation of ODP results. The Panel applauds the efforts of Mazzullo et al. in putting together a comprehensive classification scheme and essentially endorses it. However, we strongly urge that the following changes be made (a detailed discussion can be found in Appendix A):

1 - the term 'siliciclastic' replace 'terrigenous'
2 - the standard grain-size classification of pyroclastic components (Fisher and Schminke, 1984) be used
3 - the term 'neritic' for calcareous detritus be dropped and replaced with 'non-pelagic carbonate' and Dunham's (1966) classification be used
4 - the standard terminology for the induration of carbonates (ooze, chalk, limestone) be retained
5 - the term 'metalstone' be dropped and more conventional (although awkward) nomenclature (i.e. manganiferous claystone) be retained
6 - 'Zeolites' be added to the compositional components of chemical sediments
7 - grain shape and color be considered as descriptors only
8 - 'Sapropel' be considered as a proper classification term
9 - the definition of 'marl' be reconsidered
10 - the dominant texture of pelagic grains be used as a major modifier

A more detailed discussion of these modifications can be found in Appendix A.

3.5 Report on Workshops

Brief reports were made on:

1 - South Pacific Workshop (Ciesielski)
2 - Gulf of California Workshop (Meyers)
3 - Paleomagnetic Workshop (Tauxe)
4 - Physical Properties Workshop (no SOHP representation!)
5 - Canadian ODP Workshop (Mayer)
    - the Canadian workshop recommended that an Arctic regional working group be formed

The SOHP has previously called for the formation of an Artic regional working group and reiterates its support for the formation of such a group.

4. Legs 113 and 114

In order to clarify the specific objectives of the Leg 114 sites, John LaBrecque was requested to review the proposed Leg 114 drilling program. The objectives for Sites SA2, 3, 5, 6, 7 and 8 were presented along with recent site survey results. As a result of this presentation, it became apparent to the SOHP that carefully selected Leg 114 sites had the potential to not only provide insight into Neogene paleoceanographic problems, but also to address the important problem of Paleogene gateways and paleocirculation. A combination of revised sediment thickness estimates, a change in

port stops and incorrect steaming and drilling estimates, however, has severely eroded the program. If Leg 114 is required to spend 10 days on-site at the South Orkney transect, it will leave time for only 2 original Leg 114 sites. Two sites are considered too few by the Co-Chiefs to make a viable program.

Faced with these facts, the SOHP once again reviewed the trade-offs between Leg 113 and Leg 114 and explored several options that could possibly save the integrity of the Leg 114 program. These options included:

1 - requesting that Site W-5 be dropped on Leg 113 to ensure time for at least W-7
2 - requesting that no logging or basement drilling be required on Leg 114
3 - requesting that the requirement of picking up Site W-7 on Leg 114 be dropped
4 - dropping Site SA2 from the Leg 114 program
5 - requesting that Leg 114 be extended to the maximum possible length.

While the SOHP has never been totally comfortable with the site selected for W-5, the objectives of this site are important and, in the absence of a better site, the Panel voted (6-5) that W-5 should be a higher priority objective than W-7.

The Panel voted unanimously that:

- the logging requirement for Leg 114 sites be retained but that the basement penetration requirement be relaxed
- the integrity of the Leg 114 program was of higher priority than Site W-7
- that Site SA2 should not be dropped
- that a request be made to extend Leg 114.

The SOHP recommendations for Legs 113 and 114 are thus:

1 - that Leg 114 be extended to the maximum length logistically possible
2 - that PCOM reconsider the requirement for Leg 114 to drill the South Orkney transect in the event that Leg 113 cannot drill at least W-7
3 - that the requirement for 50 m of basement drilling at each Leg 114 site be relaxe

The Chairman reminded the Panel that the above recommendations represent a complete reversal of our previous recommendation that <u>all</u> Leg 113 sites were of higher priority than <u>any</u> Leg 114 sites. The Panel reconsidered the issue and, in light of the clarification of the Leg 114 objectives, (particularly the potential of a 4-site Leg 114 program to address the problem of Paleogene gateways), as well as the large number of new members on the Panel, reconfirmed the above recommendations.

5. Regional Panel Reports and Discussions

5.1 <u>Indian Ocean Report (W. Hay) and Discussion</u>

The two options for Indian Ocean programs were presented. The Panel then discussed, in detail, those programs of concern to the SOHP. SOHP recommendations with regard to the Indian Ocean are as follows:

Neogene I:
The SOHP continues to consider the Neogene I package as one of its highest priority programs and appreciates the support shown for it by PCOM and the IOP.

Neogene II:
The SOHP strongly endorses the concept of a carbonate depth transect in the Indian Ocean. The revised Peterson proposal for a transect on the Seychelles Platform is a well-conceived program that addresses important global questions of the history of ocean chemistry and climate as well as deep water circulation. The program requires only a small portion of a leg and <u>we urge PCOM to reconsider the IOP</u>

recommendation of combining the carbonate saturation profile with the Makran program. In addition, we request that at least 1 site on top of the Moldives platform (M-3) be added in order to look at a mixed periplatform/pelagic section.

Kerguelen:
P. Ciesielski presented a brief overview of the present status of Legs 119 and 120. SOHP reaffirms its strong support for Kerguelen drilling and, in particular drilling in Prydz Bay. We urge that the final selection of sites preserve the latitudinal transect concept and thus provide key information relating to vertical water mass evolution and the development of latitudinal thermal gradients.

Argo/Exmouth:
The proposed (von Rad et al.) Argo/Exmouth program and the Argo extension program (Gradstein) were reviewed and discussed within the context of SOHP thematic objectives. Our recommendations for work in the Argo/Exmouth region are as follows:

Argo Extension:
The SOHP is sympathetic with the need for a complete and detailed Mesozoic stratigraphy in the Indian Ocean but believes that most of the objectives of the Argo Abyssal Plain drilling can be met at a single, carefully drilled site. Therefore, we find it difficult to justify the additional 8-10 days required for a second Argo A.P. site. We are also concerned with the apparently conflicting objectives of the extension proposal - the desire for stratigraphic overlap and the desire to look at microfossil patchiness. (Vote: 6 against extension, 3 for).

Argo/Exmouth Program:
The SOHP reviewed the Argo/Exmouth program and in particular examined how the proposed program fits within our Deep Stratigraphic Test concept. We reiterate that a series of globally distributed deep stratigraphic test holes aimed at addressing problems of sea level history, sediment supply, passive margin subsidence, black shale formation and margin/basin fractionation, have been, and continue to be, a primary objective of the SOHP. We believe that many of the DST objectives can be met in the Argo/Exmouth region, but not at a single site. We therefore propose a combination of previously proposed sites (with some minor modifications) that we believe adequately meet the DST objectives. In suggesting slight modifications to the location of the sites, we are driven by a desire to:

1 - minimize hiatuses (EP7 appears to show significant gaps)
2 - drill in regions with maximum sedimentation rate

We propose two options for an Argo/Exmouth DST. Option one involves a modified EP-5 which we understand was originally dismissed by the Safety Panel. We believe that the new basinward location may be acceptable to the Safety Panel. It appears to be relatively free of hiatuses and is twice as thick as EP-7. If the Safety Panel still does not approve EP-5, we propose a shift of EP-7 and the addition of a deepened EP-6 in order to maximize section recovery.

	Sediment thickness Drilled
Option 1:	
1 - EP-5 moved seaward past shot point 2000 on line WA-176-1	2000 m
2 - AAPIB as proposed	1000 m
Option 2:	
1 - EP-7 moved to shot point 3200 on line GSI 76-22	1400 m
2 - EP-6 as proposed but deepened to 1000 m	1000 m
3 - AAPIB as proposed	1000 m

We believe that the above program will serve to adequately address the objectives of the Deep Stratigraphic Test concept, and do so in a manner that does not terribly tax present drilling technology. We recognize that the Exmouth Plateau has indeed been extensively surveyed by industry and that there are commercial boreholes in the region. We believe that there will be no duplication of existing results because the commerical boreholes were only sampled by sidewall cores (10-30 m spacing) in the entire post-Triassic to Tertary section. Indeed, the continuous coring provided by ODP in conjunction with the existing seismic and borehole data provides a unique opportunity to examine the evolution of a margin and the numerous paleoceanographic problems associated with it.

The SOHP also supports the concept of geochemical reference sections but believes that AAPIB, not AAP2, is the most appropriate place for this.

5.2 Western Pacific Report and Discussion

A 10.5 leg prioritized WPAC program devised by the WPAC Panel was presented by Jim Ingle. As presented, three regions: Japan Sea, Sulu Sea and Great Barrier Reef are of primary importance to SOHP; there is potential interest in sites in the Bonin-1, Lau Basin, S. China Sea, and Sulu-Negros programs.

Bonin-1:
The SOHP's interest in the BONIN program revolves around the potential to examine the effect of the ridge's history on bottom water circulation and the Pleistocene history of the Kuroshio current. Of the sites proposed, Sites 6 and 7 have the greatest potential for meeting SOHP objectives. Site 7, however, is too deep (4650 m) to yield a reasonable carbonate record. The SOHP thus rates Site 6 as its highest priority in the Bonin region and requests that the WPAC Panel explore the possibility of moving Site 6 latitudinally in order to maximize thickness of the sedimentary section.

Japan Sea:
The SOHP strongly endorses the proposed Site JS-2 and urges that double HPC's be collected there. JS-2 provides a late Miocene to Holocene record above the CCD and will address important questions of anoxic sedimentation, mixing processes, sea-level and upwelling history.

Banda Sulu - So. China Sea:
The So. China Sea, as a young passive margin with a thick sedimentary sequence, presents an excellent opportunity to address several key SOHP objectives: 1) ties between eustasticy and tectionism; 2) early opening and subsidence history of a young basin; 3) development of passive margin basin facies; and 4) the history of a oxygenated basin. The SOHP believes that these objectives can be addressed by Site SCS1 if and only if industry well data for the deeper part of the section becomes available. We strongly recommend that every effort be made to obtain access to industry data. If this data is unavailable, we recommend that new sites be sou that will better address the history of the development of the margin.

- SOHP also supports paleoceanographic drilling in the Sulu Sea, a silled tropical basin, which contains anoxic sediments in a carbonate province. Because of potential programs with turbidites, and with poor geometric control in the pre-late Pleistocene, however, we rate the So. China Sea as higher priority than the Sulu Sea.

Great Barrier Reef:
The Great Barrier Reef program represents some of SOHP's highest priority drilling objectives. Global themes addressed in the Great Barrier Reef - Queensland Trough - Queensland Plateau area include:

1 - Cenozoic sea level changes, major global unconformities and sediment response to sea level fluctuations
2 - Basin/shelf sediment fractionation and basin fill history in response to sea level and subsidence history
3 - Changes in paleoclimate related to plate position and the effect of these changes on sedimentation
4 - Comparison of the tectonic and sediment history of a passive continental margin and an isolated plateau
5 - Diagenesis of a mixed carbonate/siliciclastic province in an undersaturated ocean regime.

WPAC has advised the proponents to re-evaluate drill times in view of the fact that these holes will encounter cemented carbonates; and to re-evaluate the sites to consider tectonic problems (e.g., effect of differential subsidence on isolating sea-level events). The proponents have submitted a revised proposal for comment that significantly shortens the previous holes proposed (by one-half in most cases) and which adds 7 short holes (300 to 800 m drill depth) to address these two problems. SOHP agrees with WPAC concerns, but feels it is critical to maintain one deeper test in the Great Barrier Reef slope area and recommends the following priority for the proposed drill sites.

NEA 1
2 (deepen to 800 - 1000 m drill depth)
3
4
5
6
9
10
7 (an alternate site is recommended because of safety concerns, i.e. present site drills crest of a carbonate build up).
8
11
12
13
14

The SOHP places the following priorities on the proposed WPAC programs:

1 - Great Barrier Reef (with 1000 m Site 2)
2 - Japan Sea
3 - So. China Sea (with industry data)
4 - Sulu Sea

Once again, we applaud the WPAC Panel for their efforts to incorporate thematic guidance in developing their program.

5.3 CEPAC Report (Sancetta) and Discussion

- CEPAC is just beginning to receive a large number of proposals
- ranking based on individual merit and their relevance to thematic packages
- questions for SOHP - How does SOHP rank importance of depositional processes, facies models and fans
  How does SOHP feel about role of paleoceanographic data in history of "accreted terranes"

5.4 SOHP Themes for CEPAC Drilling

Using the SOHP summary of major themes as a guide (though not constrained by it) the Panel then discussed those themes and objectives most relevant to CEPAC drilling. The following recommendations are preliminary; they will be finalized as our new members "come up to speed" and properly review them.

SOHP Themes for CEPAC Drilling: (prioritized)

1. THEME: High-Low Latitude and Depth Transect (Paleosecs)

Objectives: (non-prioritized)
1 - examine biotic changes through time and latitude
2 - record of climatic change (Cretaceous to Recent)
3 - history of bottom water circulation in Pacific
4 - history of surface water circulation in Pacific
5 - paleowinds - fluxes and intensities
6 - seismic stratigraphy: basin-basin fractionation
7 - geochemical mass balance for Pacific
8 - enhanced biostratigraphic correlations
9 - geomagnetic record especially from southern latitudes
10 - pre-Neogene isotopic data
11 - interrelationships of 1,2,3,4,5,6,7 & 10 above
12 - motherhood and apple pie

Approach/Site Criteria:
A high to low latitude (and depth) transect of sites with an initial spacing of at least every 20° of latitude. Criteria for sites are: shallow burial, carbonate, low paleolatitude, continuous sections. Clearly, oceanic plateaus and guyots are primary targets.

Example Sites:
60°N - Sounder Ridge
55°N - Giacameni SM
50°N - Detroit SM
30°N - Shatsky Rise
26°N - Tsuni SM (Ogasawara SM)
20°N - Horizon Guyot
0°N - Ontong Java Plateau
45°S - Louisville Ridge

Need input from CEPAC and working groups - especially for S. Pacific sites.

2. THEME: Old Pacific Crust

Objectives:
- to recover the oldest (Pre M-25) Pacific crust
- to look at the only existing open ocean record for the Cretaceous

Approach/Site Criteria:
Must be pre-anomaly 25 crust in drillable region. Must be carefully surveyed to establish feasibility. New bit technology permitting drilling is alternating lithologies will be important.

Example Sites:
See Larson/Lancelot proposal (OPACC 1-3), Ross Sea.

3. THEME: Atolls and Guyots

Objectives:
1 - sea level fluctuations vs. subsidence history
2 - drowning history - how to make a guyot out of an atoll
3 - carbonate diagenesis as function of sea level history
4 - volcanic episodicity

Approach/Site Criteria:
A series of sites down a number of guyots. Site criteria are similar to those for Theme 1. These objectives can be piggy-backed, along with Theme 1 objectives.

Example Sites:
See Theme 1.

4. THEME: Episodicity of Volcanism

Objectives:
1 - history of explosive volcanism and hydrothermal activity (signal is in Pacific)
2 - changes in spreading rate and its relationship to climatic change
3 - relationship of tectonic cycles to paleoceanographic events with emphasis on earlier part of record

Approach/Site Criteria:
Multiple sites with volcanic record in several regions, proximity to arcs. Once again many sites can piggy back on Theme 1 sites.

Example Sites:
Escanaba Trough vs. Middle Valley
Alaskan Bight
Detroit SM
Ogsawara Plateau

5. THEME: Fans and Depositional Processes

Objectives:
1 - provide modern analogs to important ancient deposits
2 - establish models for fan development
3 - understand the nature of clastic deposition in the deep sea

Approach/Site Criteria:
Need drillstring to get vertical history of modern fans. Piston coring yields only surficial sediment (often stopped by sands) and deeper horizons can only be viewed seismically at a scale (20 - 30 m resolution) inappropriate for understanding depositional history. Should look at fan in small basin on continental crust where sands aren't too thick. Drilling should be in distal overbank deposits to maximize record.

Example Sites:
Navy Fan

6. THEME: Fluid Circulation (discussed after joint CEPAC/SOHP Meeting)

Objectives:
1 - large scale rock/seawater interaction and its affect on seawater chemistry
2 - spreading rate fluctuations vs. hydrothermal activity
3 - geochemical mass balances

Approach/Site Criteria:
Sites at highly sedimented ridge crests with or without organic matter, fracture zones.

Example Sites:
Aleutian Transect, Juan de Fuca, Gulf of California

6. Joint CEPAC/SOHP Meeting

The CEPAC and SOHP Panels met jointly on the afternoon of October 20. The Chairman of CEPAC outlined the status of their proposal reviewing procedure and briefly discussed those programs that had received the most favorable reviews. The Chairman of SOHP reviewed the SOHP themes for the CEPAC region (except for Theme 6 - see preceeding pages). CEPAC then addressed specific questions to the SOHP:

1. CEPAC - How important are accretionary prisms to SOHP?
   SOHP - Questions whether drillstring is most appropriate tool to use to address these problems. Accretionary prisms are of some interest to SOHP (physical properties, diagenesis, fluid flow) but more appropriately discussed by Tectonics Panel.

2. CEPAC - How interested is SOHP in pure sedimentary processes and fans?
   SOHP - Ranking of this on SOHP Thematic priority list (5th out of 6) reflects that while not dismissed, problems associated with fan drilling lead us not to focus on it. Would like to see it but program needs to be very carefully thought out.

3. CEPAC - Boundary currents?
   SOHP - In Pacific problem is tectonic translation. SOHP would be interested if it could be demonstrated that accumulating crust did not move much with time. This is compounded by the fact that Paleogene climatic gradients are often too small to discern.

4. CEPAC - How does SOHP feel about lack of Sites in S. Pacific?
   SOHP - Nothing in SOHP themes precludes S. Pacific drilling, indeed latitudinal transect theme requires S. Pacific drilling. Major prolem with S. Pacific is the fact that sedimentation rates are so slow that it is difficult to get high resolution records.

5. CEPAC - What is stratigraphic resolution that can be expected in mid-ocean, volcanoclastic, turbidite regions (late Cenozoic)?
   SOHP - + 1 million years.

6. CEPAC - Has SOHP considered requesting a stratigraphic synthesis (funded by USSAC) for Pacific?
   SOHP - No, sounds like request CEPAC should make.

7. CEPAC - What are SOHP's engineering priorities?
   SOHP - read engineering priorities (see 3.3).

From this initial get together, it was clear that CEPAC and SOHP were on track in several areas, and most importantly, each panel had overlooked important items. In particular, the CEPAC panel pointed out that SOHP had neglected questions of fluid circulation in developing its themes (rectified) and SOHP made CEPAC aware of its highest priority interest in a high-low latitudinal and depth transect. We believe that the joint meeting was extremely valuable and will greatly facilitate future CEPAC planning.

7. Next Meeting

The next SOHP meeting will take place 9-11 March, 1987, on the west coast (either SIO or Menlo Park).

APPENDIX A
SOHP Comments on Proposed New ODP Sediment Classification

Any utilitarian sediment classification scheme should meet the following criteria:

1. **Ease of use** - with straightforward, "natural" subdivisions and logical methods for applying names to sediments or criteria for application

2. **Comprehensive** - accommodating the anticipated range of sediment compositions and potential mixtures of sediment of diverse origins

3. **Objective, descriptive** criteria for classification, i.e. no explicit genetic (process) interpretations, but some genetic implications are unavoidable.

With the recognition that there are as many opinions on sediment classification as there are sedimentologists, the sediment classification scheme proposed by Mazzullo et al. meets the above stipulations rather well. The SOHP applauds the development of a comprehensive yet reasonable classification scheme. We essentially endorse the proposed classification with the realization that adoption as the "official" ODP classification has significant implications for permissible patterns used on barrel sheets, etc. However, we strongly urge that the following changes to the scheme be implemented before adoption (no implied order of importance):

1. Substitute **"siliciclastic"** for **"terrigenous"** - the latter term has an objectionable implication as to sediment source and depositional process. Siliciclastic describes the composition of the component rather than its derivation.

2. The standard **grain-size classification of pyroclastic components** (e.g. ash, lapilli, etc; Fisher and Schminke, 1984) should be used in the classification.

3. The use of the term **"neritic"** for calcareous detritus on or derived from carbonate platforms is a misnomer. The term implies "nearshore", but in fact, carbonate particles (non-pelagic biogenic) can be derived from a number of environments, including periplatform and mixed pelagic/periplatform sediments. Such particles, exclusive of pure pelagic biogenic sediments, should be termed "non-pelagic" carbonate, and Dunham's (1962) classification used. [See Note A. for additional points relative to the Dunham classification.]

4. The **standard terminology for induration** (which can be determined easily) of pelagic biogenic carbonates, should be retained ("ooze", "chalk", "limestone"), recognizing that those terms should not indicate anything about depositional mechanism or environment. Use of "chalk" and not "limestone" for indurated carbonates may also cause confusion in that "chalk" could be misconstrued as a compositional term.

5. The term **"metalstone"** is an unfortunate choice for chemical sediments composed of metal-ion-bearing minerals. We recommend dropping that term and adopting a more complicated but conventional nomenclature (e.g. chamositic ironstone; glauconitic sand; pyritic shale; manganiferous claystone, etc.).

6. **"Zeolites"** should be added as a compositional component to chemical sediments.

7. **Grain shape and color** should be considered descriptors only, not as a formal part of a classification. The inclusion of these parameters detracts from the overall logic of the classification. These are of less importance than primary sedimentary structures in describing a sediment and drawing inferences about depositional mechanisms.

8. **Sapropels** - these unusual sediments may be improperly considered under "terrigenous"

(now "siliciclastic") sediments. Such units can and often do contain substantially more biogenic pelagic material, which makes this assignment problematic.

9. The definition of **marl** is unconventional (a quartz sand with carbonate) and its range is covered by "mixed" or "transitional" sediment.

10. **Pelagic sediments:** also the dominant texture of the pelagic grains should be used (if other than normal texture for pelagic sediment) as a major modifier or component in sediment name: e.g. sand-sized foraminiferal ooze or foraminiferal sand or silt; or silt-sized radiolarian ooze or radiolarian silt.

Note A. Calcareous Detritus

Embry and Klovan's (1971) modification of Dunham's classification should be used, at least to introduce the terms:

Greater than 10% > 2 mm components -

Floatstone:	Matrix supported
Rudstone:	Component supported

Less than 10% > 2 mm components -

Grainstone
Packstone
Wackestone
Mudstone

Also Boundstone could be subdivided into:
Baffflestone
Bindstone
Framestone

JOIDES Downhole Measurements Panel
Woods Hole Oceanographic Institution
July 22-23, 1986

Summary of Recommendations

Leg-by-Leg Recommendations

The Panel reviewed the updated plans for Legs 111 through 113 and the tentative plans for Legs 114 and 115 and made the following recommendations:

1. Leg 111 504B

   No change from recommendations of Jan. 14-16, 1986.

2. Leg 112 Peru Margin

   Add 12 hours of borehole geotechnical studies at selected shallow water site to recommendations of Jan. 14-16.

3. Leg 113 Weddell Sea (revised from Jan. 14-16 recommendations):

W1	LDT/GST/ACT combination	8 hrs.
	If a 50m section deposited at a rate of 35 m/my or more is recovered, run nuclear logs on a time-available basis (for example while waiting for weather or bergs to clear at W4) to test for Milankovich cycles.	
W4	LSS combination	4 hrs.
	LDT/GST/ACT combination	11 hrs.
		15 hrs.
	Set minicone and log deep hole to tie core to dipping reflector series. Do not log if hole pogo-drilled.	
W5	LSS combination	6 hrs.
	LDT/GST/ACT combination	13 hrs.
		19 hrs.
W6,7,8	LSS combination	4 hrs.
	LDT/GST/ACT combination	8 hrs.
		12 hrs./site
	Run on time available basis.	

4. Leg 114 S. Atlantic

   Preliminary recommendation: sonic and nuclear/combination logging at $400m^{+}$ sites, plus detailed cyclicity detection (ACT) logging at selected sites.

5. Leg 115 S.W. Indian Ridge

SWIR 2 (deep mantle re-entry hole)

Pipe trip	12	hrs.
T/H_2O samples	12	
German/French HRT	12	
Schlumberger suite	37	
BHTV	11	
MCS	11	
Large scale resistivity	8	
Gyro magnetometer	15	
Magnetic susceptibility	8	
Packer (including pipe trip)	48	
RFT/wireline packer	8	
Complex resistivity	12	
CAT (circumferential acoustic)	12	
	8.6	days
Oblique Seismic Experiment	10	days
Total	18.6	days

A deep fracture zone hole represents a once-in-a-lifetime chance to examine mantle rocks, fabrics, properties and processes in situ. to take advantage of this opportunity, the panel recommends:

a) a full 60 day leg to accomodate drilling and downhole measurements;
b) re-entry cone deployment at the prime site;
c) a downhole measurements co-chief:

Gary Ohloeft (USGS)
Dick Von Herzen (WHOI)
Ralph Stephen (WHOI)

Intermediate and Long Range Planning (Indian Ocean, Western Pacific)

Preliminary recommendations (to be refined at November meeting when drilling plans more refined): sonic and nuclear combination logging at $400m^+$ sites plus the following special programs:

6. Red Sea

Hydrogeology
Water sampling (intermediate T)
Hostile Environment Logging (HEL)

Note: corrosion - resistant cone needed for long-term observations.

7. Macran

Hydrogeology
Water sampling
Borehole geotechnical studies

8. Intraplate Deformation

Hydrogeology
Water sampling
HRT/HPC-T
Dipmeter
RHTV

9. Prydz Bay

VSP at dipping reflector site

10. Argo/Exmouth

VSP in deep hole

11. Japan Legs

Japan Sea: Oblique Seismic Experiment

Bonin Arc: Long-term observatory installation

Note: Re-entry cone(s) required for cruise and post-cruise observatory installation.

Nankai: Hydrogeology
Water sampling

Note: Re-entry cone required for post-cruise observatory installation.

Zenisu: Hydrogeology
Water sampling
Dipmeter

LDGO

12. Logging Through Pipe

In addition to conducting open hole logging in all holes over 400m deep, the panel recommends running nuclear logs through the pipe in the upper part of each hole as the tool is brought to the surface. This will add significantly to the logging data base and cost very little in terms of extra logging time.

13. Repeat ACT test

The Panel requests that LDGO conduct a multiple repeat test of the ACT tool.

14. Wireline Heave Compensation Test

The Panel recommended that LDGO run Schlumberger's downhole accelerometer in conjunction with a high resolution logging tool in order to test the performance of the wireline heave compensator. If the heave comp does not meet specifications, the accelerometer (or one built for the purpose) should be run with every tool so that the data can be corrected for heave.

15. Tool Recommendations

Wireline Packer. The Panel reiterates again the need for a wireline packer and regrets that EXCOM, acting on misinformation regarding patent rights, has delayed acquisition (see attached letter).

Enhancement Budget Priorities. In addition to the wireline packer, which is already included in the base budget, the panel made the following recommendations for new tool acquisition:

Priority 1) Backup analog BHTV ($40 K)
Upgrade to digital tool following year.

Widely known as the "geologists' log"; provides visual/acoustic image of borehole wall, stress data.

Priority 2) Formation Multiscanner (FMS) ($50K-200K depending on configuration and negotiations with Schlumberger)

Multipad micro-resistivity sensor; provides visual/ resistivity image of borehall wall.

Priority 3) T log ($10 K)

High resolution T log needed on board permanently.

VSP Extremely valuable tool but not recommended for purchase or continuous rental by LDGO since it will not be used on every log.

LDGO/TAMU

16. Swelling Clay Problem

The recommendations of the "Mud Meeting" have not solved the swelling clay (bridging) problem. The Panel recommends that LDGO

and TAMU hold a second mud meeting with mud specialists, clay chemists and geotechnical engineers from industry to address this problem in greater detail.

PCOM

17. Physical Properties Working Group

Per the recommendations of the Physical Properties Workshop held at Cornell (July, 1986), The Panel requests that a small Physical Properties Working Group be formed under DMP auspices to monitor and upgrade the shipboard physical properties programe and to make the recommendations for special sampling.

18. Wireline Re-entry

The Panel strongly endorses current efforts to develop a wireline re-entry capability within the oceanographic community as a means of conducting downhole experiments and for servicing, repairing and exchanging long-term borehole observatory instrument packages in the absence of the drillship.

19. Use of Re-entry Holes

Although no formal mechanism exists for controlling access to re-entry holes, the Panel urges that all potential users obtain clearance from JOIDES before re-entering a specific hole. This will prevent re-entry attempts in impassable holes and will also prevent instruments from being inadvertantly drilled out in subsequent ODP operations.

DMP

20. Next Chairman

Recommendations in alphabetical order:
Keir Becker
Gary Ohloeft
Paul Worthington
New chairman to take office in early Spring, 1987.

21. Panel Rotation

Stepping down:
Turk Timur - effective after next SOHP meeting
Dick Goodman - voted off in absentia; has not attended meetings
Al Jageler - effective after November DMP meeting

Possible replacements:
Wendell Givens - Mobil Oil; nuclear logging specialist
Carl Sondergeld - Amoco; physical properties, rock mechanics

Nafi Toksoz, Arthur Cheng or Roger Turpenning
- M.I.T. logging research group
Ralph Wiley - AMOCO; nuclear logging, quality control
Adrian Richards - FUGRO (Holland); geotechnical studies

22. Panel Liasons

LITHP - Keir Becker
SOHP - Turk Timur (last official act)
SOP - Eddie Howell
TECP - Matt Salisbury
TEDCOM - Al Jageler

Remaining liasons to be established after rotation.

23. Next Meeting

November 7-8 Tokyo; preceded by logging workshop November 5-6.

DMP requests that John Delaney attend Tokyo meeting as guest to outline long-term borehole observatory plans.

DRAFT

MINUTES OF THE INDIAN OCEAN PANEL MEETING

20-22 November, 1986

Miami, Florida

86-998
RECEIVED DEC - 4 1986

Members present :

A. Bosellini
J. Cochran
R. Duncan, Secretary
D. Falvey
J. Ludden
W. Prell
U. von Rad
R. Schlich, Chairman
R. Scrutton (Alternate)
J. Segawa

Absent :

J. Curray
J. Leggett, TECP
J. Sclater

Liaison members present :

C. Brenner, SSP
W. Hay, SOHP
C. Langmuir, LITHP
R. Larson, PCOM

Attending guests :

G. Brass
B. Clement, ODP-TAMU
D. Goldberg, ODP
L. Peterson
J. Weissel (21 Nov.)

The IOP began its meeting at RSMAS with a welcome from acting director Prof. Chris Harrison and host Gary Brass. Schlich introduced new panel members A. Bosellini (ESF), J. Ludden (Canada), R. Scrutton (U.K. alt. for R. White) and guests. We thank U. von Rad (retiring) for his help and contributions on this panel.

1. MINUTES OF THE PREVIOUS MEETING (STRASBOURG, 4-8 JULY)

R. Scrutton requested that the Executive Summary be changed to state that 280 km of MCS data will be fully processed by March 1987 in time for SSP review and proposed Makran drilling. U. von Rad noted that in item 8 on p. 10 "gas fields"

should be replaced by "commercial dry wells".
The minutes of the IOP Strasbourg meeting were accepted with these changes.

2. IOP MEMBERSHIP ROTATION

L. Keigwin has declined to replace L. Tauxe. IOP recommends that W. Berger be invited to fill this membership. If he declines we suggest L. Peterson (RSMAS) or E. Vincent (France).

3. REPORTS FROM LIAISONS

3.1. PCOM (R. Larson)

With regard to the Indian Ocean drilling plan the last PCOM meeting (Cornerbrook, Canada, 11-15 August) resolved that :

SWIR

. The second guide base should be on board the *Resolution* for use in stabilizing bare rock drilling.
. No oblique seismic experiment will be carried out due to time, effort, and cost considerations. A re-entry cone could be left to allow this experiment to be done at a later date.
. R. von Herzen and P. Robinson were chosen as co-chiefs.

RED SEA

. Clearance is still needed from Saudi Arabia and Egypt. The science operator is pursuing this and a final decision on whether this leg will be drilled is to be made at the next PCOM meeting (19 Jan.).
. J. Cochran and P. Guennoc were chosen as co-chiefs.

INTRAPLATE/90°ER

. Site surveys complete but not reviewed ; co-chiefs yet to be selected.

NEOGENE

. Site survey results presented ; co-chiefs W. Prell and Niitsuma selected.

MAKRAN

. The IOP questions and recommendations were noted and TECP was asked to respond. TECP agreed with IOP that the Makran program should be 4 sites constituting a 1/2 leg.

. J. Leggett and B. Haq selected as co-chiefs.

MASCARENE PLATEAU/CARBONATE SATURATION PROFILE

. PCOM considered that Mascarene objectives duplicated the 90°ER objectives and so preferred the Carbonate Saturation Profile program as a 1/2 leg to combine with Makran.

KERGUELEN I + II

. The IOP-SOP Working Group formed by PCOM at its last meeting met at Rhode Island on 27/28 October 1986. PCOM decided again that the crew change will take place at Mauritius.

BROKEN R/90°ER

. Site surveys complete but not available ; no co-chiefs yet.

EXMOUTH/ARGO BASIN

. The extended, 2-leg program is still possible if the Red Sea is not drilled, particularly with strong LITHP support for the Argo Basin basement hole.

3.2. EXCOM meeting

. The U.S.S.R. will join ODP, probably in January, 1987, and representatives may then participate in subsequent panel meetings and scientific crew.

3.3. LITHP (C. Langmuir)

. Strongly endorses Leg 115, noting uncertainties about technical problems (esp. pogo sampling, depth limit on camera televiewer) ; some sites outside the fracture zone should be considered ; drilling into peridotite has greater probability of success than rubbly basalt or gabbro ; the hard rock guide base should be on the ship and ready to deploy for a deep penetration site.

. In general, basement holes should be drilled to 50 m or bit destruction.
. Recommends deepening the IOP-endorsed Argo Basin hole at M25 to at least 200 m penetration of basement as a geochemical reference hole for Sunda Arc volcanism.
. Mascarene Plateau, Kerguelen Plateau, and 90°ER basement objectives will be addressed in detail at the next (6-7 Jan.) meeting.

3.4. SOHP (W. Hay)

. Considered the Carbonate Saturation Profile drilling very important and votes this higher than additional drilling in the Argo Basin.
. Recommends adding the Carbonate Dissolution site (Maldives, A. Droxler proposal n° 183/B) to the Makran leg (see appendix 1).
. Noted uncertainties about hiatuses at Exmouth sites and recommended a deep penetration hole somewhere north of EP-5.

3.5. TECP (J. Leggett absent, no report available)

N. Pisias informed Schlich by letter that TECP has agreed with IOP recommendations of 4-site, 1/2 leg Makran program.

3.6. SSP (C. Brenner)

. Will review the new site survey data for SWIR, Neogene I, 90°ER, Broken R, and Intraplate programs at the next (13-14 Jan.) meeting.
. Prydz Bay could be a problem, having no cross-lines on the one available MCS line.
. Red Sea - Sudanese Fan site is out (not surveyed). 17.5°N site is not sufficiently surveyed ; all remaining sites look OK.
. Neogene I - site survey data look good to pick final sites ; Honimid site data not adequate - need to check additional U.S. and U.K. lines.
. Makran - dependant on MCS survey by *Darwin* (R. White).
. Carbonate Transect - existing data adequate except basement site objective at CARB-1.
. Mascarene - dependent on site survey by *Darwin* (A. Baxter).
. Kerguelen I + II - sites KHP-1, KHP-3 approved, northern sites look OK, central and southern site data yet to be fully processed.

. 90°ER, Broken R, Intraplate - awaiting finished site surveys.

. Exmouth/Argo - looks OK, awaiting final site selection.

4. REVIEW OF NEW DRILLING PROPOSALS

4.1. Maldive Carbonate Dissolution (Droxler proposal)

3 ? HPC sites are proposed to investigate the flux of dissolved carbonate into the water column ; this was previously considered favorably and has been revived by SOHP ; the proposed sites lie on *Vema* and *Conrad* SCS lines. The IOP endorses SOHP recommendations that one or two sites be added to the Carbonate Saturation Profile program if time permits.

4.2. Oman Mesozoic sediments (Jansa proposal)

IOP rejects this proposal as immature, having no site surveys planned.

4.3. Indus Fan (Haq and Kolla proposal)

IOP rejects this proposal because of the high probability of incomplete stratigraphic section and the difficulty in dating clastic sediments. We considered and rejected very similar earlier proposals in favor of distal fan sites. We compared this with other programs to combine with Makran and rated the others higher priorities.

4.4. Seychelles Platform (Khanna proposal)

IOP rejects this proposal as immature, with no site surveys planned, and overly ambitions concerning large sedimentary sections to be drilled.

5. DOWNHOLE MEASUREMENTS INFORMATION (D. Goldberg)

We received information on time estimates and requirements/options for logging holes. These appear as Appendix 2 and should be used in constructing site drilling times.

6. REVISED DRILLING PLAN

We discussed revised programs for the Western Indian Ocean (Legs 115 to 118), the Eastern Indian Ocean (Legs 121 to 123) and the Kerguelen Plateau (Legs 119 and 120) and used these reviews to update the Indian Ocean program summaries, sent separately to PCOM for its August, 1986 meeting at Cornerbrook. We make the following recommendations :

6.1. Western Indian Ocean

SWIR - We examined the preliminary SEABEAM map of Atlantis II F.Z. and heard results from the site survey from R. Larson. We recommended as the first priority to locate and drill a "deep mantle hole" on the elevated central ridge at ~ 4700 m water depth, near the area where ultramafic rocks were dredged ; use spot drilling to confirm the outcrop and camera televiewer to locate suitable site for hard rock guide base ; set guide base and drill as deep as possible in remaining time. If the first priority fails, we recommend drilling a transect of sites across the fossil trace of the fracture zone, to the north of the northern spreading ridge. We recommend standard logging and borehole televiewer as top priority, with temperature and packer experiments added if possible.

RED SEA - no revisions except logging estimates ; we recommend that *Resolution* do the final seismic line for the 17.5°N through site ; Sudanese Fan site has been dropped, all others are OK.

NEOGENE - final site selection will be made by W. Prell and G. Mountain from SCS processed lines. We recommend that one of the Owen Ridge sites be deepened to basement.

MAKRAN - We note that this program depends on the success of *Darwin* site survey. We estimate logging at sites 2, 3 and 5 will take 3 to 4 days, or 20 to 25 days total site time or half a full leg.

CARBONATE SATURATION PROFILE - MASCARENE PLATEAU - We considered each of these programs as half legs to combine with the Makran program. The Carbonate Saturation Program has received strong support from SOHP and has adequate site survey data. We estimate site time to be 14 days. If site M-3 of the Droxler proposal (Carbonate Dissolution) were added, this would make 17 days total.

The Mascarene program looks attractive with the addition of industry sampling from two deep wells into basement. Site survey data will come from the *Darwin* (March, 1987). This program does not duplicate the 90°ER program because a different time frame is to be sampled, two hotspot tracks are needed to establish Indian plate motion, and different geochemical objectives are addressed. This program would need also about 17 days total site time.

We voted on which of these two programs should be recommended to combine with Makran and the result was a tie vote, 4 to 4 (Duncan and Prell abstaining). We consider both programs to be excellent and a decision will have to be made on logistical considerations. If the Makran cannot be drilled we recommend that these two half programs be combined into a full leg. IOP still considers these two the best science combination of options.

OPTION WITHOUT RED SEA - If the Red Sea cannot be drilled we still recommend plan B from our last meeting ; that is, 116 - Intraplate Deformation, 117 - Neogene I, 118 - Makran plus Carbonate S.P. or Mascarene.

6.2. Eastern Indian Ocean

INTRAPLATE DEFORMATION - We recommend 5 sites selected from the Weissel survey to date deformation, investigate fault plane hydrology, and a distal Bengal Fan site. The revised site time for drilling and logging will need a full leg so the northern 90°ER site must be picked up by the Argo Basin drilling. See appendix 3 for revised co-chief recommendations.

BROKEN RIDGE - We recommend 6 sites in a N-S transect on the center of the Broken Ridge to build up the pre- and post-rift sedimentary sections. It appears

unlikely that basement can be reached at any of the sites. Final site selection and drilling times can be made from the excellent site survey data. The southern two 90°ER sites have been surveyed and would be drilled as part of this leg. See Appendix 3 for revised co-chief recommendations.

90°ER - Three sites (1, 2 and 5 from previous program summary) are recommended for drilling. These have all been surveyed and await final site selection. For logistical reasons these 3 sites would be drilled in separate legs (121 and 123).

EXMOUTH PLATEAU/ARGO BASIN - We identified three options concerning these programs. (1) Assuming the Red Sea program stays on schedule the Exmouth Plateau and Argo Basin objectives would be drilled during one leg (EP-7, EP-10A, EP-2A and AAP-1B). (2) Since the LITHP has added their strong endorsement of the Argo Basin deep hole and adding extra basement penetration (re-entry hole) we feel the best option is to form one leg with Exmouth Plateau objectives (EP-7, EP-10A, EP-9B, EP-2A) and a second leg with two deep holes in the Argo Basin to achieve the stratigraphic (double-coring Jurassic - L. Cretaceous Tethyan section) and basement (geochemical reference hole) objectives. The northern 90°ER site would be picked up in this leg as well. (3) The Red Sea is not drilled and the two legs described above address the Exmouth/Argo objectives without increasing the present Indian Ocean schedule. See Appendix 3 for revised co-chief recommendations.

6.3. Kerguelen Plateau

KERGUELEN I AND II - IOP endorses the minutes of the Working Group (W. Prell), noting that final sites in some cases have yet to be selected and flexibility must be maintained in the two legs due to weather considerations. The presence of cherts in the sedimentary sections needs to be factored into drilling times and technical planning. The science operator is requested to study ways to minimize this problem. IOP notes the low probability of reaching basement in 1 or 2 sites and recommends consideration of an additional basement site in the central or northern portion of the plateau. IOP asks that the science operator calculate more accurate drilling, logging and transit times from the present sites selected.

7. NOMINATION FOR CO-CHIEF SCIENTISTS FOR INDIAN OCEAN LEGS

Co-chief nominations have been made for legs 115 through 118.
Revised co-chief recommendations are given in appendix 3 for the subsequent legs.

8. LIAISON MEMBERS TO UPCOMING PANEL MEETINGS

LITHP (6,7 January, U.K.) :
We request that J. Ludden be invited to attend as IOP liaison.

SOHP (9,10,11 March, Menlo Park) :
We will be represented by W. Hay who is SOHP liaison to IOP.

TECP :
To be appointed at our next meeting.

9. COSOD-II

We discussed the importance of our individual contributions to the COSOD-II meeting and document with regard to future drilling in the Indian Ocean.
R. Schlich will circulate COSOD-II information from R. Larson to IOP members to focus thinking on global themes of specific Indian Ocean interest.

10. NEXT MEETING

We request that PCOM approve our next meeting for Sydney, Australia, in the first week of March, 1987. As an alternate we request Palisades, N.Y. (L-DGO). A third possibility would be meeting in the U.K. following an invitation from R. White to Schlich prior to Christmas.

APPENDIX 1

Maldives Carbonate Dissolution Site

One aspect of paleo-oceanography which has been especially difficult to investigate is the nature of intermediate water masses. Because these water masses include the changes in ocean chemistry which cause undersaturation with respect to aragonite, variations of the aragonite content with age can provide new insights into ancient water mass structure. Droxler, Baker, and Williams (Proposal 183/B) have proposed drilling on the Maldive Ridge to recover continuous Neogene sequences of periplatform oozes - rich in aragonite derived from shallow carbonate banks. These sequences would provide a record of climatic-change-induced variations in the rate of supply from shallow banks as well as fluctuations of the carbonate saturation level in intermediate water masses, recorded as variations in the aragonite-low Mg calcite-high Mg calcite ratios. Although a depth transect of three sites spanning the aragonite dissolution zone is preferable, the SOHP recognized that the stratigraphic sequence at a single site located at a depth within the dissolution interval should record temporal cha in the nature of the intermediate water masses and offer new insight into the structure of the Indian Ocean during the Neogene. Accordingly the SOHP has requested that one site in the Maldives be added to the carbonate dissolution program proposed by L. Peterson.

After the SOHP meeting in late October, Droxler has attempted to select new sites on the southern Maldive Ridge which would be logistically more convenient, but the prints of the seismic records received from the Site Survey Office do not show sufficient detail to insure proper site selection at this time. He will be asked to reexamine the seismic records and nearby cores to propose an optimal site or sites.

APPENDIX 2

ODP logging

The most commonly run logs in ODP, the Schlumberger tools, are combined into multiple-tool strings for efficiency of operation. We presently operate three standard tool combinations : the seismic-stratigraphy, the lithoporosity and the geochemical combinations. Three lowerings are required to obtain this suite of logs in each ODP hole having greater than 400 m penetration. The total time for this operation can be calculated using the site water depth (WD) and sediment penetration (SD) and the logging time curves in the table below. The standard package of logs usually requires about 36 hours of rig-time depending on the sediment and water depths.

The seismic stratigraphic combination measures directly the compressional-wave sound speed in the formation and indirectly measures the two variables most often affecting velocity : porosity and clay content. The lithoporosity combination measures formation porosity and density as well as an estimate of the proportions of primary radioactive elements U, K, and Th. The geochemical combination tool has the ability to measure relative concentrations of seven other elements : Si, Ca, Fe, S, Al, Mn, HCl. In addition, a sonde measuring vector magnetic field, hole azimuts and deviation can be run with either lithoporosity or geochemical combinations.

Additional lowerings of Schlumberger and L-DGO logging tools can provide unique information in addition to the standard logging package. The dual lateroleg measures resistivity accurately in highly resistive formations, such as basalts. The borehole acoustic televiewer is employed to detect and evaluate fractures and bedding intersecting the borehole wall. The 12-channel sonic sonde records waveforms which allow the determination of compressional, shear, and stonely wave velocities, as well as energy and frequency content, useful to differentiate complex structural environments and for synthetic seismograms. The additional times required for these lowerings can be calculated using the appropriate logging time from the table attached.

Other in situ measurements, such as vertical seismic profiling (VSP), precision temperature logging, permeability-packer experiments, and dipmeter (high resolution resistivities) can be run using the wireline logging equipment on the *Resolution*. A rough time estimate is 12 hours per lowering for these measurements. Further information on the use and appropriateness of all available downhole measurements at each I.O. site has been recommended by the DMP and collated by the Borehole Research Group at L-DGO. Also consult the ODP Wireline Logging Manual for detailed log descriptions.

Logging time equations

"Standard" Schlumberger	t = 11.7 + .0018 x WD + .0145 x SD
Litjoporosity Combo.	t = 1.6 + .0009 x WD + .0058 x SD
Dual Laterolog	t = 1.7 + .0009 x WD + .0045 x SD
Multichannel Sonic	t = 1.5 + .0009 x WD + .0081 x SD
Borehole Televiewer	t = 1.7 + .0009 x WD + .0045 x SD + .0091 x LI

WD : Water Depth
SD : Sediment Penetration
LI : Logged Interval
t : time (hour)

APPENDIX 3

Revised nominations for co-chief scientists : IOP

	U.S.	non-U.S.
115 SWIR	R. von Herzen	P. Robinson (Can.)
116 Red Sea	J. Cochran	P. Guennoc (Fr.)
117 Neogene	W. Prell	Niitsuma (J.)
118 . Makran . Carb. S.P. . Masc. P.	B. Haq L. Peterson, W. Curry R. Duncan, R. Fisher	J. Leggett (U.K.) H. Thirstein (ESF), A. Baxter (U.K.) A. Baxter (U.K.)
119 & 120 Kerguelen	W. Berggren, R. Wise, J. Hayes	R. Schlich (Fr.), D. Falvey (Aust.), K. Perch-Nielsen (ESF), L. Leclaire (Fr.), H. Schrader (ESF), M. Coffin (Aust.)
121 Broken R.	J. Sclater, J. Weissel, R. Duncan, J. Curray	J. Pierce (Can.), R. Herb (ESF)
122 Intraplate	J. Curray, J. Cochran	R. Herb (ESF), R. Scrutton (U.K.)
123 Exmouth Pl.	J. Mutter, R. Larson	U. von Rad (D.), N. Exon (Aust.), P. Williamson (Aust.)
124 Argo Basin	C. Langmuir	F. Gradstein (Can.), J. Ludden (Can.) J. Honnorez (Fr.)

Brief Executive Minutes

1. The April date for the USSAC S. Atlantic workshop will clash with Leg 114: the organizers will be requested to defer it until after mid-May.

2. The conclusions of the Kerguelen - Prydz Bay WG are endorsed as (informally) presented: specific time should be allocated for the paleo-depth transect, although optimal sites could not yet be selected. The rapid processing of French and Australian site survey data is essential. The Australians need funds (US $20k or one visiting scientist and a lesser amount). SOP should receive a copy of the WG report.

3. Proposal 244/C for drilling in the Ross Sea is strongly endorsed. PCOM should consider drilling the Ross Sea on passage from the Indian Ocean to the Pacific in 1988/9.

4. One particular proposal from the USSAC S. Pacific Workshop report should also be considered for 1988-9 drilling. It involves a N-S transect of sites on the flank of the Pacific Antarctic Ridge to investigate the Cenozoic development of the latitudinal thermal gradient. SSP should consider the site survey implications.

5. CEPAC should be asked to review the S. Pacific Workshop report.

6. PCOM is requested to cancel the requirement that Leg 114 drill S. Orkney site W7 if it is not drilled on Leg 113.

7. Leg 113 should retain the 65 day length allocated and charter flight dates to the Falkland Islands should be arranged accordingly.

8. An attenuated set of Leg 114 objectives can be pursued within the present 56 day time allocation, but PCOM will be requested to consider extending the leg to retain Neogene shallow water targets and to insure logging of all holes. PCOM will be asked to invite Ciesielski or Bornhold to their January meeting since neither Barker nor Kennett can attend. The main Panel concerns in 1987 will be to promote Pacific drilling (USSAC Workshop), to propose exiting the Indian Ocean south of Australia (for 1, possibly 2 legs), to complete plans for Kerguelen drilling (119, 120) and (more immediately) to seek an extension for Leg 114.

9. The next SOP meeting should be before the post-January PCOM meeting.

10. Dr. J. LaBrecque intends to resign and and proposes Dr. S. Cande (Lamont) as replacement.

SOUTHERN OCEAN PANEL

Draft Minutes of Meeting - October 29 and 30, 1986

University of Rhode Island

Participants

James Kennett (Chairman)

Peter Barker
Brian Bornhold
Paul Ciesielski
David DeMaster
David Elliot
Martin Fisk
Dieter Fuetterer

Louis Garrison (TAMU)
Katsui Kāminuma
Yngve Kristoffersen
Roger Larson (PCOM)
Lucien LeClaire
John Mutter (LITHP)
Nick Shackleton (SOHP)

Second Day Only

John LaBrecque
David Goldberg

The minutes of the last meeting, held at Bremerhaven 12-14 May, 1985, were approved.

The Chairman outlined the agenda for the meeting, noting that there was much to consider in the short time available, but that the most important business was to examine Leg 114 site survey data collected the previous month aboard Polar Duke. The Chairman welcomed David DeMaster and Martin Fisk to the Panel, and announced that Peter Barker had been appointed SOP Chairman from the end of the present meeting.

Louis Garrison presented the TAMU report:

(a) The drill ship was delayed in Lima for SEDCO to install a new steering motor, but this will not delay the start of Leg 113.

(b) The ice picket ship, Maersk Master will sail 25 November from Rotterdam for Punta Arenas.

(c) The crew change between Legs 113 and 114 at the Falkland Island (East Cove, not Port Stanley) will be carried out by charter aircraft, from and to either Miami or Houston. Of the two possible dates of arrival at the Falkland Islands, 9th and 13th March 1987, the 9th had been chosen. This would require the drill ship to arrive in East Cove on 8th March, terminating Leg 113 two days earlier than scheduled. The port call at the Falkland Islands was scheduled to be five days long, because of possible refuelling delays.

(d) The Maersk Master would be undertaking shallow sediment trap studies and magnetic survey during Leg 113, when ice picket duties permitted.

Mutter said that he had nothing to report from the Lithosphere Panel.

Larson reported on PCOM meetings since the last SOP meeting:

(a) PCOM had set up a Kerguelen/Prydz Bay Working Group comprising three members each from the Indian Ocean and Southern Ocean Panels (SOP Elliot, Ciesielski, Kennett for Anderson) to select sites for Legs 119 and 120. The WG had met for two days immediately before the SOP meeting and would report directly to PCOM. An informal report would be presented to SOP later in this meeting. The WG had been given a framework of two 60-day legs with intervening port call at Mauritius: drilling and inter-site transit times would be 45 and 40 days for the northern (119) and southern (120) legs.

(b) PCOM had discussed Legs 113 and 114. Leg 113 site priorities were W1, 2, 4 then 5, 7, 6, 8, 10. Leg 114 high priority sites were SA8, 2, 3, 5W. There need be no logging at W1, W2: logging W6 and 8 was desirable but not required. Leg 114 was required to spend up to 10 days on the South Orkney transect to complete W7 and (if it wished) other sites.

Shackleton reported on the recent SOHP meeting at Ann Arbor. LaBrecque and Ciesielski had attended to present the results of Leg 114 site survey. SOHP had recommended that Leg 114 should be extended by nine days. In the Leg 114 context, SOHP ranked the complete set SA8, 2, 3, 5W higher than W7 to be drilled during Leg 114. It was recommended that Leg 114 should not be required to return to Leg 113 sites. SOHP then split 6-6 on ranking W5 with respect to W6-8.

Barker reported that PPSP had approved Leg 113 sites as proposed, with minor exceptions (W7 had been approved to within 50 m of a BSR, W8 had been moved slightly, W10 had been approved only to APC refusal or 200 m, whichever came first). Leg 114 sites were likely to be reviewed by mail. Larson reported that PPSP had raised no objections during an initial presentation of the Prydz Bay sites.

Ciesielski argued that Leg 114 should not be required to drill W7. To do so used up 9.1 days when the differences in passage time were included. To drill 4 sites, 49.2 days would be required. If W7 were not included, only 36.7 days would be available: if it were, only 27.6 days would be available. Surprise was expressed that the drilling time estimates were so much higher than those originally calculated. It was decided to discuss the time allocation further once the site survey data had been examined.

The Chairman drew the Panel's attention to the early April date for the USSAC South Atlantic workshop at Woods Hole, which will coincide with Leg 114 drilling. Legs 113 and 114 were the only South Atlantic legs to be drilled in the past six years. Leg 114 drilling results would be of value to the Workshop and Leg 114 scientists would have a legitimate interest in attending. For these reasons and at the Panel's request, Chairman would write to the organizer (Dr. J. Austin, UT) requesting that the workshop be delayed until late May.

General discussion followed of the report of the South Pacific WG and of COSOD 2. COSOD 2 will take place in Strasbourg in July. Five working groups have been set up, to prepare draft documents to guide discussion. Their themes are (Chairmen in parenthesis).

1. Global environmental changes (Imbrie); 2. Mantle-crust interaction (Walker or Langmuir); 3. Fluid circulation and global chemical budgets (Westbrook); 4. Brittle and ductile deformation (Nicholas); 5. Evolution and extinction of biota (Thierstein). Attendance will be limited to 350, probably allocated 150 USA, 30 per non-US country plus 20 external individuals.

Pacific drilling will start late in 1988 and time has been allocated provisionally for nine West Pacific legs followed by nine Central and E. Pacific legs. Beyond this, plans are deliberately left

vague, so that COSOD 2 recommendations can be responded to. Drilling in the South Pacific could perhaps compete for the nine "Central and E. Pacific" legs or could become a way of extending Pacific drilling beyond late 1991. Members were reminded that at the Bremerhaven SOP meeting we were told by the PCOM representative that it might be possible to exit the Indian Ocean south of Australia. The Panel had then strongly endorsed a preliminary proposal for Ross Sea Drilling and had recommended the merger of four proposals for drilling in the Australian-Antarctic region. A revised Ross Sea proposal had now been circulated for review, but nothing had been heard of the proposed merger. Why not? Proponents would be telephoned.

The place of the S. Pacific workshop proposals was discussed further. Ciesielski, the Convenor, mentioned that 30 copies deposited with USSAC, but had not been distributed, even to Thematic Panel Chairmen. How then could review take place? In particular, could any proposals therein be considered, along with the Ross Sea proposal and possibly the Australian-Antarctic composite, for a southern exit from the Indian Ocean in late 1988? One particularly strong candidate was the north-south transect along the Pacific-Antarctic /Ridge flank, designed to examine the development of latitudinal thermal gradients and the Antarctic Circumpolar Current. A proposal to NSF for site survey for this venture (and for other Pacific proposals) would have to meet a 1 February 1987 submission deadline. Further discussion would take place later in the meeting.

Elliot described the conclusions of the Kerguelen-Prydz Bay Working Group. The main scientific objectives were:

(1) A paleo-latitude and paleo-depth transect south of the present Polar Front.
(2) Kerguelen origin and evolution.

Areas are:

(1) N. Kerguelen
(2) Central Kerguelen
(3) Prydz Bay
(4) S. Kerguelen

Sites in each area were:

Area	Site	Drill depth	Time	Main Targets
N. Kerguelen	KPH 1	910	7	Neogene
	KPH 3/4	1670	18	Pal, K, Basement - Re-entry
C. Kerguelen	SKP 2	700	6	Thick Neogene
	SKP 3	1300	15	Thin N, Pal, K - Re-entry
	SKP 4a	400	5	Thin Neogene, basement
Prydz Bay	K1 to K4	500 each	5 each	Probably Cretaceous-Neogene
S. Kerguelen	SKP 6A	500	5	?Cenozoic, Basement
	SKP 8	500	6	(or alternate)

In approximate thematic terms KPH 3/4, SKP 3, SKP 4a and SKP 6a cover Kerguelen evolution, the remainder are paleoceanographic. Not all of the dipping Prydz Bay sequence can be drilled, if realistic velocities are used to interpret the reflection profile. The depth transect, originally comprising SKP 5, 6A and 8 in S. Kerguelen should ideally be relocated in the Central region since the sections at these sites are so thin that most of the Neogene could be missing. SKP 6A should be retained in a valuable basement site. It is important that the depth transect is retained and a specific time allowance made.

Exact locations of all sites cannot yet be made, pending re-examination of certain reflection profiles, and completed processing of others. The working group stressed the importance of completing the processing of the remaining French lines in time for an April SOP meeting. It was important also to process three or four of the Australian lines from Prydz Bay, to include deconvolution, better equalization and balance, and more velocity analyses. Because of staff shortages, the Australian Bureau of Mineral Resources will need either US $20k or a lesser amount and a visiting assistant (familiar with DISCO) to assist in the processing. Processing outside BMR is not possible. The possibility of using the USSAC scholarship scheme was mentioned. The SOP requested a copy of the formal report of the WG.

The following list of possible co-chief scientists for Legs 119 and 120 was proposed:

Leg 119 - Schlich, LeClaire, Mutter, Webb, Hsu, Krashenninikov, Barron, Keller.
Leg 120 - Hinz, LeClaire, Segawa, Hayes, Mutter, Anderson, Webb, Barron, Elverhoi, Krashenninikov.

The Panel then examined proposed 244/C for drilling in the Victoria Land Basin of the Ross Sea.

The stated objectives of drilling are to understand:

(a) The history of early (Mid-Jurassic?) rifting between East and West Antarctica;

(b) The early (pre-15 Ma) history of East Antarctic glaciation and;

(c) The reflection over the past 15 Ma between the extent of Antarctic ice cover and global sea level changes;

(d) The mode of formation of prograding deltaic wedges in a glacial environment.

The Panel considered the first three of these objectives much more important than the fourth, which had been worked on also in high northern latitudes. The first was important to constrain models of Gondwanaland break-up. The second and third formed the southern end of a third north-south transect away from Antarctica. In addition, the Panel foresaw a contribution from Ross Sea drilling towards understanding Paleogene and Late Cretaceous paleobiogeography. After discussion, Elliot proposed that the Panel strongly endorse Ross Sea drilling. Seconded by Barker and approved unanimously.

The other component of the north-south transect mentioned above is contained in preliminary form within the report of the USSAC workshop on Pacific drilling. The Panel discussed how this could be promoted. It is essentially a transect to examine Cenozoic development of the latitudinal thermal gradient, water mass evolution and north-south migration of the Polar Front in the optimal location (i.e. away from zonal ridge topography and bottom scour zones) and is highly considered. It would be necessary to organize site survey, ideally by constructing a proposal for the 1 February 1987 NSF deadline. This matter should be drawn to the attention of SSP, and CEPAC should be added to the list of ODP panels reviewing the workshop report.

LaBrecque described Leg 114 and recent survey of Sites SA2, 3, 5 and 6. The highest priority sites are SA5W, 2, 3 and 8. SA7 and 8 are not yet surveyed: SA6 is a substitute for SA8.

The main objectives are:

(a) Early Cenozoic S. Atlantic gateway (SA2, 3, 8).

(b) Neogene N-S ACC transect (with DSDP S13, S14) (SA2, 3).
(c) Tectonic evolution of Malvinas Plate (SA5W).
(d) Aseismic ridge basement geochemistry (SA8, ?SA5W).
(e) Late Cretaceous to Recent Subantarctic intermediate water mass evolution (SA5W, 8).

Thus, objectives and sites do not correspond one-to-one.

Initial sediment thicknesses and drill time estimates for optimal sites are:

SA5W	NE Georgia Rise depth 1850 m, sediments 800 m, time 11.4 days
SA3	depth 4600 m, sediments 600 m, time 13.1 days
SA2	depth 4000 m, sediments 700 m, time 13.9 days
SA6	Islas Orcadas Rise depth 3240 m, sediments 800 m, time 13.4 days

All estimates include double APC, 7 hours heatflow plus ST, 50 m basement, 36 hours for logging. Assuming a 56 day leg and 22.8 days passage at 10 knts, 33.2 days are available for drilling, while the list above totals 51.8 days.

Although SA6 is likely to be a longer hole than the as-yet unsurveyed W8, a major shortage of time is clear. Further, if Leg 114 has to drill W7 a further 9 days sub-Antarctic drilling are lost. After discussion it was proposed by Elliot that the SOP ask PCOM to withdraw the obligation placed on Leg 114 to drill W7 if not drilled by Leg 113. Seconded by Kristoffersen, passed 12-0 with 1 abstentia. After related discussion of the importance of Leg 113 objectives, it was proposed by Fuetterer that PCOM should request that TAMU retain the 65 day length of Leg 113, in particular by changing the charter date from 9 to 13 March so that Leg 113 is not required to end two days earlier than originally planned. Seconded by Barker, passed unanimously.

Further discussion of what should be done for Leg 114 drilling resolved that the site survey data should be examined for alternate sites with thinner sedimentary sections, and that some activities (some double APC, heatflow and ST, some logging, some basement) should be removed, to arrive at a leg plan which fitted the time available. This would compromise some of the science, which should then be presented to PCOM as a time-costed list of objectives in support of an application to extend Leg 114. The suggested optimal and reduced sections are:

Site	Sediment Thickness	Time on Profile	Comment
SA5 optimal	800 m	0815 15 Sept.	
		or 0145 15 Sept.	
reduced	500 m	1100 15 Sept.	loses Neogene
SA3 optimal	600 m	0400 30 Aug.	
		or 1310 27 Aug.	
reduced	500 m	0120 30 Aug.	thinner section
SA2 optimal	700 m	1050 5 Sept.	
reduced	550 m	0640 9 Sept.	thinner section
or	550 m	1800 5 Sept.	lose basal sediments
SA6 optimal	800 m	0730 3 Sept.	
		or 0830 2 Sept.	
reduced	500 m	0600 3 Sept.	loses Neogene

The drilling of thinner sections at SA2 and SA3, the deeper sites, were not considered to be overly detrimental, but the potential loss of the Neogene sections at SA5 and SA6, the shallow sites, was considered important.

Other reductions were:

(a) Omit heatflow and ST at all sites.
(b) Reduce basement drilling at deeper sites to a total (for SA2 and 3) of 20 hours.
(c) Omit logging at SA2 and SA3.
(d) Omit second APC at two sites.

These changes reduce drilling time estimates to within a day of the time available. Since SA8, unsurveyed as yet, seems likely to require less time than SA6, this was considered close enough for planning purposes. Additional time would be needed to carry out the original aims of the leg, as follows (priority order):

(a) Neogene at shallow sites	3 days for SA6 2 days for SA5
(b) Log SA2 and SA3	3 days

This analysis is more precisely based than the earlier SOHP proposal. Leg 114 should be given a further 9 days to achieve these important objectives. The proposal to ask PCOM for more time for Leg 114 was supported unanimously.

The next PCOM meeting, in January, is scheduled to include annual reports by Panel Chairman. Neither Barker nor Kennett will be able to attend (being at sea on Leg 113). PCOM will be asked to invite either Ciesielski or Bornhold to this meeting. The most important aspects of SOP concerns, which PCOM needs to be informed of at that meeting are:

(a) The South Pacific workshop report contains quality science which the Panel will wish to promote strongly in the near future.

(b) The Ross Sea proposal is highly regarded and should be considered by PCOM for drilling during a southerly exit from the Indian Ocean late in 1988. Also see below.

(c) Leg 114 needs a time extension.

(d) The two Kerguelen legs (to be reported on by Prell) should include a depth transect: French and Australian MCS processing should be encouraged (the latter with US $20k is possible).

The next SOP meeting should occur before the first post January PCOM meeting. This may mean it has to be held before Leg 114 is completed.

Panel membership rotation should continue. LaBrecque proposes to rotate off and proposed Steve Cande of Lamont is a replacement. As this appeared acceptable to the Panel, it would be proposed to PCOM.

The previous day's enquiries about the fate of the SOP's suggestion that four proposals south of Australia should be amalgamated brought disturbing news. One of the proponents had offered to amalgamate the proposals, but had also consulted ODP and other individuals and had been told that the prospects of drill ship passage south of Australia in late 1988 were very low. Therefore, he did not proceed. The Panel feels that the element of self-fulfilling prophecy in such opinions makes it improper that they should be passed before proposals have been reviewed. This should be brought to PCOM's attention together with some kind of description of the science of the proposals (perhaps the letter sent by SOP to the original proponents and/or the minutes of the Bremerhaven SOP meeting). In this form they could perhaps be considered with the Ross Sea proposal.

WESTERN PACIFIC REGIONAL PANEL
13-15 December 1986
Stanford University, California

EXECUTIVE SUMMARY OF MEETING MINUTES

Attendance

B.Taylor, M.Audley-Charles, J.Gill, R.Hyndman, J.Ingle, D.Jongsma, J.Natland, C.Rangin, J.Recy, H.Schluter, S.Scott, E.Silver, K.Tamaki, D.Hayes (PCOM), N.Pisias (PCOM), J.Hawkins (LITHP), R.Sarg (SOHP), D.Howell (TECP), A.Mauffret (SSP), A.Meyer (TAMU), R.Jarrard (LDGO), C.Moss (JOIDES Office)

PCOM Report

PCOM is generally pleased with the WPAC program. N.Pisias emphasized the importance of thematic justification for programs considered by the panel and encouraged the consideration of programs which can be coordinated with CEPAC programs. A nine leg drilling program can be viewed as a guideline and PCOM needs to know what programs are considered important, what these programs represent in time, and what scientific objectives will be lost when cuts are made. It is also important to define any special technology problems or requirements which will impact the FY88 budget and planning process. Such requirements should be presented to the PCOM for their consideration at their January 1987 meeting.

TECP Report

D.Howell reported that at its last meeting TECP prioritized western pacific programs in the following order:

1. Bonin transect
2. Nankai Trough
3. Japan Sea
4. Bonin-Marianas
5. Banda-Sulu-South China Basins
6. Vanuatu
7. Nankai physical properties (1/2 leg)
7. Lau Basin
8. Sunda backthrusting

Other programs of interest included a South China Sea margin, Zenisu Ridge, a second Vanuatu program, and a Bonin reference site.

The three primary thematic objectives TECP would like to address are:

1. Arc processes
2. Back-arc rifting
3. Collisional processes

LITHP Report

J.Hawkins reported that LITHP focused primarily on the problems of crustal generation, aging and recycling and then prioritized the programs which best addressed those issues. LITHP top priority programs are:

1. Bonins
2. Lau Basin system
3. Sea of Japan

Also considered to be of importance is the issue of reference sites and a large latitudinal/longitudinal coverage.

SOHP Report

R.Sarg reported that the top priority programs of the SOHP are:

1. Great Barrier Reef
2. Japan Sea
3. South China Sea Basin
4. Sulu Sea
5. Bonin site 6

DMP Report

R.Hyndman, who attended the last DMP meeting as a special WPAC liaison, reported that the DMP was enthusiastic about the Nankai physical properties "mini leg" and the long-term recording (re-entry) holes near Japan. Individual programs were not ranked by the DMP.

SSP Report

A.Mauffret reported that the SSP has now assigned watchdogs for each of the WPAC programs currently under consideration. Standards for site survey summaries have been revised and will appear in the next JOIDES Journal.

ODP/TAMU Report

A.Meyer reported on the results from Legs 110-112, and reviewed planning progress for Legs 113 and 114.

Program Revisions/New Proposals

J.Gill reported on progress of the Lau Basin ad hoc working group. The group has identified the primary thematic objectives in this region as:

1. petrologic evolution of the basin
2. dynamics of arc rifting and backarc basin formation
3. ValuFa: evolution of a differentiated axial volcano
4. relationship between magmatism, regional tectonics and hydrothermal processes
5. forearc tectonic history
6. transect study of heat and fluid flow

The ad hoc group has reached a concensus that sites 1-6 are the most important in addressing these objectives. New information received since the groups last meeting now indicates that site 7 should be substituted for site 5.

R.Sarg reviewed revisions made to the Great Barrier Reef (GBR) program. SOHP considered this program in great detail and has recommended that sites 1-6, 9 and 10 represent the minimum program to adequately address the thematic problems of the area. They also recommend that site 2 be extended to a depth of 1000 m.

S.Scott reviewed a new proposal for drilling in the Woodlark Basin. The panel agreed that the proposal needs a good deal of additional background information, as well as site survey data, before it can be considered in detail.

H.Schluter and C.Rangin reviewed sites and objectives for the Sulu Sea transect. In response to SOHP recommendations a new objective of obtaining a complete sedimentary sequence has been included in the program. Other program objectives include: history of deformation, sedimentary sequence in an anoxic basin and back arc processes. Highest priority sites are S5, S4, and S2.

K.Tamaki reviewed a new proposal for drilling the Ogasawara Plateau. Main program objectives include: paleo-oceanographic questions, origin of the seamount chain, and plateau collision processes. The panel agreed that before this proposal can be considered in detail it should be reviewed by the CEPAC, TECP and SOHP panels. In addition it was recommended that the proponents be asked to submit additional data which would allow the identification of specific sites.

K.Tamaki reviewed two proposals for the Japan Sea program. The first proposal includes new site survey data relevant to sites on the Korean rise and in the Tsushima Basin. KP-1 is a viable alternative to JS2 but VB-1 is on rise-basin transition, not in the basin proper. It was felt that objectives of the second proposal could be met by the existing prospectus sites.

K.Tamaki reviewed a new proposal for drilling in the Kuril forearc. Primary objectives of this program are arc-arc collision/junction processes and shifting of plate boundaries. The panel recommended that a response to the proponents should include a request for more detailed seismic and site survey data and the inclusion of some sort of reference site.

J.Natland reviewed a proposal for old Pacific reference site drilling which would encompass both WPAC and CEPAC regions. D.Howell and J.Hawkins responded that both TECP and LITHP would be interested in reviewing this program in detail. The WPAC panel agreed that this proposal should be included in future scheduling and priority discussions and that it appears to be a good cross-over package between WPAC and CEPAC regions.

R.Hyndman reviewed two proposals for evaluation of physical

properties in the Japan Trench area. The first proposed the establishment of a long-term downhole recording "observatory" to monitor earthquake cycles and the nature of deformation processes. This is currently an immature proposal which would be most appropriately reviewed by the DMP before further WPAC consideration. The second proposal addresses geotechnical evaluation of convergent zone processes including decollement penetration, deformation processes, and constraints on physical properties and fluid models. The panel agreed that a "mini leg" to address this program should be included in the ranking process and that technology developments would also have to be considered.

J.Recy and C.Rangin reviewed revisions to the Vanuatu program. The primary objective is to investigate arc-ridge collision, specificially:

1. reference sites on the colliding ridge and guyot.
2. the composition and vertical tectonics of the narrow forearc.
3. the tilting and folding of the adjacent intra-arc basin
4. the rifting of the arc along strike.

Sites of highest priority are two forearc pairs (DEZ 2-3 and DEZ 4-5) and two intra-arc basin sites (1AB1 & 2) and one back-arc site (BAT-2). Additional site surveys will be conducted next year and relocation of some sites may be appropriate at that time.

D.Hayes presented revisions to the South China Margin proposal in response to a previous WPAC request. Specific sites and objectives were reviewed and a general discussion of the proposed model followed. The panel agreed that this proposal includes a well stated problem, a good data set and the support of at least one thematic panel (SOHP), and should be included in the ranking process.

Program Evaluation

After discussing specific time requirements of each program panel members voted on the relative priorities of each program (several programs will require more than 1 leg to drill). Program proponents were not allowed to vote for their programs and the resulting priority list is as follows:

1. Banda-Sulu-South China Sea Basins
2. Bonin I
3. Lau Basin
4. Vanuatu
5. Japan Sea
6. Nankai
7. Great Barrier Reef
8. Sunda
9. Bonin II
10. Nankai Geotechnical "mini leg"
11. South China Sea Margin
12. Zenisu Ridge

A table which indicates specific drill sites and time estimates is attached. The panel will update its prospectus to reflect the above

priorities prior to its next meeting. A revised prospectus will be made available for PCOM consideration at their spring 1987 meeting.

Engineering Developments

The panel agreed that the following engineering developments should be presented to PCOM for their consideration in the FY88 budget planning process (not in order of priority):

1. Navi-drill adaption to APC/XCB
2. Tools for Nankai Geotechnical program
3. Side entry sub
4. drill stem packer operation
5. capability of drilling coarse unconsolidated turbidites
6. recovery of fractured volcanic rocks

1987 Meeting Schedule

The 1987 WPAC meeting schedule will be as follows:

2-4 March 1987, Tokyo, Japan or Noumea, New Caledonia
1-3 June 1987, Sidney, British Columbia or Corvallis, Oregon
2-4 November 1987, London or Bali

Membership Rotation

E.Silver will be rotating off the panel after this meeting. The panel thanked him for his service and wished him luck in his future endeavors. Nominations for his replacement are G.Moore and N.Lundberg. After the March 1987 meeting J.Ingle will rotate off the panel. Nominations for his replacement are B.Thunell and J.Barron. After June 1987 J.Recy will rotate off as the western pacific at-large representative. Nominations for his replacement are D.Tiffan and J.Danielle.

There being no further business the meeting was adjourned.

WPAC Program Priorities and Estimated Time Schedule

Priority / Program	Days Drilling	Days Logging	Special Experiments	Min. Transit	Total Days
1. Banda-Sulu-SCS Margin	62	11	--	10	83
2. Bonin I (1,2,5ab,6)	66	9	--	4	79
3. Lau Basin	48-50	6	1	3	58-60
4. Vanuatu	62	10	--	4	76
5. Japan Sea	53	11	3-5	5	72-74
6. Nankai	34-42	5	--	5	44-52
7. Great Barrier Reef	42-50	8-10	--	4	54-64
8. Sunda	39	11	--	5	55
9. Bonin II	29	5	--	6	40
10. Nankai Geotechnical	(23-25)		5	2	30-32
11. SCS Margin	43-58	7	--	4	54-69
12. Zenisu Ridge	19-20	6	1	2	28-29

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November 25, 1986

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To: Members, CEPAC Panel

Earl Davis
Martin Flower
Jean Francheteau
Hugh Jenkyns
Jacqueline Mammerickx
Hakuyu Okada
Connie Sanchetta
David Scholl
Hans Schrader
Bill Sliter
Ulrich von Stackelberg

: Liaison Members, CEPAC Panel

Rodey Batiza (LITH)
Dick Buffler (NSF)
John Peirce (SSP)
Nicklas Pisias (PCOM)
Robin Riddihough (TECP)
Tsunemasa Saito (SOHP)
Tom Shipley (PCOM)
Elliot Taylor (ODP)

From: S. O. Schlanger, Chairman

Subjects:

A) Next meeting, considerations and timing

B) Preparation for Panel Chair/PCOM meeting
Hawaii, Jan. 18-20, 1987

C) New proposals

D) Information on COSOD-II

E) Minutes of CEPAC meeting at Ann Arbor, MI,
October 20-22, 1986

A) Next meeting of CEPAC Panel

Prior to our meeting at Ann Arbor there was a tentative agreement to hold a joint meeting with the LITH Panel in London, U.K. on Jan. 6-7, 1987. **However**, discussion at the meeting led to the idea that a joint meeting with TECP would be more fruitful and we thought to meet with TECP in La Jolla on Jan. 12-14. **But** D. Scholl reports that at the TECP meeting on October 29-31, 1986 in Ottawa, Canada TECP came to the following conclusions:

1) TECP endorses a joint meeting with CEPAC but TECP is not sure that it would be useful for the 2 full panels to meet; perhaps small working groups could meet. (I will explore their concept further at the Panel Chair/PCOM meeting in Hawaii in January 1987).
2) A joint meeting should be postponed until after the TECP White Paper is prepared. TECP is preparing this White Paper and an executive summary explaining the ranking of thematic objectives. Both of these documents will be available to CEPAC by the end of 1986.
3) TECP believes the proposed January 1987 joint meeting with CEPAC is too soon for TECP.
4) The next TECP meeting will be in North America in early May 1987.

Therefore, we will **not** meet with LITH in London **nor** will we meet with TECP in La Jolla in January 1987. The time and place of our next meeting now needs to be set. Obviously we cannot wait until July 1987 to meet in Strasbourg so we might consider a meeting in conjunction with TECP in May 1987, or we can meet alone in early 1987. After we see the White Paper from both TECP and LITHP we will have better guidance. Also after the PCOM meeting in Hawaii in January 1987 we will have a better understanding of other panel objectives.

B) Preparation for the Panel Chair/PCOM meeting in Hawaii

Based on CEPAC deliberations through our Ann Arbor meeting I will prepare a position paper for PCOM, and other panels, as soon as possible so that I can get input from you to include in plans to be presented in Hawaii. My understanding at this time is the PCOM has not determined that CEPAC is restricted to a 9-leg program and that EPR drilling should not be a burden on CEPAC plans.

C) New proposals

New proposals are coming to me, including the Old Pacific now numbered as 262. I will be duplicating and distributing these as soon as possible.

D) Information on COSOD-II

During our discussion on the structure of COSOD-II I am afraid that I was overly enthusiastic about the potential size of the meeting. I apologize for any misinformation. Below are some excerpts from the COSOD-II Steering Committee meeting held in Strasbourg September 30-October 2, 1986 and the notice of the meeting.

COSOD-II Schedule

1) Conference advertised by December 1986

2) Applications received until February 15, 1987

3) Chairmen choice of participants made by April 1st, 1987

4) Position paper ready to send to workshop participants by June 1st, 1987

5) Conference on July 6-8 in Strasbourg

6) Working groups and Steering Committee meeting on July 9-10 in Strasbourg

7) Revised position paper ready for October 1st, 1987

8) Final report printed by December 31, 1987.

Format for COSOD II conference, participation and publicity

The conference will begin with a half-day general session including technological presentations as well as short workshop chairman presentations. The next four half-days will consist of parallel workshop sessions. The last half-day will be a general report session.

The conference will be closed and limited to 350 participants. The quota will be 150 for US, 30 for each of the non-US ODP members, 20 for non-ODP countries.

The Secretariat of the Steering Committee in Paris will receive all applications and then immediately dispatch one copy to the chairman of the working group chosen as No 1 by the scientist and one copy to the Steering Committee member of the corresponding nationality (for the US, the national representative will be Casey Moore).

The task of the working group chairman is to obtain a proper scientific balance in the workshop. He will be in direct contact with the national representative who will keep track of the proper ODP members balance. As an average, each workshop should have 30 US scientists, 6 other scientists for each of the non-US ODP members and 4 non-ODP members scientists. However, compensations could be established between workshops.

A statement (see attached Public Statement) is being sent immediately as publicity to EOS, Nature, Geotimes, Geological Society of London. Members of the Steering Committee should contact directly their National ODP Committee and possible national scientific journals for further diffusion of this statement.

COSOD-II: Public Announcement

SECOND CONFERENCE ON SCIENTIFIC OCEAN DRILLING (COSOD II)

The future of ocean drilling will be discussed at the COSOD II meeting to be held in Strasbourg, France between 6-8 July 1987. This meeting will set up the scientific framework for ocean drilling until about 1996. A wide range of advice, from both within and outside the traditional oceanic community, will be sought. Five working groups will prepare prior position papers on Global Environmental Changes, Mantle-Crust Interactions, Fluid Circulation in Crust and Sediments and Global Chemical budgets, Brittle and Ductile Deformation of the Lithosphere and Evolution and Extinction of Oceanic Biota. Since space at the conference will be limited, applications are invited from all interested scientists, which should be sent to Philippe Huchon, Executive Secretary, COSOD II, Département de Géologie, Ecole Normale Supérieure, 24 rue Lhomond 75231 Paris Cedex 05, France (Phone 33.1.43.31.84.88 - Telex 202 601 F NORM SUP).Please indicate in your letter the first and second working group topics with which you would wish to be associated, together with a short statement of the expertise that you can contribute to the discussion. Scientists from countries already members of JOIDES may obtain support from their national funding agencies. Closing date for applications is February 1st 1987.

E) Minutes of CEPAC Meeting, Ann Arbor, Michigan, October 20-22, 1986

The meeting was called to order at 8:30 a.m., October 20, 1986. CEPAC members attending were:

Earl Davis
Jean Francheteau
Martin Flower
Hugh Jenkyns
Jacqueline Mammerickx
Hisatake Okada (in place of Hakuyu Okada)
Connie Sancetta
David Scholl
Bill Sliter
Ulrich von Stackelberg
S. O. Schlanger, Chairman

Other participants were (all or part time):

Rodey Batiza (LITH)
Dick Buffler (NSF)
Dave Rea (NSF)
Robin Riddihough (TECP)
Tom Shipley (PCOM)
Elliot Taylor (ODP)
Tsunemasa Saito (SOHP)

New members and chairman were introduced. The hosts of the meetings, P. Myers and D. Rea, were thanked, and the minutes of the PGC meeting of June 9-10, 1986 were discussed and accepted.

Liaison and Workshop Reports

A) PCOM — Tom Shipley

1) The CEPAC drilling program is still considered by PCOM as open insofar as the time needed to carry out a balanced scientific program is concerned; a 9-leg program is not a fixed limit.

2) At PCOM's next meeting (mid-January, Hawaii), it is important that CEPAC present the content and rationale for our drilling plan.

3) EPR barerock drilling is still a problem for technical reasons. The assignment of 3 EPR legs to the CEPAC program is still a matter for discussion. Jean Francheteau noted that three successful legs are needed to properly do the 13 ° N drilling proposed for the EPR.

4) PCOM is interested, for ship travel time considerations, in the integration of WPAC and CEPAC scheduling. This subject will be discussed at the PCOM meeting in Hawaii.

5) Some PCOM members were disturbed that CEPAC has rather "early" ranked certain proposals low—presumably because we still did not have full guidance from the thematic panels (?).

B) ODP — Elliot Taylor

1) Leg 110 at Barbados successfully penetrated decollement at several sites, and went 15 m or so beneath it. Decollement is zone of scaley shale, below which methane and low chloride fluids are flowing seaward to reference hole. No particular problem penetrating decollement.

2) On Leg 111, site 504 was deepened by about 150 m. A bit was left in hole. Logging went well with some high temperature problems. At least 500 m more to go to reach gabbro (layer 3); drilling ended in sheeted dikes.

3) At an HPC site located over a high flow station only spot coring (rather than continuous HPC) was carried out— this circumstance did not satisfy CEPAC.

4) The start of Peru drilling (Leg 112) was delayed owing to rudder trouble. Shallow-water (150 m) drilling will be attempted.

5) Legs 101 and 102 (joint volume) are at the publishers. ODP's editorial staff is not up to speed.

6) CEPAC panel requested that more effort be devoted to improve hardrock drilling (hole stability, drilling rate increase) and sample recovery. New techniques, using mining industry technology, are being worked on.

C) TECP — Robin Riddihough

1) The next meeting of TECP will be at Ottawa, October 29-31, 1986. D. Scholl will attend.

2) Guidance for CEPAC will come from White Paper being prepared by TECP for CEPAC. The top four thematic priorities of TECP are presently:

i) dating oceanic crust
ii) hotspots and guyots
iii) lithosphere flexure
iv) oceanic plateaus

Other objectives of interest, but not yet ranked, include clastic accretionary wedges and transform fault margins as previously outlined in the CEPAC minutes of the PGC meeting.

D) LITH — Rodey Batiza

1) Reports on Legs 105 and 103 will contain information on spreading ridge spud in and hardrock recovery. Hole stability has improved recovery. ODP-TAMU is actively working on entire hardrock drilling and recovery matter.

2) Young crust drilling is still top priority of LITH.

3) For WPAC drilling, LITH recommends a reference hole on the Pacific plate seaward of the trench to determine what sort of igneous and sedimentary debris is entering subduction zone. This hole is to be at least 500 m deep.

4) LITH's eight thematic objectives remain—as roughly prioritized:

i) magmatic and hydrothermal processes at mid-ocean spreading ridges
ii) deeper studies of oceanic crust and upper mantle
iii) lithospheric flexure and rheology
iv) intraplate volcanism
v) plateaus, origin of crust
vi) crustal and lithosphere aging
vii) mantle heterogeneity
viii) global geochemical flux

LITH is preparing a White Paper for CEPAC guidance; it will be finished by end of the year.

E) SOHP — T. Saito

1) SOHP is still not deeply into considerations of Pacific drilling; panel activity is concentrating on Antarctic, Indian Ocean, and WESTPAC problems.

2) SOHP's global objectives remain as outlined in the CEPAC minutes for the PGC meeting. These are (roughly):

i) high-latitude Mesozoic and Cenozoic sections
ii) low-latitude section, e.g., Ontong Java
iii) Old Pacific
iv) guyots and atoll sections.

3) There exists particular interest in acquiring complete Neogene sections of high and low latitude regions.

F) NSF — Dave Rea

1) Dick Buffler is now in charge of the ODP office.

2) The USSR will join ODP in January definitely.

3) NSF's ODP budget will stay effectively the same: about $35 million.

4) With the Soviets joining in, we expect that funds for engineering studies will be available to solve sampling problems.

5) PCOM needs CEPAC's program description by their next (January) meeting.

6) Multichannel cruises (6-7) are being funded to help site selection and problem identification in WESTPAC. Probably at least as many cruises will be funded (FY 88) for ODP related studies in the CEPAC region.

G) COSOD-II — Dave Rea and Sy Schlanger (see attached material on COSOD-II as Item D)

1) ESF will host COSOD-II, July 6-7, 1987, Strasbourg, France.

2) ~350 people will attend with a national balance maintained.

3) Five thematic groups have been identified:

i) global environmental changes
ii) mantle-crust interactions
iii) brittle-ductile deformation of lithosphere
iv) fluid circulation and global chemical budget
v) evolution and extinction of oceanic biota.

4) Five working groups will organize the workshops and prepare position papers as discussion documents; working groups are being organized now.

5) Other drilling vessels should come into ODP fleet. The COSOD-II steering committee is exploring possible use of a ship dedicated to HPC drilling and a leased ship for long-term drilling at one deep site.

Workshop Reports

A) Physical Properties — Dave Scholl

1) The report of the workshop emphasized that better and more seriously attended to procedures were needed for measurement of physical properties and the collection, storage and subsequent lab studies of samples.

2) In certain areas special physical-property holes ought to be drilled.

3) Data archives are needed.

B) Gulf of California — Jacqueline Mammerickx

1) As a result of the Gulf of California workshop, a number of drilling objectives focusing on thematic issues will be submitted as preliminary drilling proposals to ODP.

2) In effect, the existing Gulf Proposal (75E) is moot.

3) Some major problems were located outside of gulf related to the rifting process.

4) Thematic matters of concern included:

i) rifting processes longitudinally up gulf
ii) structural evolution of passive margin
iii) general evolution of sedimentary sequences

Proposal Scoring and Ranking

A) Scoring and Initial Culling Procedures

.1) Based on guidance provided by thematic panels, the judgement of CEPAC members concerning the scientific importance of regional scientific problems, drilling proposals submitted to CEPAC are to be scored on a scale of 1-4: 1 is highest, 4 is lowest. For the purpose of concentrating the panel's deliberating efforts on the most favored drilling proposals and related drilling packages, scored proposals are to be grouped into the following action categories:

Score	Action Category
1.0-2.5	Accepted for further consideration as the thematic focus of a drilling site(s) or leg(s).
2.6-3.0	Accepted for further consideration if proponent(s) resubmit proposal with different or modified focus, documentation, or argumentation.
3.1-4.0	Proposal eliminated from further consideration as the rationale for scientific drilling.
	However, it is recognized that the drilling objectives of a weakly scored proposal may in fact be achieved during the course of drilling a highly scored proposal. Schlanger will discuss with Panel Chairs and PCOM procedures for informing people of the status of their drilling proposal.

2) The above action categories were agreed to by all members, with one abstention (Mammerickx)

B) Reconsidered Proposals

1) The proposals listed in the table below were discussed originally at the SIO meeting, but in absence of thematic guidance provided after the PANCHM meeting. For the purpose of consistency in scoring, the SIO proposals were reviewed and rescored. A designated panel member served as the discussion leader. At the completion of all discussions, each proposal was separately scored on a ballot listing all proposals. The scoring range was 1-4, with 1/2 step (0.5) scoring allowed. Thus any proposals could receive a vote of 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, or 4.0 from any voting panel member (11).

2) A panel member — whether voting or not, whether liaison or not — was asked to leave the room during discussion of a proposal for which he/she is a proponent. Voting members were instructed not to vote for any proposals they helped author.

Reconsidered Proposals

Proposal No.	Description	Score
3E	Hawaii flexure moat	2.23
8E	Chile Triple junction	2.93
37E	Costa Rica underplating	2.41
76E	13 ° N EPR	1.60
142E	Ontong Java, depth transect	2.04
153E	Late Neogene, SE Pacific paleo	2.55
182E	Sounder Ridge, Bering Sea evolution	2.50
192E	Baranof fan sed facies & tectonics	3.75
195E	Bering Sea paleoenvir	1.75
199E	Subarctic gyre, north Pacific	1.45
202E	Northern Marshalls, atoll/guyot pairs	1.80
203E	Central Pacific guyots	1.50
207E	Tectonic evolution Aleutian-Bering Sea	3.10
210E	Yakutat block, Gulf of Alaska	3.32
212E	North/Central Calif margin, Monterey fan	3.32
213E	Aleutian accretion process	2.60
214E	Aleutian forearc evolution	2.65

C) New Proposals

1) Following the procedures noted above, new proposals — those previously not placed before the panel and received after the PGC meeting in Sidney — were discussed and scored on a combined ballot. These new proposals are identified and scored below:

New Proposals

Proposal No.	Description	Score
234E	Aleutian convergence modelling	2.77
236E	Gulf of Alaska, Yakutat block	3.36
245E	California transform margin	3.61
248E	Ontong Java — deep basement	2.55
249E	Aleutian Trench sedimentation	3.04
250E	Navy Fan	2.68
253E	Black shales, Shatsky	1.78
258E	Galapagos Ridge stockwork	2.27

The Joint SOHP-CEPAC Meeting was held on the 21st. In response to the CEPAC request for SOHP themes, Larry Mayers reported SOHP's interest in the following:

i) low-high latitude transect
ii) Old Pacific
iii) atoll/guyot sections
iv) episodicity of global geochemical cycles
v) fans

In response to questions by the CEPAC panel the following were elicited:

1) Q: Is SOHP concerned with the effects on sediment of fluids circulating in accretionary wedges? A: Not greatly concerned, expertise does not exist on panel.

2) Q: Is SOHP interested in pure sedimentological studies, e.g., fan studies, trench sedimentation matters? A: Yes, but interest not terribly high.

3) Q: Is SOHP interested in drilling continental margins sections that reflect terrane movements and boundary current and productivity matters? A: Yes, but only if terrane did not move or something special recommends drilling.

4) Q: Is SOHP interested in south Pacific studies of some sort? A: Generally yes, but nothing specific at this time. However, evolution of south Pacific biota very important to understand.

5) Q: What kind of biozonation age control is generally possible, especially for the Hawaii area? A: Generally 10^6 years or better; could be as good as 10^5 years if proper bugs are preserved.

6) Q: Is SOHP doing a strat synthesis in the south Pacific region? A: No, and they have made no request for one.

Other SOHP matters

1) SOHP has requested solutions to sampling problems concerned with recovering limestone beds between chert layers, poorly consolidated sandstone, and gassy sediment. A functioning pressure core has also been requested of TAMU.

2) Also requested are ways of stabilizing hole conditions so that 2000-3000 m deep holes can be drilled.

3) Schlanger outlined that some of our top-rated proposals included:

i) Ontong Java
ii) Bering Sea paleoenvir
iii) subarctic gyre
iv) atoll and guyot sections
v) Shatsky black shales

4) Schlanger explained that the old Gulf of California proposal is somewhat moot, and that CEPAC is waiting for arrival of new proposals stemming from the GOC workshop.

CEPAC Drilling Packages

A) Revisions of Drilling Packages

1) It was agreed to place new proposals into appropriate, existing drilling packages (see minutes of PGC meeting), to combine certain packages into single ones, rename certain packages so as to logically include thematically or regionally related proposals, and to eliminate certain proposals from packages because they had been declared moot by their authors or considered inappropriate by CEPAC. The inclusion of drilling packages for which no proposals presently exist was declared acceptable by a majority vote. These changes are shown below:

2) The concept of a drilling package is sort of a "filing" system to topically group thematically or areally related drilling proposals. Ultimately, the drilling package allows for the identification of the main thematic focus(es) of a drilling leg and also other scientific benefits that can be achieved by drilling at a particular site. For the purpose of expressing the panel's interests in addressing a particular regional or thematic objective, a drilling package can be defined (opened) in absence of a drilling proposal (a majority vote confirmed this action).

CEPAC DRILLING PACKAGES (UNRANKED ORDER)
October, 1986

Package No.	Descriptive Title	Involved Proposals	Proponent and Description
1	Zero-age crust	76E:	Francheteau: barerock drilling, several L-shaped drilling patterns
		258E:	Embley; Galapagos Ridge stockwork
2	Bering paleoenvironment and tectonics	182E:	Taira; Kula plate stratigraphy, Sounder Ridge
		195E:	Sanchetta; Paleoenvir-climate, BS Cenozoic stratigraphy.
		207E:	Rubenstone; Aleutian-Bering Sea evolution
		229E:	Cooper; Tectonic history Beringian margin
		225E:	Origin Bering Sea, Sounder Ridge
3	Atolls and guyots	202E:	Schlanger; carbonate banks, guyots, northern Marshals
		203E:	Winterer; guyot drowning central Pacific.
4	Old Pacific, Jurassic and young volcanism and strat.		
5	North Pac paleoenvironment and plate reconstruction	199E:	Janecek; pelagic seds subarctic gyre
		253E:	Schlanger, Shatsky black shale
		231E:	Mammerickx, age determination superchron crust
6	Hawaii moat & flexure	3E:	Watts; loading of lith study
7	Chile 3-juncture & paleocean.	8E:	Cande; effects of collision Chile Ridge and margin
		153E:	Hays; Neog. hist. seaward of trench
8	Ontong-Java carbonates	142E:	Mayer; depth transect, CCD studies
		222E:	Kroenke;tectonics, petrology, geochem
		248E:	Ben Avraham; crustal origin
9	Gulf of California	75E:	Becker; comolete transects, & hydrothermal studies Guaymas Basin

Package N	Descriptive Title	Involved Proposals	Proponent and Description
10	Aleutian Ridge & Trench: convergence tectonics and sedimentation	213E:	McCarthy; Accretionary processes, high underthrust rates & sedimentation
		214E:	Ryan; Attachment accretionary wedge, how, when, and why
		227E:	Vallier; sinking & fragmentation of Aleutian Arc, when and causes.
		234E:	Von Huene; Alaska accretionary wedge modelling
		249E:	Underwood; Trench sedimentation
11	Costa Rica underplating	37E:	Shipley; accretionary processes test of duplex model
12	California margin, tectonics and sedimentation	212E:	Greene; evolution margin, when change subduction to transform, & fan evol.
		245E:	Howell; transform margin evolution and tectonic transition
		250E:	Underwood; Navy Fan
13	Gulf of Alaska	210E:	Armentrout; movement and emplacement h of Yakutat block, time of outbreak of glaciation, Gulf of Alaska drainages
		192E:	Stevenson; Baranof Fan, regional tect and sed implications
		241E:	Heller; Yakutat block, Zodiak Fan geochem of Paleogene sources
		236E:	Bruns; Yakutat block, sed. subduction
14	Equatorial Paleoenvironment	221E:	Pisias; Late Cenozoic equatorial paleoenvironment
15	Sedimented Juan de Fuca Ridge system	224E:	Lyle; Escanaba Trough, volcanic hist. sediment alteration studies
		232E:	Davis: Zero-age age high-temp alteration studies
16	Cascadia convergent (INPAC)	233E:	Kulm; fluid processes and structural evolution, Oregon margin
		237E:	Brandon; structural evolution of decollement at thickly sedimented margin
17	Northeast Pacific paleocean-environment (INPAC)	247E:	Rea; regional NE Pac paleocean-environ and boundary current hist.
18	South Pacific tectonics and sedimentation		

RANKING OF TOP-SCORED DRILLING PROPOSALS

A) All drilling proposals with a score less than 3.0 were ranked according to their score; this ranking is shown below:

Proposals with Scores less than 3.0

Proposal No.	Description	Score
232E	JdFuca middle valley, sedimented zero age crust	1.10
199E	North Pacific subarctic gyre, paleocean-environ.	1.45
203E	Guyots, central Pacific	1.50
222E	Ontong Java, sediment history, crustal origin	1.50
76E	13°N fast EPR spreading center	1.60
195E	Bering Sea Paleocean-environ	1.75
253E	Black shales, Shatsky Rise	1.78
202E	Marshals, guyots/atoll pairs	1.80
233E	Oregon accretionary processes	1.90
231E	North Pacific crustal reconstruction	1.90
142E	Ontong Java deoth traverse	2.04
3E	Hawaiian crustal flexure	2.23
237E	Vancouver margin, decollement zone	2.20
258E	Galapagos Ridge stockwork	2.27
37E	Costa Rica underplating	2.41
221E	Equatorial Pacific late Cenozoic paleocean-environ	2.50
182E	Sounder Ridge, test Bering Sea entrao origin	2.50
248E	Ontong Java deep crustal test	2.55
213E	Aleutian clastic wedge, rapid rate accretion	2.60
.4E	Aleutian forearc evolution, backstopping geometry	2.65
250E	Navy Fan lithofacies	2.68
225E	Sounder Ridge, tectonic evolution Bering Sea	2.70
234E	Alaska accretion-modelling	2.77
247E	Northeast Pacific paleocean-environ	2.90
8E	Chile triple junction, ridge-trench collision	2.93

RANKING OF DRILLING PACKAGES

A) Straw Vote

1) A straw vote was held to identify the most highly favored drilling packages, thus expressing the panel's consensus or collective judgement concerning the importance of addressing specific or general scientific objectives by offshore drilling in the CEPAC region.

2) For the straw vote, certain drilling packages were combined into more inclusive regional groupings, or divided to more clearly identify a thematic objective. As a consequence, the names of the drilling packages listed and voted on below do not exactly correspond to those listed in the table of drilling packages above. The list of packages for the straw vote includes all those that (1) contain drilling proposals with scores 2.5 and less, and (2) those requested by voting panel members as important topically or thematically to CEPAC drilling. These latter packages may or may not be supported by a received and scored drilling proposal.

3) For the purpose of clearly identifying only the top-rated

drilling packages, each panel member was allowed to select (vote for) only 7 packages. The list of packages voted on, and their tally, are shown below:

Drilling Package (no.)	Number of Votes Received (11 voting members)	Rank
Atolls and guyots (3)	11	1
North Pac.[1] paleocean. & plate (5) reconstruct.	10	2
Ontong Java general (8)	10	2
Zero-age barerock crust (1)	8	3
Sedimented zero-age crust JdFuca (15)	8	3
Old Pacific (E.Cret-Jur) (4)	7	4
Bering Sea paleocean-environ/tect (2)	6	5
Lith flexure (6)	3	6
Costa Rica underplating (11)	3	6
South Pacific tect-sed (18)	3	6
Gulf of California, tect-sed (9?)	3	6
Aleutian/Alaskan convergence/accret. (10)	2	7
Cascadia accretion/convergence (16)	1	8
Gulf of Alaska terranes	1	8
Equatorial Pac paleocean-environ (14)	0	
Sedimentary processes[2]	0	
Chile triple junction (7)	0	
California margin tect. (12)	0	

1 includes Northeast Pacific (INPAC) paleoenvironment proposal

2 separately identifies drilling objectives related to better understanding sedimentary processes, e.g. the Navy Fan and Aleutian Trench proposals, two proposals presently grouped in regionally-titled drilling packages

Other Business

A) Letter should be sent to PCOM expressing concern about needed improvements in sampling (core recovery). Schlanger to be supplied by words and thoughts by panel members, especially those concerned with hardrock recovery, chert problems, and sand problems.

B) CEPAC's SOHP liaison is to be Bill Sliter; Connie Sanchetta will serve as alternate.

C) Next CEPAC meeting was tentatively set for 12-14 January, at Scripps (Jacqueline as host). However, this meeting will not take place; see material on future meetings attached as Item A.

D) Next meeting should be joint meeting with TECP, if this can be arranged. Scholl will contact Cowan at coming TECP meeting in Ottawa concerning desire of CEPAC to meet jointly with TECP. See material attached concerning future meetings as Item A.

E) Summer meeting should be in France (Francheteau as host) just before COSOD-II. Possibly July 1-3. See Item A.

Summary:

TEDCOM meeting, College Station, 17-18 Sept.86

MEMBERSHIP:

resigned: Newsom (Sandia), Bingman (Shell)
replacement: Stanton (Exxon) replaces Gardner (Exxon)
proposed:- Wally Svenson (Longyear), mine drilling and hard rock bit specialist
-David Glocker (Sandia), poly-crystalline diamond bit and high temperature drilling specialist
(alternatively: Jans Kelsey)

ESF member: not yet designed; Ruben Feenstra (Shell), Netherlands would be a excellent choice (! ESF has named Eluna Sierra !)
Sedco executive Duke Zinkgraf is asked to attend meetings (as observer ?)

DOSSEC:

(Deep observation and sampling of the earth continental crust project): In part similar problems, TEDCOM should sent a delegate to DOSSEC advisory panel (chair: F.Schuh)

ENGINEERING SESSION:

-drill string inspection: No general method for knowing if a joint is still good or not;
-in 18 month less than 10 % of joints rejected due to corrosion..
-sandline severing tool (line saver) can be used in case logging tool being stuck, to save line and then tool
-Navidrill system should be improved: less load, higher rotation (now 300 rpm, in industry up to 2000 rpm)
-adapted TAM packer, Side Entry Sub presented; free fall re-entry cones have been successful

FRACTURED ROCK DRILLING:

-sites to minimize drilling length in fractured rock be chosen
-drill string should not rotate, better use downhole motor
-reduced diameter would improve situation
-bits:impregnated diamond bits or narrow cone bits be used (need more elaborated heave compensation, some flexible joints be used)
-removing of cutting can be difficult
-ODP is asked to contract with SMITH industries to improve bit design

-for hole stabilization use special fluids (Exxon developed some)

In general close contacts with industry, especially Longyear company are proposed

HIGH TEMPERATURE DRILLING:

Biggest hazard is thought to be a steam flash blow out. A study on that problem by LANL (Los Alamos National Laboratories) has been controversial discussed because of simplicity.

RISER DRILLING:

Science community needs to express if riser drilling is wanted. Riser drilling needs additional stuff; two ways to solve space problem:
1. using a wareship: for storage, crew exchange and geophysics
2. using a slim riser (9 5/8'') on board J.R.: down to 3000 m w.d.; needs reduction of drill string diameter

BUDGETARY AND FINANCIAL ASPECTS:

Engineering budget for:	FY85	FY86	FY87	
	1,898	768	1,029	(in k $)

R & D (research and development) contracts 1987: $ 459 k; this was considered too low ! TEDCOM therefore adopted a resolution to improve the situation within the next 5 years (see separate sheet).

WORKING GROUPS:

To make TEDCOM more efficient, three WG will be installed:
1. Hard rock drilling in fractured areas: Keith Millheim, Claus Marx
2. High temperature drilling: Bert Dennis, Martin Chenevert
3. Well control and riser drilling: Frank Schuh, Charles Sparks, Paul Staunton (A.McLerran, D.Wilson)

IFREMER/Jean JARRY
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Paris, October, 27, 1986

Ocean Drilling Program

Technology and Engineering Development Committee

Report of the 3d TEDCOM meeting
held in College Station (Texas) September 17-18, 1986

I List of attendees

II Agenda

III Report of the closed session

IV Report of the technical sessions

V Budgetary and financial aspects of ODP engineering

VI Set up of working groups

VII Conclusion

I. LIST OF ATTENDEES

TEDCOM Members

Mr Jean JARRY	IFREMER, Paris, France, Chairman
Dr Martin CHENEVERT	University of Texas at Austin, Austin, Texas
Mr David GRASSICK	Enterprise Oil plc., London, United Kingdom
Dr Keith MANCHESTER	Bedford Institute of Oceanography, Dartmouth, Nova-Scotia
Dr Claus MARX	Institut fur Tiefbohrkunde und Erdolgewinnung, Clausthal, Federal Republic of Germany
Mr Archie Mc LERRAN	Solana Beach, California
Dr Keith MILLHEIM	Amoco Production Company, Tulsa, Oklahoma
Mr Frank SCHUH	ARCO Oil and Gas Company, Dallas, Texas
Dr Charles SPARKS	Institut Français du Pétrole, Rueil-Malmaison France
Dr D.L. WILSON	Chevron Corporation, San Ramon, California

Delegates of not attending members

Mrs Gloria BENNET	(in place of Dr Bert Dennis) Los Alamos National Laboratories, Los Alamos, New Mexico
Dr Paul STANTON	(in place of Mr GARDNER), Exxon Production Research Company, Houston Texas

PCOM liaison

Dr T.G. FRANCIS	Institute of Oceanographic Sciences, Wormley, United Kingdom

DMP liaison

Dr Alfred JAEGLER	Tulsa, Oklahoma

TAMU representative

Mr Barry HARDING	Ocean Drilling Program, College Station, Texas

Other représentatives

Mr Al. SUTHERLAND	N.S.F.	Washington D.C.
Dr Tom PYLE	J.O.I.	,
Dr Bob ANDREWS	DOSSEC	,
Mr John SCHILLO	,	Denver Colorado
Mr Duke ZINKGRAF	SEDCO	Sedco-Forex, Dallas, Texas
Mr Jacques LEGRAND	IFREMER	Brest, France

Members not attending and not represented

Mr W. BINGMAN	SHELL Houston, Texas
Dr J. KASAHARA	SCHLUMBERGER, Japan

II. TEDCOM AGENDA

SEPTEMBER 17TH - WENDNESDAY

Texian Inn : 8:30 AM, 12:00 PM

* Introduce participants
* Results from Marseilles meeting
* Operations Review of ODP Legs 107, 108, 109, 110
* Brief science summary of upcoming Legs 111, 112, 113, 114
* Budgetary and financial aspects of ODP engineering

ODP Annex : 1:30 PM

* Update on current ODP engineering projects from Serocki/Storms, et al
* Discussion of ODP engineering projects , any TEDCOM help available
* Visit ODP engineering test facility (under construction)
* Visit new ODP building in Texas A&M Research Park on return to College Station

SEPTEMBER 18TH - THURSDAY

Texian Inn : 8:00 AM, closed session

8:30 AM

* DOSECC Update
* Discuss geo set/diamond bits for ODP's coring use
* Hard fractured basalt drilling in Hole 648B, what might ODP try next ?
* Geothermal Drilling
* Set up "ad hoc" working groups

Texian Inn : 1:00 PM

* Discussion of options for adaptation of a slimline riser system to ODP drilling for 12-15000 ft. capability.

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III. REPORT OF THE CLOSED SESSION

A closed session was held at 8:00 AM thursday to examine the membership situation.

MM. GARDNER (Exxon) and NEWSOM (Sandia) have resigned since the last PCOM meeting (August 86).

Mr BINGMANN (Shell) has not shown up since one year, and is considered as resigning.

A good expertise in mine drilling and hard rock bit is required. One of the best experts in this field is Mr Wally SVENSON, from Longyear Company, and it would be good to have him in TEDCOM.

Mr David GLOCKER (Sandia) is a specialist in Poly-Cristalline Diamond (PCD) bits as well as in high temperature and fractured rocks drilling. In the event he will not accept to be a candidate, Mr Jans KELSEY could be approached.

Barry HARDING is asked to conduct these preliminary contacts.

Dr STANTON is proposed by EXXON to replace Mr GARDNER and this proposal looks acceptable.

ESF has not appointed yet a TEDCOM delegate.

Jean JARRY will contact the european group. It is wished that their representative at TEDCOM be Pr Ruben FEENSTRA from SHELL Netherlands.

Members think desirable that, member or observer, Mr Duke ZINKGRAF, SEDCO executive, attend TEDCOM meetings where his expertise is welcome. At last, DMP panel is required to send, as a liaison, an expert in logging, such as Mr JAEGLER who, unfortunately, is retiring.

As soon as the candidates to membership are known, their names and C.V. will be sent to PCOM for approval at their January 87 meeting.

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IV. REPORT OF THE TECHNICAL SESSIONS

4.1. General session

Jean JARRY opened the meeting by welcoming everybody and prensenting the agenda.

After introduction of himself by each participant, the report of the Marseilles meeting was adopted without further discussion. Then Barry HARDING gave a summarized operational report of legs 107 through 110, focusing on several critical points or significant achievements. Since Members have got in advance the complete operational reports, the presentation was short.

/In this chapter, only the technical problems encountered are reported /

. In leg 107 (Mediterranean sea) the recovery rate was 58 %. TV system was run down the drill-pipe, to observe the sea-floor.

. In leg 108, off Morocco, several new tools were tested, such as free fall reentry cone, side entry sub, XCB vent sub and cutting shoes, core liner. Recovery rate was 90,5 %.

. In leg 109, it was attempted to reenter hole 648 B where the Hard Rock Guide Base was used for the first time. In this hard fractured rocks area, many problems arose and will be discussed later. Jars have failed and, to recover the BHA, reverse reentry technics had to be used. The TV system was of a great help.

. In leg 110, in the Caribbean, a 9" inflatable drill-in packer was used, but did not work.

. At last in leg 111, now underway, reentry of the deepest DSDP hole (1 350 m in basalt) was a success : 102 meters were drilled and coring made at a speed of 2 meter/hour in 2.4"diameter. But recovery rate was only between 8 % and 40 %.

Dr Audrey MEYER, ODP chief staff scientist, gave a summary of upcoming legs.

. Leg 112 : coast of Peru. Water depths go from 100 m to 5 000. Drilling in such shallow water will be possible only if the weather is good. Tools used : SES, APC, XCB.

. Leg 113. 7 sites will be visited in the Weddell sea ; depths from 600 to 4 500 meters. Tools used : APC, RCB, XCB.

. Leg 114. In early 1987, J.R. will sail Eastwards through the South Sandwich trench. Tools used : HPC, APC.

. Leg 115. Indian Ocean. Bare rock will be drilled.

. Leg 116. Red sea (if politics allow it). High temperature areas will be met (250 to 300°C).

After that, the J.R. will stay in the Indian Ocean for 5 more legs.

4.2. DOSECC Presentation

Bob Andrews, from the Deep Observation and Sampling of the Earth Continental Crust Project, presented this program. Similar technics are sometimes used on land and at sea and it is interesting to compare ODP and DOSECC experiences. DOSECC experience is connected with hardrock drilling, bit problems as well as with high temperature.

The Cajon Pass project will consist to drill in basalt a 4.9 km borehole in the St-Andreas fault.

It was said that it would be useful, in the future, to send, on a reciprocate basis, a TEDCOM delegate to the DOSECC Drilling Advisory Panel (which is presently chaired by Frank SCHUH).

4.3. Engineering session , update by TAMU/EDO engineers, on current engineering projects

Lamar HAYES, Steve HOWARD, Dave HUEY, Stan SEROCKI, and Mike STORMS presented their projects. Fredrick YOUNG is a german Engineer who has just arrived in EDO, in replacement of Claude MABILE ; Fredrick is a mining engineer.

The results of a study on drill string dynamics were presented by Stan SEROCKI.

Then Dave HUEY talked on the problems related to drill string inspection. There is no general method for knowing if a joint is still good or not. Different methods are used such as visual observation or using a BAKER scannograph. Other methods have been tried, such as Multi-transducer vetrasonic inspection, improved Electromagnetic Inspection, Far-field eddy current methods, etc.

A dynamic positioning management program has been initiated, to try to keep track of the pipe history.

Altogether, in a period of 18 months, less than 10 % of the joints have been rejected for several reasons : corrosion, cracks... Some joints have been used over 22 months and are still O.K.

Mike STORMS and Steve HOWARD presented the coring tools : Rotary Core Barrel (RCB), Advance Piston Corer (APC), Extended Core Barrel (XCB). These two last tools are used through the same bottom hole assembly (BHA).

A lockable flapper has been designed but has not been tested.

A sandline severing tool (line saver) can be used in case of the logging tool being stuck ; this allows first to save the line then to recover the tool with the drill string.

NAVIDRILL mud motors are used to drill in hard rock formations. Their load is unfortunately not known in real time, but only after the run. Rotation speed is quite low (100-300 RPM) for a 3 3/4" O.D. Keith MILLHEIM remarked that it would be better to increase that speed and decrease the load ; indeed, in the mining industry, bits are rotated at 700 RPM at least. AMOCO is developing a high speed drilling motor (1 200 RPM , 1 000 lb) and LONGYEAR rotates at 2 000 RPM. But the annulus must be as small as possible (2/10").

E.D.O. engineers presented other developments such as the adaptation of a TAM packer.

Lamar HAYES presented the Side Entry Sub (SES) which was designed to give the capability of modifying the length of the string while logging. A free fall reentry cone has also been successfull.

4.4. Fractured rock drilling and bit development

There are many areas of interest for ODP scientists specially in Indian Ocean, but also in Atlantic (hole 648 B) in which the first two or three hundred meters of rocks are fractured. When they are not naturally fractured, these rocks are so weak that they can break while drilling.

First, site locations have to be selected to minimize the drilling length. For example, in the case of 648 B, the summit of an underwater volcano has been a bad choice with respect to this parameter.

Thus, these drilling operations must be handled as "gently" as possible, and ODP's interest is to get more familiar with the mining industry technology, and use some of their methods.

Drill string : it is better not to rotate it, and to use downhole motors. Big jars will be avoided. To lower the pipe, some hydraulic mechanism has to be used.

Hole diameter will be reduced. Already ODP has shifted from 9 7/8" to 8 1/2" and things have improved.

BHA and bits

Impregnated diamond bits or narrow curve cone bits should be used, although there is no unanimity about which ones are better. They are quite expensive but their life can be increased (up to 60 meters of penetration) if three conditions are respected :

- high RPM but small diameter to reduce tangential speed
- cooling down
- removing the cuttings

Removing the cuttings can be quite difficult, as in the reentry cone, the annual velocity drops off and cuttings can fall back in the hole.

Bits can be largely improved and now they can be computer designed. ODP is asked to make contacts with SMITH industries.

However, the heave compensation needed for diamond bits is more elaborated than for roller cones. Bumper subs are sometimes weak, and it is suggested to use some flexible joints (?).

At last, to stabilize the hole, special fluids are to be used, some have been developped by EXXON.

In conclusion, to solve these very complex problems, close contacts with the mining industry are recommended ; specially with Longyear Company.

Some land tests can also be useful and save money.

From a technical point of view, operators will try to
- reduce the diameter
- use downhole motors and increase RPM
- decrase the load
- use PCD dragbits and hydraulics
- use special fluids

4.4.1. High temperature drilling

Interest in geothermal areas is quite high. Indeed, in some areas of the mid ocean ridges, we are close to the molten basaltic rocks (1200°C). Sea water can come in contact with these molten rocks and come up back with temperatures of 400°C or higher.

Although problems connected with high temperature drilling are numerous and concern all the components of the drill string and of the logging string, discussion focused on the safety hazards linked with drilling in these areas.

The biggest hazard is the eventuality of a steam flash blow-out and it is the reason why TAMU has asked Los Alamos National Laboratories (LANL) to study a model of this blow-out. The issues are :

Is such event likely to happen ? In which conditions ? How can it be predicted ?

There was a big controversy about the validity of the model which was proposed by LANL. The model is very simple and is aimed at determining the upward force exerted by the super heated water, how long it will take to reach the surface and at which temperature, what will be the rate of the resulting flow. But the model can be wrong if some phase changes occur.

Advocates of the project agreed, but emphasized on the fact that, since the problem was so complex, they have to start simple, on an almost caricatural case.

If the conclusion is that, even in that case, there are safety problems, they would have to be accounted for and managed. If not, it would be necessary to go further inside the physics equations and to complicate the codes and go ahead, one step more.

4.4.2. Riser drilling and well control

When drilling is done in a geo pressured environnment, hydrocarbon rate is continuously monitored and the hole is quit as soon as a predetermined safety level is reached.

So one question is : do ODP scientists want to drill deeper in these areas and need a riser or not ?

But risers will not be useful only to control hydrocarbons. In some wells, heavy recirculated mud can be useful to measure the porosity and/or the leakages inside the hole walls... More generally, the main advantage of a riser would be the so called well-control.

So it is wished that ODP science staff moves to define more clearly the future drilling with their geothermical charactéristics. On the other hand scientists are generally little aware of the riser technology and they have to get more knowledgeable.

Back and forth information exchanges between science and engineering are therefore absolutely needed, and it is the reason why a seminar has to be organized, before COSOD 2, on this subject.

The seminar coult take place in January 87, just before or after the P.COM meeting in order that many panel chaiemen can attend. Experts will present the state of the art of the riser drilling technology while scientists will present what they think onthe science trends for the next decade.

Whatever will be decided, riser drilling means additional stuff on the ship. Two differents ways of solving that problem are suggested.

1/ Using a wareship

Joides Resolution storage limit is almost reached. Such a wareship could handle pipes, buoyancy materials, just during the time needed. It would be used also to transfer crew and science parties, as well as for medical evacuation when needed, since these areas are most of the time too distant from the shore to be reached by helicopter. Moreover, that ship could be used for geophysic work.

The economics of keeping such a vessel for a year is being studied.

2/ Using a slim riser

SEDCO-FOREX has proposed to use a pipe string which was built ten years ago for the Ocean Mining Project. That tube, 9 5/8" O.D. could be used as a riser ; the consequence would be to reduce the drilling diameter.

Duke ZINKGRAF group has started to study the feasibility of that project which appears O.K. down to 3 000 meters of water. In that case, the volume of drilling string and riser string would be compatible with the Joides Resolution storage capacity.

V. BUDGETARY AND FINANCIAL ASPECTS

They were presented by B. HARDING, and appear on the table (next page) and on the diagrams. The big difference between 85 budget and 86 or 87 budget was explained by the hard rock base development which costed more than $ 1 million.

Members were quite puzzled by what they estimated a very low amount of R&D funding for a project as ambitious as ODP claims to be (although there is, from 86 to 87, a 10 % increase for EDO and a 35 % increase for Engineering Development only). In the Oil industry, most of R&D is done in-house (about 90 %) with well staffed groups. In ODP, it has to be different since the project needs technical transfer from industry. In industry also, a 200,000 $ R&D program can save 2 million $, if it saves ship time, for example. But in ODP, if through R&D it becomes possible to drill in 40 days as many holes as drilled now in 60 days, 20 days will not be saved : the result will be more holes for the scientists !!!

Anyhow, the members thought that EDO is understaffed and that a 10 engineers group is a goal to reach. Also, the total funding must be increased subsequently, if the technical challenges induced by the scientific challenges have to be done.

TEDCOM members finally adopted the following resolution, which will be transmitted to P.COM :

In order to develop the technology necessary to reach ODP goals and provide the specific equipment and methods needed, the scientific targets have to be defined accurately.

In that purpose and to be sure that these targets are compatible with the capabilities of the technological development in the years to come, as well as with the budgetary contingencies, information must be constantly exchanged betwen the ODP scientific community, the TAMU engineering group, and TEDCOM.

It is thereby recommended :

1. That a 5 year minimum advanced drilling plan be defined, which will identify well sites and specific targets, precise the maximum values of pressure, temperature, and depths (water depths and drilling depths), describe as far as possible the nature of geological formations, define the relative value of these site locations and rank their priorities.

2. That R&D activity in drilling and coring engineering be significantly increased. To avoid as much as possible the trial and error process at sea, an important program of engineering, advanced equipment purchasing and modifying, laboratory and on land testing, has to be undertaken.

A comparison with the R&D programs in the oil industry indicates that a group of 10 engineers minimum is necessary to conduct this program with an annual budget of $ 5,000,000.

This level of activity and funding must be reached progressively in the next five years.

ODP - ENGINEERING BUDGETS FOR 1985, 1986, 1987
(IN THOUSANDS OF US DOLLARS)

O.D.P. Total Budget : F.Y. 86 32,500,
F.Y. 87 34,250,

Drilling and Engineering

		FY 1985	FY 1986	FY 1987
C01	. Office and management			188
C02	. Drilling			2,012
C03	. Engineering	1,898	768	1,029
COO	TOTAL		2,980	3,229

Engineering CO3)

01	Direct labor and fringe	320	452	503
03	R&D contracts	1,346	264	459
	Other	232	52	67
	TOTAL	1,898	768	1,029

R&D Contracts 1987

High temperature drilling	135
Drill string analysis	25
Core bit development	200
Misc. coring upgrades	59
Misc.	40
TOTAL	459

F.Y. = Fiscal year (Oct. 1st year N-1 - Oct. 1st year N)

VI. SET UP OF WORKING GROUPS

To make TEDCOM more efficient it was proposed and agreed to set up three working groups, one on each of the three technical challenges of deep drilling.

1. hard rock drilling in fractured areas
2. high temperature drilling
3. well control and riser drilling.

and to name TEDCOM members in these groups along with their expertise. In that way, members could deal with subjects they know the best, and TAMU/EDO would know to whom they can address when they need help.

Moreover, each group could meet if they want to, and prepare better solutions to present to the meetings. They could also find other people of expertise to help.

For each group, a leader was assigned who would make easier the links between each group and TEDCOM chairman or TAMU/EDO.

The groups were settled as follows :

T E D C O M W O R K I N G G R O U P S

1. Well control and riser drilling

   Frank SCHUH

   Charles SPARKS

   Paul STAUNTON

   (Archie Mc LERRAN and Don WILSON will help)

2. Hard Rock drilling

   Keith MILLHEIM

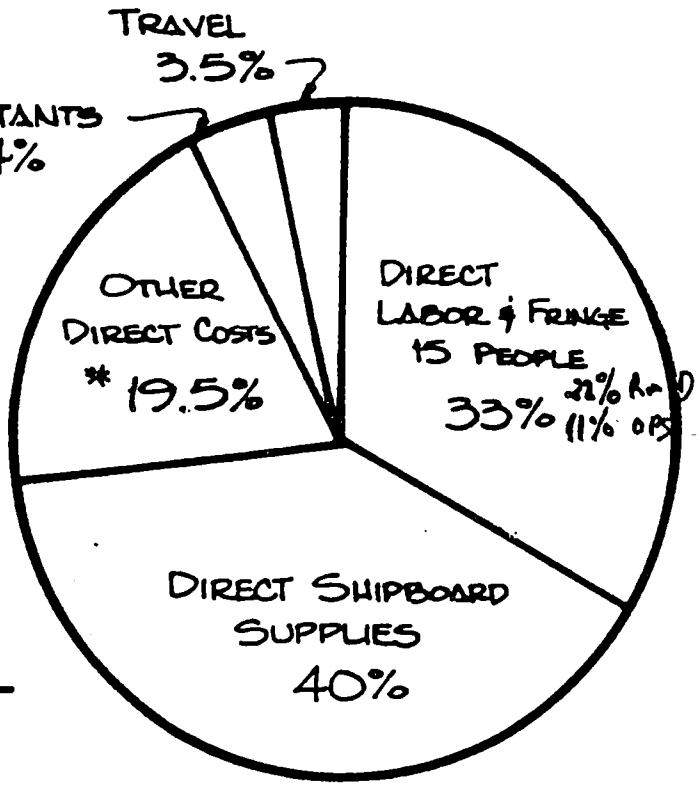
   Claus MARX

3. High temperature drilling

   Bert DENNIS

   Martin CHENEVERT

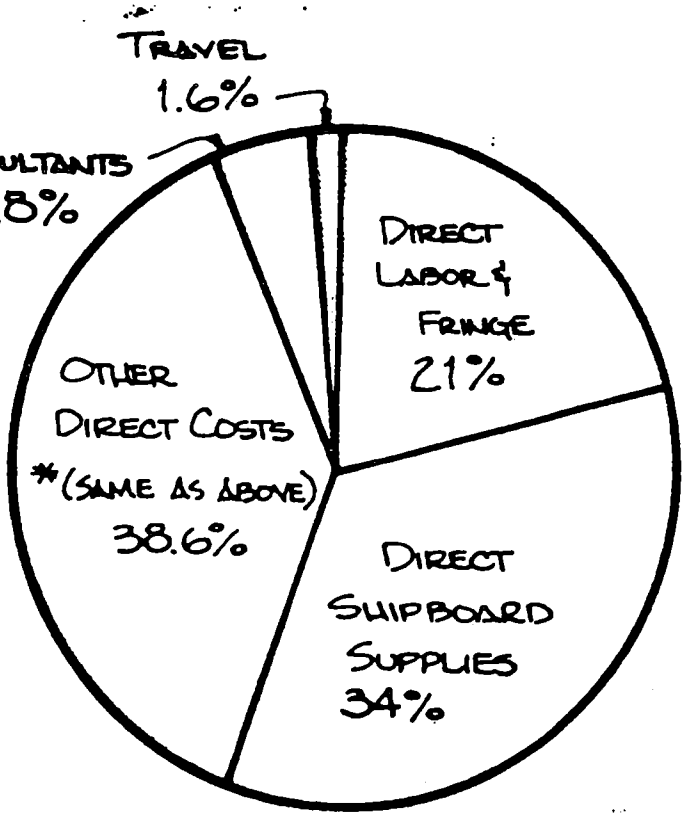
1803 ~ DEVELOPMENT ENGR. & DRILLING OPERATIONS



* i.e., TRAINING, COMMUNICATIONS, SHIPPING, EQUIP. MAINT., SERVICES, & LIBRARY.

FY.'87 BUDGET

$3,020,000



FY.'86 BUDGET

TOTAL - $4,596,820

(INCLUDES FY'85 CARRY OVER FROM HARD ROCK PROJECT.)

SITE SURVEY PANEL

DRAFT MINUTES

of meeting at

Laboratorre Geodynamique Sous Marine
at
Villefranche sur-Mer, France

November 4 - 6, 1986

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SITE SURVEY PANEL

EXECUTIVE SUMMARY - VILLEFRANCHE MEETING

November 4 - 6, 1986

1. Duennebier's Underway Geophysics Report was reviewed. TAMU already responding; further tests scheduled for Leg 112 T over Christmas.

2. In response to a letter the SSP passed a motion which emphasized its preference for digital seismic data whenever possible. Furthermore, "If a planned hole is to be logged, then there should be a digital record made by the RESOLUTION of the seismic structure on-site for later correlation purposes."

3. The next SSP meeting will abe January 13 - 14, 1987, at Lamont, immediately before PCOM. Data sets for the western Indian Ocean will be reviewed in detail there.

4. Site Survey Status, Antarctic and Indian Ocean:

   a) Weddell Sea - O.K. Sites W-5 alt., W-12, W-13 weakly supported by data.

   b) Sub-Antarctic - Recently completed site surveys will be reviewed at January meeting.

   c) SWIR - Recently completed site survey will be reviewed at January meeting.

   d) Red Sea - status unchanged since August PCOM.

   e) Intraplate Deformation - Recently completed site survey will be reviewed at January meeting.

   f) Ninetyeast Ridge - Recently completed site surveys will be reviewed at January meeting.

   g) Neogene I - Recently completed site survey will be reviewed at January meeting.

   h) Neogene II - Some problems exist with some sites as currently proposed.

   i) Makran - MCS cruise underway Nov.- Dec. '86. Processed seismic due March, 1987. Initial review in January. GLORIA survey in February, 1987.

j) Kerguelen:

(i) N. Kerguelen O.K.
(ii) Central and South Kerguelen appear O.K. Timely completion of seismic processing essential here.
(iii) Prydz Bay. Currently available data are not adequate for drilling. Poor quality shallow data and lack of crossing lines are the critical problems. Outside chance of Russian data. Only other option is to survey with RESOLUTION if PPSP willing to approve drilling on basis of currently available information. An early look by PPSP is strongly recommended.

k) Broken Ridge - Recently completed site survey will be reviewed at the January meeting.

l) Argo/Exmouth - Some new SCS received by Data Bank. Further review in January.

5. WPAC Site Survey Status
Generally WPAC sites are either well surveyed or plans for further surveys are in place. Major problems exist only with Great Barrier Reef and Sunda Backthrusting proposals. Little recent data is actually at the Data Bank. Data submission is urgently needed.

a) Bonin I. - Surveys O.K. or planned.

b) Japan Sea - Surveys O.K. or planned except for multibeam bathymetry or sidescan. Such data are essential for site J3a, and may be needed elsewhere. Water gun survey needed at JS2. Further info on shallow gas problem needed by SSP.

c) Sunda Backthrusting - Needs crossing MCS lines and heat flow. No surveys funded to our knowledge.

d) Banda - Sulu - S. China - Some problems exist, but surveys planned for Banda Sea where need for data is critical.

e) Bonin - 2 - Surveys O.K. or planned.

f) Great Barrier Reef - Problems expected with drilling in a National Park. Currently available seismic data are totally inadequate. Potentially insurmountable safety problems exist. An early look by PPSP is needed.

g) Nankai - O.K. except for possible BSR problem at NKT-2. Slight repositioning of site or suitable cross line would resolve problem.

h) Lau Basin - Some data exist, more will be needed particularly if bare rock drilling proposed. Need synthesized proposal and synthesis of existing data.

i) Vanuatu - Basically O.K. Some cores and heat flow appear to be needed.

j) Zenisu - O.K. if migration of new Japanese data done.

k) Downhole Experiments - SSP needs more info on plans.

6. Riser Drilling Requirements

Meyer will attend TEDCOM workshop as SSP liaison. Concept of identifying "generic" deep penetration holes put on PCHMN agenda.

SITE SURVEY PANEL

ACTION ITEMS - VILLEFRANCHE MEETING

November 4 - 6, 1986

ACTION: Meyer report on 112 T tests at next SSP meeting.

ACTION: Brenner to put a note about update of Site Survey Catalog in next JOIDES Journal.

ACTION: Peirce write Pisias regarding SSP liaisons and January meeting. Done in Villefranche. In view of the large number of data sets in the Western Indian Ocean coming available for review, the next SSP meeting will be at Lamont on January 13-14. A tentative agenda is attached as Appendix E.

ACTION: Brenner talk to Schlich at IOP meeting about need for full sized sections for sites KHP 1 and 3.

ACTION: Brenner write to Dr. Garrik Grikurov, Sevmorgeo, Leningrad, to ask about any Russian data in Prydz Bay.

ACTION: Jones ask Kenyon to contact Haq regarding possible mid fan site on Indus Cone in order that a GLORIA track might be planned over the site.

ACTION: Jones or Kidd bring detailed track charts and single monitor records for Makran to January SSP meeting.

Peirce talk to OGDC in Islamabad about availability of SH-1, 2, 3 lines. (Note: formal request has been made to the appropriate Ministry in Pakistan.)

Brenner request reproducible copies of Marathon lines from Leggett in order to complete regional picture.

ACTION: Brenner line up Weissel for a presentation of the Intraplate Deformation site survey results at the January SSP meeting.

ACTION: Brenner contact Curray and Sclater to insure that full data sets for the Ninetyeast are available for review at the January SSP meeting. Curray has not yet received the seismic tapes from Lamont. As this is of particular concern, Brenner should try to expedite action on their delivery if he can.

ACTION: Brenner line up Weissel to present Broken Ridge site survey data at January SSP meeting.

ACTION: Larsen will take over as watchdog from Weigel for the Argo/Exmouth proposals.

Wiedicke send proposals. Larsen review same with Von Rad and be prepared to review site survey situation at January meeting.

ACTION: Hey prepare concise summary of available data for Bonin-I proposal for future reference.

Brenner start inquiring about getting data sent to Data Bank. Mauffret urge WPAC to start getting data into Data Bank.

Suyehiro check on availability of GSJ 1985 MCS data.

ACTION: Suyehiro ask Tanaki to explain to Meyer at WPAC meeting why reentry is needed at so many sites in the Japan Sea. Reason is not clear from stated objectives.

Mauffret provide Brenner with map of French Seabeam coverage in the Japan Sea.

Suyehiro check into details of the shallow gas problem in the Japan Sea. What criteria has the site proponent used to avoid gas prone sites? Would additional watergun SCS increase the 'comfort level' for successfully avoiding shallow gas?

ACTION: Peirce write to Taylor highlighting SSP concerns about need for crossing MCS and heat flow for the Sunda proposal. (Done in Villefranche).

Weidicke send Larsen copy of proposal.

ACTION: Mauffret check with Silver at WPAC meeting regarding his plans for Banda Sea site survey.

Larsen check with Van Hinte/Jongsma regarding Dutch data.

ACTION: Peirce write to Pautot regarding data quality for sites SCS-1 and 2.

ACTION: Hey summarize detailed information on existing data for Bonin-Mariana - 2 for future reference.

ACTION: Suyehiro obtain release of JNOC-55 data set in Nankai. Also discuss with Taira the BSR problem at site NKT-2.

ACTION: Meyer ask Gill to prepare a full report on site survey status for Duennebier. In particular, what work is planned by Cronan on the Washington in 1987?

ACTION: Brenner contact Fisher (USGS) regarding migration of MCS at D'Entrecasteaux. Search existing core locations in Aoba Basin.

Mauffret take action to have Charcot site survey data submitted to Data Bank. Ask WPAC panel for their opinion regarding the need for heat flow data to support the 5 scientific objectives at the Coriolis Trough.

ACTION: Suyehiro try to clarify what downhole experiments are being planned for WPAC holes and to identify any special site survey needs associated with such experiments.

ACTION: Peirce ask Taylor to put this item on the PCHMN agenda. (Done in Villefranche).

Meyer attend TEDCOM workshop as SSP liaison.

ACTION: All SSP members forward national ship schedules to Peirce and Weidicke before January meeting.

OCEAN DRILLING PROGRAM

SITE SURVEY PANEL MINUTES

LABORATOIRE DE GEODYNAMIQUE SOUS-MARINE

VILLEFRANCHE-SUR-MER, FRANCE

NOVEMBER 4-6, 1986

Present: John Peirce (Chairman, Canada)
Dick Hey (USA, alternate for Duennebier)
John Jones (UK)
Birger Larsen (ESF)
Alain Mauffret (France)
John Mutter (USA, alternate for Langseth)
Kiyoshi Suyehiro (Japan)
Audrey Meyer (TAMU)
Carl Brenner (ODP Data Bank)
Tim Francis (PCOM Liaison)
Tom Pyle (JOI)
Michael Wiedicke (JOIDES Office)

Guest: Gilbert Boillot (Lab. Geodyn.)

Absent: Wilfried Weigel (Germany)

1 - PRELIMINARY MATTERS

Gilbert Boillot welcomed all to Villefranche. Regrets were received from Wilfried Weigel, who was unable to attend. The minutes from the Sidney, B.C., meeting were approved.

All action items from the last meeting were completed or work is being done on them.

2 - REPORTS

2 (A) PCOM Report (Francis)

The last PCOM meeting was in Corner Brook, Newfoundland. There was discussion at PCOM regarding the priorities of Leg 114 vs 113. PCOM stated that Leg 114 was to finish W-7 if that had not been done on Leg 113. As the Labrecque surveys found 800 m of sediment at the Sub-Antarctic sites where 500 m was expected, they will have difficulty completing their objectives at four sites. SOP and SOHP rank the Leg 114 priorities ahead of the priority of W-7. PCOM will have to readdress this question.

2 (B) JOIDES Report (Wiedicke)

The USSR will be joining ODP. The MOU is to be signed in early 1987.

The Red Sea Leg 116 is on the schedule, pending resolution of clearance problems, until the January PCOM meeting.

The COSOD II meeting will be in July 6-8 in Strasbourg. There will five working groups, for which the Chairmen have been nominated:

a) Global environment changes.
b) Mantle/Crust interaction.
c) Fluid circulation and global geochemical budgets.
d) Brittle and ductile deformation of the lithosphere.
e) Evolution and extinction of oceanic biota.

Attendance will be limited to 350. 150 from the U.S., 30 from each partner member, and 20 "wild cards".

2 (C) Science Operator's Report (Meyer)

Brief comments were made regarding Legs 110 and 111. Some junk was left in Hole 504B and there is a possible problem with the casing in the sediment section. Because of the problem with poor recovery in hard rock drilling, TEDCOM has recommended that a serious look should be taken at high RPM diamond drilling in this situation.

Prior to Leg 112, 4 days were lost to ship repairs. There is some question how well the HPC system will work in shallow water.

Co-Chiefs are assigned through Leg 118 except for the Intraplate Deformation option for Leg 116.

2 (D) Underway Geophysics (Hey for Duennebier)

A summary of the report is attached as appendix A.

The recommendations include the following, within budgetary constraints:

a) Bubble deflectors for the 3.5-kHz transducer.
b) Test of towed 3.5-kHz fish.
c) Installation of 3.5-kHz dome.
d) Acquisition of a high speed streamer.
e) Purchase of a spectrum analyzer for testing.

Meyer reported that the transit Leg, 112 T, over Christmas, will include a test of the towed 3.5-kHz fish. A high speed streamer is on loan from Labrecque and will be tested. A spectrum analyzer has been bought. The full report also mentioned that the speed of post-procesing was unreasonably slow. One reason for this is that the array processor is not yet interfaced to the Masscomp processing computer. Software development is underway.

The SSP expressed their thanks to Fred Duennebier for such a timely and complete report.

ACTION: Meyer report on 112 T tests at next SSP meeting.

2 (E) Shipley Letter (Peirce)

A letter from Tom Shipley (U. of Texas, PCOM Member) to the SSP Chairman and his reply were put on the table for discussion (see appendix B). There was discussion regarding the manner in which the RESOLUTION is used for surveys on site approach and on site. Co-Chiefs are now starting to collect seismic shots while on-site (not a VSP, just stacked shots at zero speed). There was general agreement that the chairman's reply reflected the view of the SSP. To clarify the issue further, the following motion (Jones/Mauffret) was passed unanimously:

MOTION: The SSP prefers the acquisition of digital single channel seismic (SCS) data when SCS is required for site survey data.

If a planned hole is to be logged, then there should be a digital record made by the RESOLUTION of the seismic structure on-site for later correlation purposes.

2 (F) Data Bank Report (Brenner)

The FY 86 Activity report (see appendix C) was presented. The FY 86 budget was overspent by $4-5000. The FY 87 budget is $195,000. This includes money for a "gopher" to help with mundane jobs. A further $10,000 of enhancements (more people time and travel $) is under consideration by JOI.

In 1988 there is a need for a new microfilm reader/printer at a cost of $12,000. The payback in terms of savings on commercial charges is estimated at three years.

An update to the Site Survey Catalog is planned.

ACTION: Brenner to put a note about update of Site Survey Catalog in next JOIDES Journal.

2 (G) SOP (Mutter)

There was extensive discussion of the Kerguelen site selection and data (see item 3 below).

The SOP noted that there is very little geophysical data to support drilling in the high latitudes of the South Pacific. SSP concurs in this observation.

2 (H) IOP (Mauffret)

There is some difference of opinion about the length of time needed to drill the Makran objectives. If they constitute less than a full leg, no alternatives are in place.

Falvey propsed a new site on a newly reprocessed line in the Otway Basin. A BMR survey there is planned for early 1987.

2 (I) WPAC (Mauffret)

A brief overview of each of the major drilling packages was given. See detailed notes below.

Upcoming site surveys in the area include (see attached ship schedules, Appendix D):

France:
- Sulu Sea cancelled.
- Vanuatu - MULTIPSO (SEAPSO on schedule) MCS.

Germany:
- Lau Basin - Sonne, Seabeam.
- Sulu/S. China Sea - Hinz MCS cruise, probably joint with French.

Japan:
- Nankai/Zenisu - ORI - MCS (Taira).
- Marianas - ORI - MGG.
- Japan Sea - ORI.

U.K.:
- Lau Basin - chartering T. Washington in 4/87; Seabeam and sampling by Cronan.

U.S.:
- Marianas Basin - Diving in May/August 87.
- Banda - Proposed for digital SCS, Seabeam by Silver.
- Sunda - MCS - March/April 1987 (? if funded).
- Bonin - 2 ship MCS with Japanese.
- Lau Basin - Seabeam, sampling, Deep Tow.
- Ontong Java - Seamarc, digital SCS.

The SSP compliments WPAC on the excellent organization of the "Second Prospectus". Our job of understanding the complexities of the objectives and of starting to evaluate the available data base was made much easier by the detailed preparation which went into this summary.

2 (J) CEPAC Meeting (Peirce)

The CEPAC proposals are not yet sufficiently defined for the SSP to be able to play a major role. It was useful, however, to be able to provide them with direct advice concerning our standards.

2 (K) SSP Liaisons to Other Meetings/Next SSP Meeting

Brenner will be SSP liaison to IOP meeting in Miami on November 20-22.

Mauffret will be SSP liaison to WPAC meeting in Palo Alto, December 13-15. Meyer will also be attending WPAC meeting.

ACTION: Peirce write Pisias regarding SSP liaisons and January meeting. Done in Villefranche. In view of the large number of data sets in the Western Indian Ocean coming available for review, the next SSP meeting will be at Lamont on January 13-14. A tentative agenda is attached as Appendix E.

3 - SITE SURVEY ASSESSMENTS

3 (A) Weddell Sea (Brenner for Weigel)

All necessary data for all sites is either in hand or has just been sent. Sites W-12, W-13 and the W-5 alternate sites were approved as possible drill sites although the site survey data are poor-marginal.

3 (B) Red Sea (Mauffret)

The Red Sea situation regarding site surveys is unchanged since the recommendations of the SSP were forwarded to PCOM last summer. For the record, a copy of that letter is attached as Appendix F. The data supporting the Gulf of Aden sites are not adequate for drilling. See 4 (F) Neogene I and II.

3 (C) Kerguelen (Brenner)

Brenner reported on the meeting of the Kerguelen Working Group which he attended as SSP liaison. Eleven sites were selected, of which three are planned to go to basement.

i) North Kerguelen: All data, including core descriptions and velocities, have been received by the Data Bank. The only outstanding item is the receipt of full sized sections.

ACTION: Brenner talk to Schlich at IOP meeting about need for full sized sections for sites KHP 1 and 3.

ii) Central and Southern Kerguelen: Apparently all the necessary data are available. The seismic processing (French and Australian) is incomplete for both these areas.

Recommendation: The SSP considers it essential that the seismic data sets for Central and Southern Kerguelen be fully processed as promptly as possible in order to optimize site selection in these areas.

iii) Prydz Bay. The existing seismic data are 6 channel Australian MCS lines with no crossings near the proposed sites. According to H. Stagg the recording system had low dynamic range which caused clipping of the digital signal of the water bottom, the bubble pulse and the water bottom multiple. Therefore the application of deconvolution is not likely to produce useful results.

Recommendation: The site survey data for Prydz Bay are not adequate for drilling on Line 21. The quality of the shallow data are very poor because of bubble pulse problems. Because of recording problems reprocessing is not likely to resolve this problem or allow multiple removal in order to understand the dipping reflectors more completely.

The lack of crossing lines is a more critical problem in light of the dipping reflectors and a minor structural culmination on line 21 in the proposed drilling area.

The currently available data are not adequate for drilling. The only solutions which the SSP can see are the possibility of additional Russian data in the area or the option of using the RESOLUTION for collecting some additional data if PPSP is willing to approve drilling on the basis of the available information. An early look at this data by PPSP is strongly recommended.

ACTION: Brenner write to Dr. Garrik Grikurov, Sevmorgeo, Leningrad, to ask about any Russian data in Prydz Bay.

4 - INDIAN OCEAN SITE SURVEY STATUS as of November, 1986

4 (A) Sub-Antartic (Brenner for Weigel)

No cores were taken on the site survey on the Polar Duke. Also the 3.5-kHz was not working. Sites 5, 6 and 8 are planned to go to basement.

Full review will be held at Lamont in January with LaBrecque present.

4 (B) SWIR (Mutter for Langseth)

Site survey currently in progress. Full review will be held at Lamont in January with H. Dick present. Langseth will be present as SSP watchdog and John Mutter as LITHP alternate.

4 (C) Mascarene Fossil Ridge

No discussion.

4 (D) Davie Ridge

No discussion.

4 (E) Somali Basin

No discussion except in the context of riser drilling. See (6) below.

4 (F) Neogene I and II (Suyehiro and Brenner)

The Conrad survey acquired 6600 km of SCS seismic (very good quality) and Seabeam data on the Neogene I sites.

Bil Haq is reportedly about to propose a mid-fan site at 21°N 65°E on the Indus Fan to a depth of 1.5 secs TWT to bottom in presumed Paleogene section.

ACTION: Jones ask Kenyon to contact Haq regarding possible mid fan site on Indus Cone in order that a GLORIA track might be planned over the site.

For the Neogene II proposal, sites CARB-2 and the easterly alternate CARB-4 site need to be repositioned somewhat to minimize the possibility of encountering a slumped section.

The CARB-1 site is said to be planned to go to basement. A comparison with nearby site 237 suggests that no basement is within reach of the drill. Furthermore, given the high recovery at site 237 at a similar water depth, it is unclear to the SSP why site CARB-1 is needed.

4 (G) Makran (Jones)

The Darwin cruise of Bob White is scheduled from 14 Nov. - 13 Dec., 1986. He will be doing MCS in the area 22° - 25°N, 62.7° - 66.5°E. There is enough money to process 280 km of MCS by the end of March, 1987. For logistical reasons the tapes won't be in England until the end of January, so only single monitor records can be reviewed at the January SSP meeting. (Note: Survey delayed and status of revised schedule unclear as of 2 Dec. 86.)

The White survey is east of most of the SCS coverage in the area. Some reprocessing to clarify the higher frequencies in the shallow section may be needed.

The Kenyon survey in February, 1987, will survey with GLORIA over all potential sites.

No new industry data available according to White.

ACTION: Jones or Kidd bring detailed track charts and single monitor records for Makran to January SSP meeting.

Peirce talk to OGDC in Islamabad about availability of SH-1, 2, 3 lines. (Note: formal request has been made to the appropriate Ministry in Pakistan.)

Brenner request reproducible copies of Marathon lines from Leggett in order to complete regional picture.

4 (J) Intraplate Deformation (Brenner)

A sample seismic record was shown from Weissel's survey. It did not image basement. Complex faulting patterns (reverse faults dipping both N and S) were evident. Imaging of the basement surface will be essential to achieve an unambiguous interpretation here.

ACTION: Brenner line up Weissel for a presentation of the Intraplate Deformation site survey results at the January SSP meeting.

4 (K) Ninetyeast Ridge (Brenner)

Track charts of all three site surveys and a sample record from one of the southern sites were all that was available for review. Data quality was excellent on the record we saw.

ACTION: Brenner contact Curray and Sclater to insure that full data sets for the Ninetyeast are available for review at the January SSP meeting. Curray has not yet received the seismic tapes from Lamont. As this is of particular concern, Brenner should try to expedite action on their delivery if he can.

4 (L) Broken Ridge (Brenner)

One record and a track chart were all that were available. There was excellent resolution on the record we saw. Weissel reports that his survey is "adequate" for picking basement sites.

ACTION: Brenner line up Weissel to present Broken Ridge site survey data at January SSP meeting.

4 (M) SEIR

No discussion.

4 (N) Argo/Exmouth

Neville Exon has sent some SCS records to the Data Bank.

ACTION: Larsen will take over as watchdog from Weigel for the Argo/Exmouth proposals.

Wiedicke send proposals. Larsen review same with Von Rad and be prepared to review site survey situation at January meeting.

4 (O) Otway Basin

No discussion.

5 - WPAC Site Survey Status, as of Nov./86

The drilling proposals are listed in the same order as on the WPAC Second Prospectus, although discussion did not occur in that order.

WPAC data need to be submitted to the Data Bank for all proposals. Very little critical data are at the Data Bank.

5 (A) Bonin-1 (Hey for Duennebier)

The data set for this drilling package seems excellent. MCS seismic cross lines are needed and will be obtained by Taylor on the FRED MOORE in July, 1987. A concise summary of available piston cores is needed. The SSP is unaware of cores near site BON6.

ACTION: Hey prepare concise summary of available data for Bonin-I proposal for future reference.

Brenner start inquiring about getting data sent to Data Bank. Mauffret urge WPAC to start getting data into Data Bank.

Suyehiro check on availability of GSJ 1985 MCS data.

5 (B) Japan Sea (Suyehiro)

A detailed written summary of site survey status was submitted by Suyehiro and is available for the Data Bank, R/V TANSEI (ORI) will survey JIB, JID, J3A, in 1987.

All sites except JS-2 are planned to go to basement, although reasons why unclear.

JIB: Needs seismic velocity information and cores to support re-entry.

JID: Will be surveyed in 1987. This site may need Seabeam or sidescan data, but it's hard to evaluate how essential such data might be on the currently available data.

JIE: Coring planned for upcoming survey.

J2a: Seabeam or sidescan may be needed, but probably not. Adequate heat flow data exist, but need to be made available.

J3a: Seabeam or sidescan survey is definitely needed in order to provide detailed information on faulting patterns over the site.

JS2: A watergun survey is needed to provide high frequency shallow data. Perhaps the GSJ can borrow ORI equipment to accomplish this.

The SSP is concerned that it does not have enough information regarding the problems with shallow gas encountered during the DSDP leg in the Japan Sea. A more complete discussion of this topic is needed.

ACTION: Suyehiro ask Tanaki to explain to Meyer at WPAC meeting why reentry is needed at so many sites in the Japan Sea. Reason is not clear from stated objectives.

Mauffret provide Brenner with map of French Seabeam coverage in the Japan Sea.

Suyehiro check into details of the shallow gas problem in the Japan Sea. What criteria has the site proponent used to avoid gas prone sites? Would additional watergun SCS increase the 'comfort level' for successfully avoiding shallow gas?

5 (C) Sunda Backthrusting

Mauffret reported what he knew of the situation in the absence of a German report from Wong. Larsen will become SSP watchdog for this proposal.

Crossing MCS lines and heat flow are needed to adequately support this proposal. Our information is that Silver's MCS proposal was not funded. In any case, crossing MCS lines and heat flow were not planned. Silver's proposal funded as of 12/86

A Darwin GLORIA/SCS cruise (Masson and Audley-Charles) is planned for this general area in Feb., 1988.

ACTION: Peirce write to Taylor highlighting SSP concerns about need for crossing MCS and heat flow for the Sunda proposal. (Done in Villefranche).

Weidicke send Larsen copy of proposal.

5 (D) Banda-Sulu-S. China Seas (Mauffret)

The SSP discussed the Banda-Sulu-South China transect together with the Sulu-Negros (#11 on WPAC list) and the Hayes South China margin proposal and a combined Rangin/Hinz proposal as yet unsubmitted (to compare conjugate margins of the S. China Sea).

Banda Sea - Sites in the North and South Banda Basins, the Lucipara Basin (if one can call it that), and an optional site on the Lucipara Ridge were discussed. The existing SCS (Sliver, 1983) is insufficient to image the basement ridge structure and it is inadequate for seismic stratigraphy. A comprehensive site survey is clearly needed. Some Dutch 1984/85 data should be available.

ACTION: Mauffret check with Silver at WPAC meeting regarding his plans for Banda Sea site survey.

Larsen check with Van Hinte/Jongsma regarding Dutch data.

Sulu Sea

Sulu 2 (reentry) has crossing German MCS, magnetics and gravity, Seabeam and geological sampling. Apparently adequate data exist.

Sulu 4 (Cayagan Ridge) needs a crossing seismic line. Piston core needed if reentry planned. Existing data include one MCS line, SCS, magnetics and gravity, Seabeam and sidescan.

Sulu 5 (Sulu Basin) may need a piston core if reentry planned. Existing data include MCS, SCS, magnetics and gravity, Seabeam, and sidescan.

Sulu 8 data coverage at this site is unknown to SSP.

ACTION: Mauffret ask WPAC about Sulu-8 site survey coverage.

S. China Sea/Margin

There appears to be adequate data to support the SCS-1 and 2 sites, but questions exist regarding their quality. Given the possibility of extensive sills, how definite is the 200 m depth of sediment estimate at SCS-2? Is the magnetics interpretation at the site clear enough?

The sites proposed on the China margin appear to be adequately surveyed if the sites are positioned at MCS cross lines. If any of these sites come onto a tentative drilling plan, then early action should be started to secure the release of industry well data. This will likely be a lengthy process which will be critical to attaining the scientific objective.

ACTION: Peirce write to Pautot regarding data quality for sites SCS-1 and 2.

5 (E) Bonin - Mariana - 2 (Hay for Duennebier)

Site BON-8 should be relocated to be on crossing seismic lines. Availability of Navoceano SAS multi-beam bathymetry is critical because of nearby canyons.

There appears to be adequate data available for the sites on serpentine diapirs (BON 7, MAR 2, MAR 3). As these sites are reentry, geotechnical information is needed. Sediment samples taken during the upcoming ALVIN diving programs should be adequate if piston cores are not available.

ACTION: Hey summarize detailed information on existing data for Bonin-Mariana - 2 for future reference.

5 (F) Great Barrier Reef (Jones)

The existing available seismic coverage is limited to 6 channel sparker data acquired by John Mutter on a 20 km spacing. These data have very poor resolution below .3 - .6 sec. A detailed written assessment of existing data and further needs was submitted by Jones and is available at the Data Bank.

Recommendation:

If sites GBR 1-3 are to be seriously considered, than an early reading is needed on the political chances for being allowed to drill in a National Park.

The currently available data are totally inadequate to evaluate sites GBR 1, 2, 3, 5c and 5d. Seismic cross lines with good deep definition, removal of multiples and reliable velocity information are badly needed. Large scale sections and proper navigation plots are not available to us.

Definition of the nature of the shallow section needs to be documented (3.5-kHz and geological sampling) to resolve questions relating to spudding in. There are apparent safety problems with reefal structures which may be insurmountable. The Safety Panel will need a very completely documented package.

5 (G) Nankai (Suyehiro)

The Nankai Trough area is one of the best surveyed areas in the world. A detailed written report by Suyehiro on the site survey status is available from the Data Bank.

Further work is planned by Taira and Shipley (ESP) in 1987.

Site NKT-2 needs to have a cross line run exactly over the proposed site in order to image properly an apparent shallow culmination of a bottom simulating reflector (BSR) at the currently proposed location.

The JNOC 55 data set is critical to this drilling and it is not yet publicly available.

ACTION: Suyehiro obtain release of JNOC-55 data set in Nankai. Also discuss with Taira the BSR problem at site NKT-2.

5 (H) Lau Basin(Hey for Duennebier)

The SSP discussion was based on a verbal report to Hey by Brian Taylor regarding a phone conversation with Jim Gill about an information meeting of Lau Basin proponents who had gathered in late October to prepare a single Lau Basin proposal. Consequently all SSP conclusions are tentative until checked against the forthcoming synthesized proposal.

Lau 1 - SW of L-11, 200 m penetration, reentry, possibly a bare rock site.

Existing data include Seabeam, 1.5-kHz and a sequence of cores by Cronan nearby. No heat flow data exist, and the Germans' experience with trying to get it was very discouraging.

Meyer expressed the need for detailed contact between TAMU and the site proponent as the proposal matures, if bare rock drilling is a serious possibility.

Lau 2 - Western edge of Lau Basin. Known data limited to 3.5-kHz and Seabeam. Sediment thickness unknown. Seismic and heat flow data needed.

Lau 3 - Tonga Ridge. Exact location unknown to SSP but extensive data should be available. Questionable if seismic cross lines exist. Seabeam coverage is only on northern part of Tonga Ridge.

Lau 4. Tonga forearc at the trench/slope break. Seabeam needed. Cores will be needed as this is a reentry site.

Lau 5. Near Valu Fa in a small perched basin. Sediment thickness unknown. Reentry planned. Nearby MCS, Seabeam and photo coverage exist. Cores needed, and German attempts to core nearby were unsuccessful. Heat flow and shallow source side scan also needed, and perhaps refraction.

Lau 6. Sedimentary basin between Valu Fa and Tofua Arc. Seabeam and MCS exist. Shallow source side scan needed to resolve regional tectonic setting. Synthesized magnetic interpretation needed to resolve plate geometry or at least to clarify the extent of the ambiguities.

ACTION: Meyer ask Gill to prepare a full report on site survey status for Duennebier. In particular, what work is planned by Cronan on the Washington in 1987?

5 (I) Vanuatu (Mauffret)

The drilling proposal covers three areas: the collision between the D'Entrecasteaux Ridge and the Vanuatu Trench, the inter-arc rifting in the Aoba Basin, and the back-arc Coriolis Trough.

The Charcot SEAPSO cruise in 1985 provided site surveys for the D'Entrecasteaux and Coriolis locations. To date the Data Bank has only received three track charts for these surveys. In the Aoba Basin only two MCS lines exist. A French MCS cruise (MULTIPSO) is tentatively planned to the Coriolis Trough in April/May of 1987.

Recommendations:

1) For D'Entrecasteaux, USGS MCS lines 100, 106 and 107 need to be migrated. Plans for this are rumoured to be going ahead.

2) For the Aoba Basin, no multibeam bathymetry needs to be acquired as the area is flat. Piston cores will be needed at sites IAB-1 and 2 if they are reentry sites. The existence of volcanic sills makes the need for reentry very probable.

3) Heat flow would appear to be highly desirable for the Aoba Basin and Coriolis Trough. It may also be needed at the D'Entrecasteaux sites.

ACTION: Brenner contact Fisher (USGS) regarding migration of MCS at D'Entrecasteaux. Search existing core locations in Aoba Basin.

Mauffret take action to have Charcot site survey data submitted to Data Bank. Ask WPAC panel for their opinion regarding the need for heat flow data to support the 5 scientific objectives at the Coriolis Trough.

5 (J) Zenisu (Mauffret)

These sites will examine the history of apparent reverse faulting of oceanic basement during subduction. Site 1 is a reference hole, 3 and 4 are on the ridge, and 5 will date the age of tilting.

Taira (ORI) plans an MCS survey in 1987. Migration will be needed to resolve fault geometry.

5 (K) Downhole Experiments in WPAC Sites (Jones)

The SSP has inadequate information on current plans. Suyehiro will take over from Jones as watchdog.

ACTION: Suyehiro try to clarify what downhole experiments are being planned for WPAC holes and to identify any special site survey needs associated with such experiments.

6 - RISER DRILLING REQUIREMENTS

Meyer reported that TEDCOM seems to be shying away from standard riser drilling as being too expensive in terms of both time and money. They are planning a January workshop at which many alternative options will be considered.

The SSP recognizes that engineers need to have specific parameters to build into their design models. Perhaps a few specific examples of generic deep penetration sites need to be identified. Two mentioned were the Somali Basin and the East Pacific Rise at 13°N. Perhaps additional site surveys will be needed just to provide constraints for design purposes.

ACTION: Peirce ask Taylor to put this item on the PCHMN agenda. (Done in Villefranche).

Meyer attend TEDCOM workshop as SSP liaison.

7 - OTHER BUSINESS

ACTION: All SSP members forward national ship schedules to Peirce and Weidicke before January meeting.

The SSP thanked Mauffret for hosting an excellent meeting. Special thanks are due to J. Coubelle, G. Boillot, J. Mascle, and all the staff of the Laboratoire Geodymique sous Marine in Villefranche for their gracious hospitality.

Appendix A

Summary of Underway Geophysics Report
JOIDES Resolution Leg 111 T.

An evaluation of the underway geophysics program was conducted on the JOIDES Resolution during Leg 111T at the request of the SSP. This evaluation was in response to reports of poor results obtained on some of the early legs of the ODP. Reasons for the poor results appeared to be high noise levels generated in or by the ship, and possibly non-optimal sensor locations and towing practices. As the underway geophysical data are important, especially in remote and poorly explored regions where survey and transit data are needed, improvements in these data will be of considerable value.

The 3.5-kHz system works well with the Raytheon CESP (chirp) system and the sensor array located in the aft tank at speeds of up to 10.5 kts. No testing was done at higher speeds because of problems with the ship propulsion system. The 3.5-kHz system has problems with bubbles under the hull, which might helped by a towed array, on array close to the bow, or bubble deflectors.

The reflection seismic system operates well at speeds up to 7 kts, but low frequency noise increases rapidly at higher speeds. As this noise was apparent on all streamers tested, much of the noise is apparently ship generated. It is likely, however, that if streamers designed for high were speed towed well behind the ship, this noise situation would improve. Useable seismic reflection data can be acquired at 10.5 kts, and possibly higher.

The digital signal channel (HIGHRES) seismic system works well and provided excellent data for further analysis, especially at survey speeds.

Recommendations for improvement of the system include (depending on funds available) : bubble deflectors forward of the 3.5-kHz transducer array from the ship's wake, a forward 3.5-kHz array dome below the hull, acquisition of a high-speed seismic streamer, and acquisition of a spectrum analyser for test purposes.

INSTITUTE FOR GEOPHYSICS
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August 20, 1986

Dr. John W. Peirce, Chairman
Site Survey Panel
Petro Canada
P.O. Box 2844
Calgary, Alberta T2P 3E3
CANADA

Dear John:

I wish to comment on one aspect of the Site Survey standards published in v. 12, no. 2 JOIDES Journal. I strongly disagree with your panel's lack of recognition of the high value of digital single-channel seismic data, whether deep penetration or high resolution.

I have been actively involved in collection, processing and interpretation of digitally recorded single-channel data since 1981. I had thought it was now generally recognized that collection of analog seismic data is archaic, particularly considering the low incremental cost for digital collection. The value of digital collection of reflection data (or for that matter sonobuoy refraction lines) are obvious from two general considerations.

1. Improvement of site selection by increasing apparent signal-to-noise with;

- source deconvolution
- well designed time-varying filters
- time varying gain functions
- trace mixing
- migration (yes, it is routinely and easily done)
- display qualities
  - full wave forms
  - lower vertical exaggeration

All of these are equally applicable to what you define as deep penetration or high resolution data.

2. Post-drilling seismic to well-hole correlations.

Without digital data we cannot estimate impedance functions to correlate with well-hole estimates, or produce synthetic seismograms from the well-log data to provide precise correlations to the regional data base, the seismic data.

Almost all attempts by DSDP to rigorously tie well-holes to the seismic data base have been wholly inadequate because of poor logging and lack of digital seismics. Now we have invested heavily in logging, but collection of a digital seismic base seems in jeopardy.

I hope you will take this issue to the site survey panel for at least some discussion.

Sincerely yours,

Thomas H. Shipley

Thomas H. Shipley
Research Scientist

THS:km

Enc.

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PETRO-CANADA

October 17, 1986
Ref: 444.2

Dr. Thomas H. Shipley
Institute for Geophysics
The University of Texas at Austin
Austin, Texas 78751-2789

Dear Tom,

Thank you for your letter of August 20 regarding the importance of digital seismic data in ODP site surveys. I apologize for the unreasonable delay in my response - ODP matters haven't been very high on my priority list at a time of corporate turbulence. My participation in ODP now seems to have been re-endorsed for the immediate future, so I can look ahead to the next SSP meeting.

The Site Survey Panel (SSP) concurs completely with your emphasis on the importance of high quality digital seismic data for improved site selection and post-drilling seismic to lithologic unit correlation. With the improved logging capability of the *Resolution* and the ability to do synthetic seismograms on board, the need for high quality seismic data is more apparent than ever.

When the SSP designed the Site Survey Standards matrix, those who were involved also recognized that digital seismic, however desirable, is often not available out of existing data bases. Imposing a firm guideline requiring digital seismic in any given setting might preclude many drilling ideas because of the lack of site survey data. The SSP did not wish to be seen to be setting standards that got in the way of good science. There are some in the ODP community who still argue that good geophysics is not necessary for some site surveys. While the SSP completely disagrees with that position, it wished to set standards which would be enforcable and viewed as reasonable. As time evolves and good geophysical coverage becomes more generally accepted as a norm, I see the Site Survey Standards being revised to become more stringent. I also expect to see a natural evolution in that direction as the scientific proposals become more explicitly dependent on high quality geophysics.

Your letter comes at an opportune time for discussion as we shift our focus from the data-poor Indian Ocean to the relatively data-rich Pacific. I have put the subject down for discussion at the November SSP meeting. While I would not expect a revision of standards so soon on the heels of last Spring's revision, we should be thinking ahead.

Thank you for your interest. I shall let you know how the discussion goes.

Sincerely,

Dr. John W. Peirce, *P. Geophys.*
Chairman, Site Survey Panel

JWP/jwp
Shipley 86-10-17.ODP

Data Supplied (FY 86)

Recipients listed by Institution/Country

U.S.	#	% of Total Requests
ODP	24	21%
LDGO	7	6%
URI	7	6%
WHOI	5	4%
OSU	4	3%
RSMAS	3	3%
UT	3	3%
DSDP	2	2%
HIG	2	2%
SIO	1	1%
TAMU	1	1%
UW	0	0
Other U.S.*	26	22%
Total U.S.	85	73%
Non-U.S.		
France	12	10%
UK	5	4%
FRG	4	4%
Canada	3	3%
Japan	3	3%
ESF	0	0
Other**	4	4%
Total non-U.S.	31	27%
Total Requests	116	100%

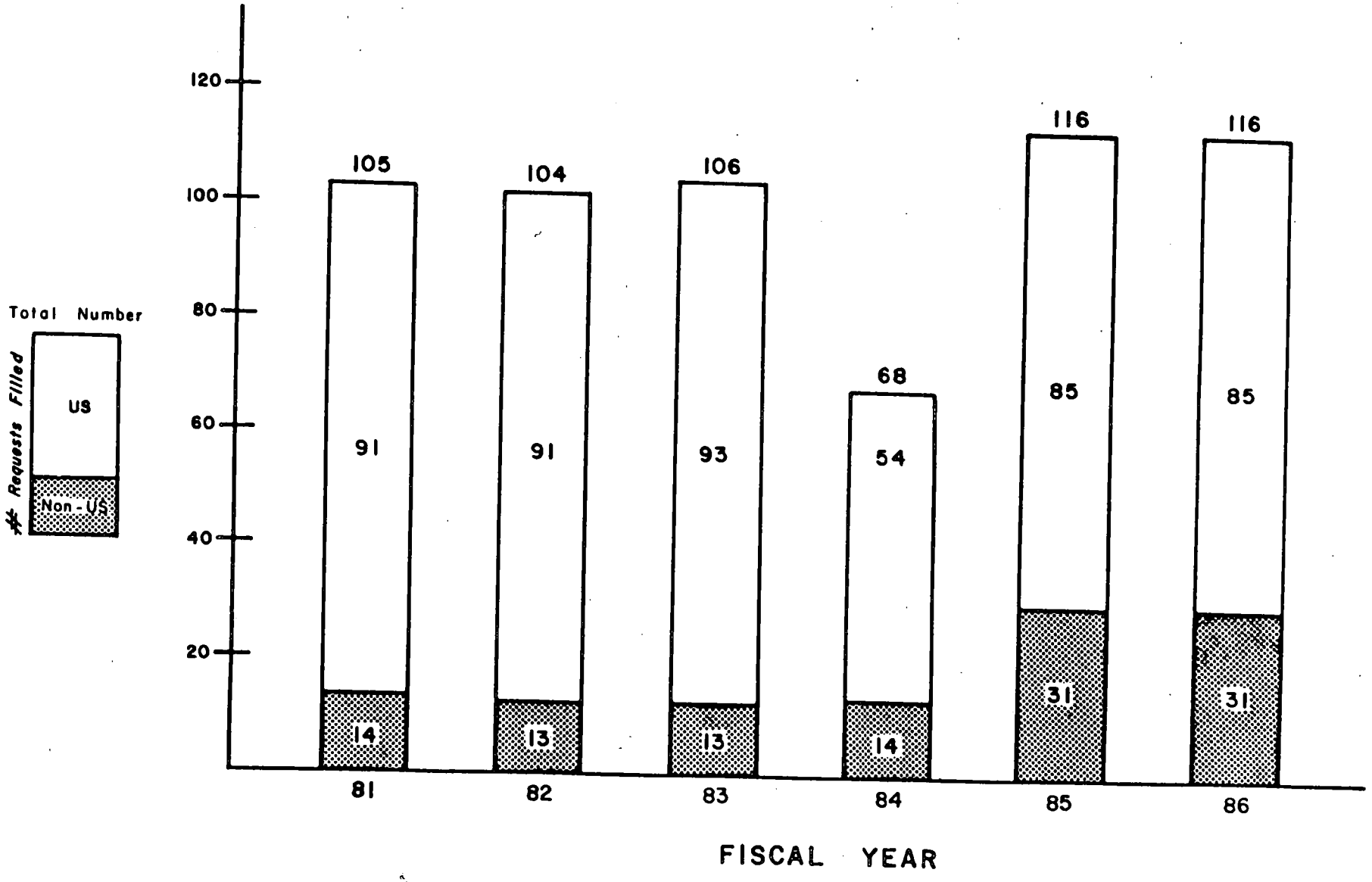
*Includes:

a) requests filled for panel members or site proponents from non-JOI institutions
b) requests filled for co-chiefs from non-JOI institutions
c) requests filled for panels (such as PPSP)
d) requests filled for post-cruise studies by non-JOI members of a site survey team

** Includes safety packages (one to each country)

Data Supplied, By Project (FY 86)

	#	%
Planning for Proposal Submission (panel or individual)	15	13%
Site Survey Planning/Evaluation	15	13%
Planning for Drilling	62	54%
Post-cruise studies	19	16%
Other	5	4%
	116	100%


Total Number
Requests Filled
US
Non-US
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100
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FISCAL YEAR

FRENCH RESEARCH VESSELS 1987

(provisional)

SHIP	TIME	AREA	PROJECT	INVESTIGATOR
JEAN-CHARCOT	January February	East Pacific Easter plate	RAPANUI Seabeam - SCS Site survey	INSU (Francheteau)
" "	April May	West Pacific (Vanuatu)	SEAPSO MCS Site survey	ORSTOM (Récy)
" "	May Juny	Central Pacific (Nauru Basin)	MESOPAC MCS Site survey	INSU (Lancelot)
" "	July	East Pacific (Middle America Trench)	SEAMAT Seabeam	INSU (Bourgois)
SUROIT	April May	East Atlantic (Bay of Biscay- Galicia Bank)	REFRAMARGE Réfraction	IFREMER (Sibuet) INSU (Pascal)
"	August	West Atlantic (Barbados)	ENSBAR SAR Accretinary prism	INSU (Le Pichon)
"	October November	Caribbean Sea (Colombia and Venezuela)	DIAPICAR Coring and seismic	INSU (Vernette)
NADIR (Nautile)	September	West Atlantic	FARE *recovery tool* Technology diving	IFREMER *(Le grand)*
"	October	West Atlantic VEMA FZ	VEMANAUT Diving	IFREMER (Auzende)
CORIOLIS	August	West Pacific	EVA 14 Réfraction OBS	INSU (Pascal) ORSTOM (Récy)
MARION DUFRESNE	March April	South Ocean Antarctica	PALEO climatology	INSU (Duplessis)

Japanese Research Vessels

R/V HAKUHO-MARU (ORI, U. of Tokyo)	NOV 17- DEC 15, 1986	off Honshu (K. Kobayashi)
	JUL 1 - AUG 13, 1987	Western Pacific (K. Kobayashi)
	JUN - SEP , 1988	NE Pacific (J. Segawa)
R/V TANSEI-MARU (ORI, U. of Tokyo)	1987	Nankai Trough (A. Taira)
chartered ship (DELP project)	1987	Western Pacific (H. Kinoshita)
chartered ship (Earthq. Prediction Program)	1987	Japan margin (H. Shimamura)
R/V HAKUREI-MARU (JAPEX/GSJ)	NOV 22- MAR 6, 1987	Amundsen Sea
R/V TAKUYO (MSA)	routine	Philippine Sea

TENTATIVE AGENDA

SITE SURVEY PANEL MEETING

JAN. 13-14, 1987

LAMONT-DOHERTY GEOLOGICAL OBSERVATORY

PALISADES, NEW YORK

1. - Preliminary matters

Introduction, schedules, minutes, etc.

2. - IOP Report (Brenner).

3. - Site Survey Assessments and updates.

a. Sub-Antarctic (Labrecque)
b. SWIR (Dick)
c. Red Sea update (Cochran)
d. Neogene I (Mountain)
e. Neogene II update (Brenner)
f. Makran update (Kidd or Jones)
g. Intraplate deformation (Weissel)
h. Ninetyeast Ridge (Brenner for Curray and Sclater)
i. Broken Ridge (Weissel)
j. Argo/Exmouth update (Larsen)

4. - WPAC Report (A. Mauffret)

5. - Underway Geophysics on 112T (Meyer)

6. - Next Meeting

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PETRO-CANADA

1986 07 24

Dr. Roger Larson
Chairman PCOM
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Dear Roger:

In view of the refusal by the Saudis to allow the DARWIN to survey sites in the Red Sea, Tony has asked me to provide a concise summary of site survey status to assist the decisions which need to be made at the upcoming PCOM meeting in Cornerbrook.

Below are my comments based primarily on the last SSP minutes and Carl Brenner's June update for the Red Sea. I have assumed that the relevant German and Italian data still not in hand will be available and will be of reasonable quality. This is a reasonable assumption.

SITES	COMMENTS
1. 17-18°N	SS data inadequate, not drillable.
2. Nereus Deep	Drillable if Italian data OK.
3. Bannoc Deep	Drillable.
4. Mabahiss Deep	Site 3a drillable. Site 3b drillable for sedimentary objectives only. Basement not visible on seismic. Site 3b not drillable (no cross line).
5. Shaban (Jean Charcot) Deep	Drillable.
6. Main Trough, 24°N	Drillable.
7. Zabargad I. and variants	No data. Not drillable.
8. Sudanese Delta	Available data inadequate. Not drillable.

.../2

I trust that the above meets your needs. Don't let Malpas run people to death on Table Mountain!

Warm Regards,

Dr. John W. Peirce
Prof. Geophys.
Chairman SSP

JWP/cm

cc: Carl Brenner, ODP Data Bank
Jim Cochran, RSWG
Roland Schlich, IOP

Report on First Meeting of Steering Committee
for Second Conference on Scientific Ocean Drilling (COSOD-II)

European Science Foundation
Strasbourg, FRANCE

September 30 - October 2, 1986

A copy of the provisional agenda is attached to this report.

Participants:

Members: Xavier Le Pichon (Chairman), Joe Cann, Jeff Fox, Jan van Hinte (represented by Wolf Schlanger), Miriam Kastner, Hajimu Kinoshita (absent), Casey Moore, Jason Morgan, Nicolai Peterson, Ray Price, Bill Ryan, Sy Schlanger, Philippe Hudon (Secretary).

Guests: Bernard Munsch, Lou Garrison, David Goldberg, Don Heinrichs, Roger Larson, Duke Zinkgraf.

The first part of the meeting, which I missed, was a review of accomplishments to date in ODP, presented by Roger Larson. This was followed by a presentation on technology by Lou Garrison. I joined the meeting during this presentation. Garrison reviewed problems with hard rock drilling, and in particular, poor core recovery. His views were that more practice is needed, and attempts should be made using wire line diamond coring. He discussed the challenges for hot rock drilling — the technology is available from research and development on geothermal energy, but the adaption to ODP is not trivial. A specific site proposal is needed in order to start detailed engineering studies.

Dave Goldberg made a presentation on logging. He emphasized two problems: bridging in the holes, and the need for more time in the holes. He reviewed the array of logging techniques that have been used and attempted, and that are planned for the near future. Among the scientific objectives identified were: delineation of turbidites, information on mineralogy, seismic stratigraphy (downhole seismic, synthetic seismic, and calibration of seismic sequences), and studies of Milankovich cycles (spectral analysis of logs, eg. porosity from resistivity).

Duke Zinkgraf of SEDCO FOREX made a presentation about blowout preventers and the use of risers. This was accompanied by extensive notes.

On October 1-2, the meeting focussed on agenda items 7-10 with the following results:

COSOD-II will consist of a combination of five simultaneous Penrose-style workshops, plus plenary sessions. Discussion in each workshop will be focussed on keynote "position papers" that will be circulated to participants in

advance of COSOD-II. Maximum participation in COSOD-II will be 350, distributed as follows: 150 USA, 30 for each of the other six members of ODP, and 20 from other countries which are not members of ODP. Each of the five workshops will comprise about 70 participants. Each workshop will be organized by its own Working Group. The Working Groups will meet once or twice before COSOD-II to set the program, to select participants in consultation with the Steering Committee, and to generate keynote papers which will be distributed to all participants of the workshop in advance of the July 1987 meeting, and they will prepare a final report within two months after COSOD-II.

COSOD-II should be open to the scientific community at large and should be linked to new or existing global programs.

The Chairman of the Steering Committee, Xavier Le Pichon will arrange, as soon as possible, for publication of advertisements inviting applications for participation in COSOD-II. The advertisements will appear in various journals and newsletters including Géochronique, EOS, Geotimes, Nature, GSL Newsletter, Naturwissenschaft, New Scientist, etc. National Committees will also be asked to advertise. Applications will be received at the office of the Chairman of the Steering Committee, until February 15, 1987. Copies will be sent to Working Group Chairmen and to national representatives (R.A. Price for Canada) in order to ensure that each Working Group has the proper balance of disciplinary and national representation. Acceptances will be sent by April 1, 1987. The draft reports prepared by the individual Working Groups will be distributed to the participants by June 1987.

The terms of reference and organizing working groups for the five simultaneous Penrose-style workshops are as follows:

1. Global Environmental Changes

   A workshop will be held to present evidence for rhythms, cycles, and long-term changes recorded in marine sediments. Discussions are solicited for such topics as Milankovich cycles, sea-level changes, ocean circulation, dissolution anoxia events, long-term chemical evolution, and how these phenomena can be further addressed by ocean drilling.

   What improvements in stratigraphic resolution can be achieved using Milankovich cycles back through the Cenozoic and Mesozoic? How do solar insolation changes drive global climate — through CO_2 changes in deep water? Through changes in the mode of deep water formation? What are the known and what are the elusive linkages, fluxes, feedbacks, and chemical/sediment/isotope budgets? What are the special conditions which lead to distinctive modes of climate and sedimentation, such as the ice-house, green-house, widespread phosphates, cherts and sapropels? What are the optimum sampling and logging tools, at-sea platforms, analytical facilities, and program strategies?

Working Group — John Imbrie (USA) - Chairman, Al Fisher (USA), Dieter Hass (FRG), Wolf Berger (USA), Brian Bornhold (Canada), Jan van Hinte (Netherlands), Eric Barron (USA), Yves Lancelot (France), __ Elderfield (UK), and Maria Cita (Italy).

2. Fluid Circulation and Global Chemical Budget

The focus of this Working Group is thermally; tectonically; and density-driven fluid circulations. Environments to be included are spreading centres, ridge flanks, mid-plates, subduction zones, arcs, and passive margins. The Working Group should consider implications for heat budget, chemical fluxes (inorganic and organic), mineralization, diagenesis, benthic biology, and structural geology. Emphasis should be given on how physical properties control and are altered by fluid circulation.

Working Group — Graham Westbrook (UK) - Chairman, J. Boulegue (France), Miriam Kastner (USA), P. Baker (USA), M. Langseth (USA), T. Bowers (USA), E. Davis (Canada), M. Einaudi (USA), __ Otha (Japan).

3. Mantle-Crust Interactions

The basalts and associated rocks of the seafloor provide a window through which the processes of mantle-crust interaction can be understood. Melting of the mantle is a central process in the development of the ocean crust, volcanic arcs, mid-plate seamounts, and the underlying mantle. The melting process is moderated by mantle heterogeneity, contamination by subducted crust, varying volatile contents and mantle convection. This signal is then modified during segregation of melt, its vertical and lateral migration and metasomatic interactions with the overlying mantle. At shallow levels, fractionation and interaction with already crystalline crust may occur in closed or open magma chambers. Tectonic processes may act to segment the magmatic systems and to separate contrasting provinces. Rates of tectonic processes may also be important in controlling mantle-crust interactions. Major topographic anomalies, including hot spot traces and depth anomalies along plate boundaries, are surficial expressions of deep-seated mantle processes, perhaps reflecting convection at different scales. Products of mantle-melt evolution include deposits of chromite and platinum group elements. We wish to design a drilling program which will contribute in a major way to the testing of existing models and to the better definition of these processes.

Working Group — David Walker (USA) - Chairman, __ MacDonald (USA), Henry Dick (USA), Keith O'Nions (UK), John Malpas (Canada), J. Gill (USA), __ Shibata (Japan), Al Hofmann (FRG), __ Bougault (France), Jason Morgan (USA).

4. Brittle and Ductile Deformation of the Lithosphere

The deformation of the lithosphere over its whole thickness, whether along divergent or convergent boundaries, is poorly understood, although exciting possible new models have been proposed. The possibility that faults or décollements play a significant role to great depths within the lithosphere seems to be borne out by deep seismic reflection imaging. The task of this Working Group is to examine how deep drilling, in combination with other techniques, including deep seismic reflection imaging, can provide information on the way in which the oceanic and continental lithosphere are deformed at plate boundaries. Significant problems that might be considered include simple shear extension and tectonic denudation of the lower crust and/or upper mantle, assymetric conjugate passive continental margins, nature and origin of exotic terranes, terrane accretion and collision, tectonic delamination and flake tectonics, tectonics of mid-ocean ridge crests.

Careful attention should be paid to the necessary drilling and associated tools and to the liaison with other existing programs dealing with the same objectives.

Working Group — Adolf Nicolas (France) - Chairman, Brian Wernicke (USA), Seiya Uyeda (Japan), Ove Stephansson (Sweden), Glen Stockmal (Canada), Dan Karig (USA), Manik Talwani (USA), Karl Hinz (FRG), Jeff Fox (USA).

5. Evolution and Extinction of Oceanic Biota

This Working Group will deal with the stratigraphic record in the World Ocean which contains the history of organic communities through time. This history includes the sudden appearance of major new groups, marked changes in the diversity of the biota, and global extinction events.

Internal and external processes are forcing factors that may cause severe perturbations in the faunal, floral and bacterial populations. Various processes and factors that have been proposed to account for these perturbations include periodic to random meteorite impact events, wide-spread oceanic anoxia, temperature and salinity fluctuations, sea-level changes, glacial events, variations in insolation, changes in the polarity and intensity of the magnetic field and volcanism.

Given the capability of drilling platforms to sample a continuous stratigraphic record from a wide variety of paleoenvironments on a global scale, we are afforded the opportunity to build the data base needed to test the present generation of hypotheses and develop new hypotheses. Although the record in the present day oceanic basins extends only back to Middle Jurassic time, studies of outcrop sections

have shown that much of the entire Phanerozoic record is the product of the kinds of processes and events that mark the Mesozoic to recent time span. The question before us is: can we relate the history of biotic events to internal oceanic physical and chemical processes and external factors as these are recorded in the sedimentary record?

Working Group — Hans Thierstein (Switzerland) - Chairman, Jack Sepkoski (USA), C. Laj (France), J. Kirshwink (USA), D. Herm (FRG), Walter Alvarez (USA), A. Hallam (UK), T. Saito (Japan), S. Schlanger (USA).

In addition to the papers prepared by the five Working Groups, the Chairman of the Steering Committee will solicit papers on various technological challenges, including: 1) bare rock drilling; 2) hot rock drilling; 3) logging; and 4) riser drilling. These papers will also be circulated in advance to all Working Groups.

R.A. Price,
Director General,
Geological Survey of Canada

RAP:js

October 20, 1986

COSOD II Steering Committee first meeting

Strasbourg, Sept.30 - Oct. 2, 1986

PROVISIONAL AGENDA

1. Introductions

2. Approval of provisional agenda

3. Charge to COSOD II

   a. Definition
   b. Discussion and approval of terms of reference

4. Presentation by R.Larson of present scientific accomplishements of ODP with respect to top priority recommandations made by COSOD I

5. Discussion on item 4

6. Future possible technological developments: brief presentations and discussion

7. What should COSOD II be ?

8. Working groups preparation for COSOD II

   a. General definition - terms of reference
   b. Topics
   c. Membership
   d. Calendar for meetings and reports

9. Format for COSOD II conference, participation and publicity

10. Preparation and publication of COSOD II report

"GLOBAL ENVIRONMENTAL CHANGES"

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"FLUID CIRCULATION AND GLOBAL CHEMICAL BUDGET "

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Chairman: Graham K. Westbrook

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WORKING GROUP
"EVOLUTION AND EXTINCTION OF OCEANIC BIOTA"

Chairman: Hans Thierstein

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COSOD-II: Public Announcement

SECOND CONFERENCE ON SCIENTIFIC OCEAN DRILLING (COSOD II)

The future of ocean drilling will be discussed at the COSOD II meeting to be held in Strasbourg, France between 6-8 July 1987. This meeting will set up the scientific framework for ocean drilling until about 1996. A wide range of advice, from both within and outside the traditional oceanic community, will be sought. Five working groups will prepare prior position papers on Global Environmental Changes, Mantle-Crust Interactions, Fluid Circulation in Crust and Sediments and Global Chemical budgets, Brittle and Ductile Deformation of the Lithosphere and Evolution and Extinction of Oceanic Biota. Since space at the conference will be limited, applications are invited from all interested scientists, which should be sent to Philippe Huchon, Executive Secretary, COSOD II, Département de Géologie, Ecole Normale Supérieure, 24 rue Lhomond 75231 Paris Cedex 05, France (Phone 33.1.43.31.84.88 - Telex 202 601 F NORM SUP).Please indicate in your letter the first and second working group topics with which you would wish to be associated, together with a short statement of the expertise that you can contribute to the discussion. Scientists from countries already members of JOIDES may obtain support from their national funding agencies. Closing date for applications is February 1st 1987.

Neogene II carbonate saturation profile

Table 1

Site	Location	Water Depth	Core Type	Penetration	Est. Site Time[1]
CARB 1	7°30'S 59 00'E	1600m	Double HPC/XCB	250m	58 hrs
			Single Bit	(250m?)	36 hrs (?)
CARB 2	4°00'S 60°36'E	3000m	Double HPC/XCB	250m	80 hrs
CARB 3	3°55'S 60°05'E	3800m	Double HPC/XCB	250m	86 hrs
CARB 4	2°15'S 61°20'E	4600m	Double HPC/XCB	250m	100 hrs
				Total	360 hrs or 15 days

[1] These estimates of site time are revised from those presented in JOIDES Ref. No. 226/B and were provided by Dr. Jack Baldauf (ODP Staff Scientist) and engineers at TAMU. The estimates for each site assume HPC/XCB to 250m followed by a second HPC hole to 250m, and include time for locating the site and for one drill string round trip. At site CARB 1, an additional allotment of time is included for single bit coring into basement to satisfy objectives of R. Duncan (OSU).

The IOP (and SOHP) recommended at its Nov.86 meeting to add one site from the DROXLER et al. proposal (183/B)(site M-3):

Site M-3 73° 43' E, 5° 13' N

1600 - 1800 m

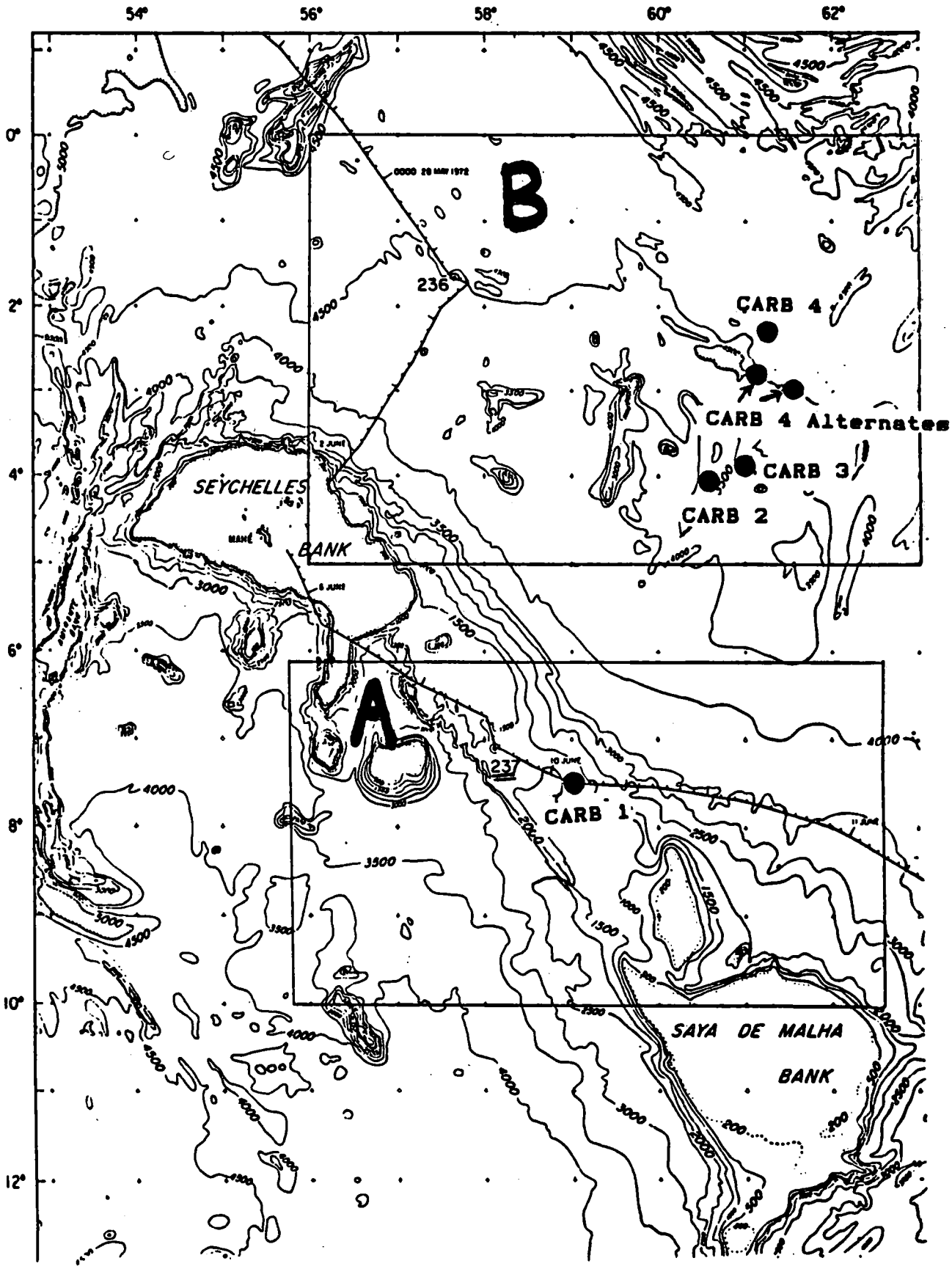
On a ridge crest close to core V29-26

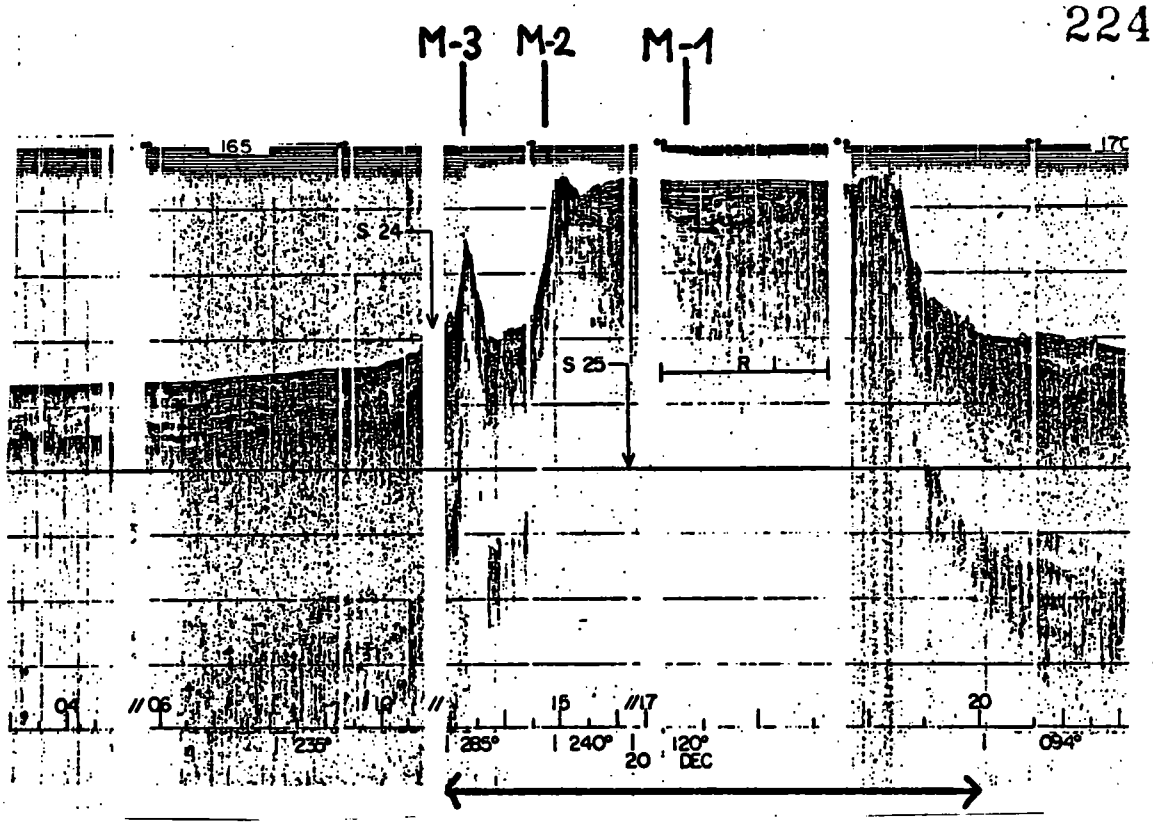
Projected location on seismic profile V2902

Est. drilling time 2 - 2½ days for single HPC

Depth of hole 200 - 250 m

Figure 1: Regional bathymetry of the Seychelles Bank showing the location of proposed HPC sites. See Figure 2 for available seismic profiles from boxes A and B.





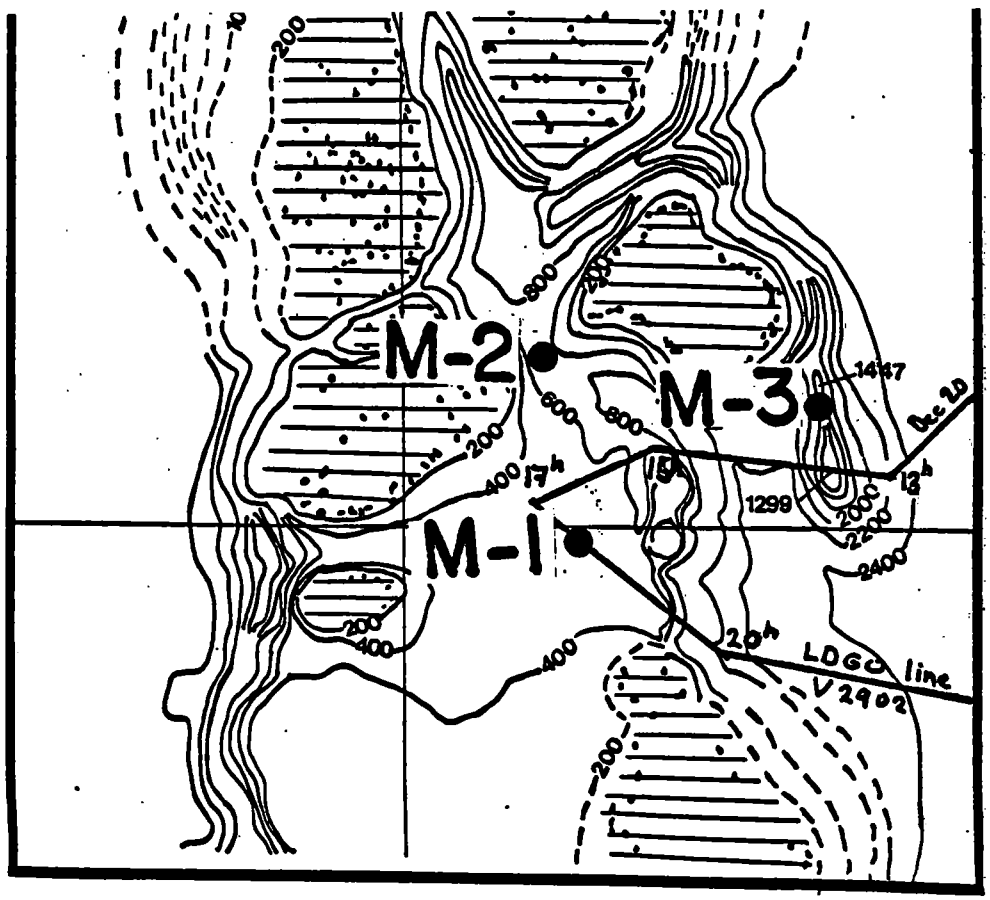
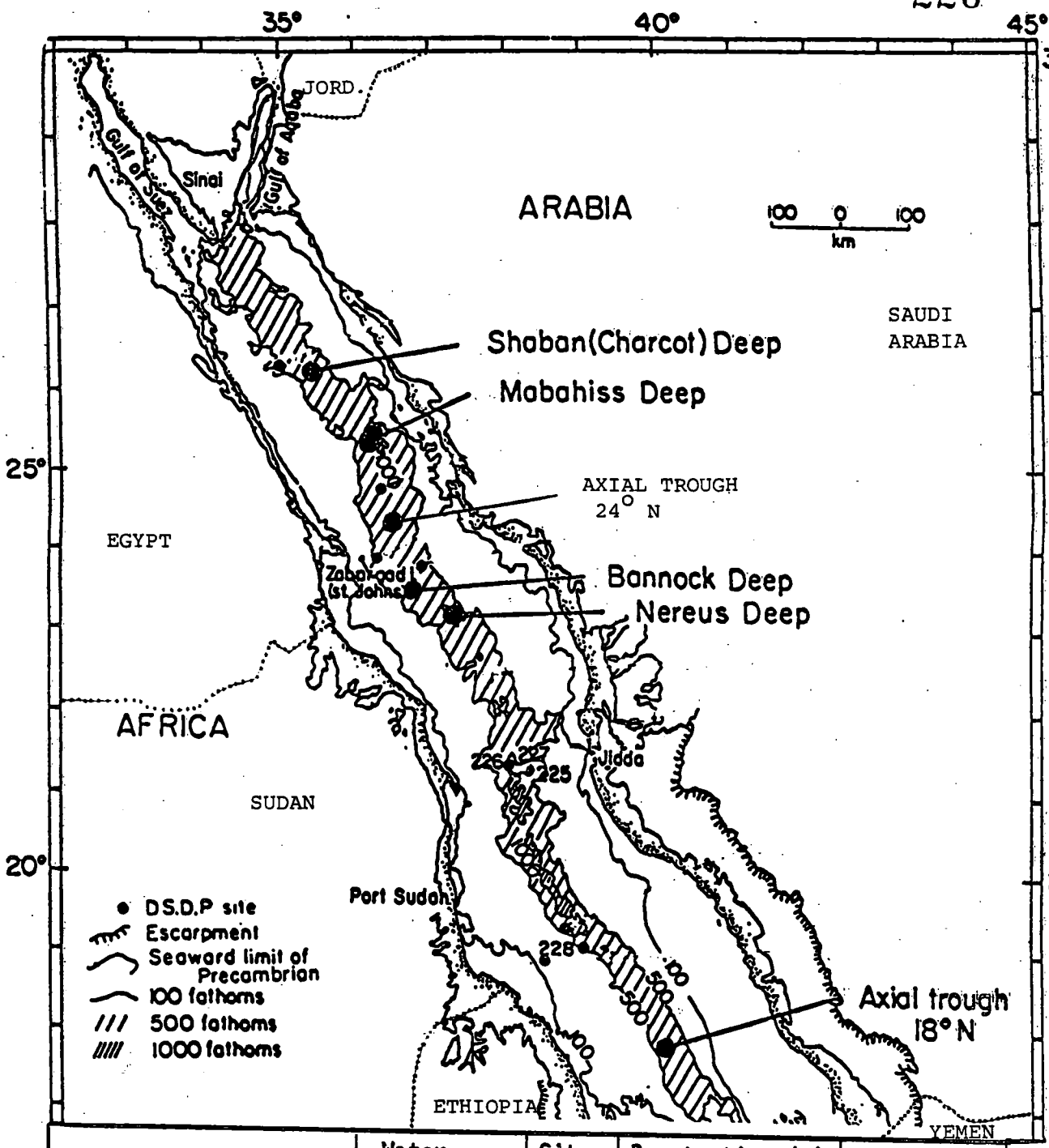


Figure 12 : Detailed bathymetric map of the northern part of the Maldives, source Navoceano sheet 2901 (N-1). Location of three HPC sites M-1, M-2 and M-3. Position of LDGO seismic line Vema 2902.



Sites	Water Depth (m)	Site Days	Penetration (m) Sed.	Bsm't	Hole Type
1. 17.5°N Axial trough	1800	7	100-300	50-100	Rot. Core
2. Nereus Deep "Natural Lab."	2300	8(+)	30-50	200	Rot. Core Re-entry
3. Bannock Deep	1500	5	100	100	Rot. Core
4. Main Trough 24°N	1125	5	200-300	---	Double HPC
5. Mahabiss-SW	1000-1100	4	200	150	Rot. Core
6. Mahabiss-NE	1500	5	400	100	Rot. Core
7. Shaban Deep	1500	5	100	100	Rot. Core

22 November 1986
Miami, Florida
(at the IOP meeting)

Dear Henry, Lou, Dick, et al:

Sorry that I could not make your WHOI meeting, however, please find enclosed the 15"/deg.long. chart that I borrowed from Henry for the IOP meeting, a three page summary of IOP recommendations for SWIR, and the following logic that is the basis for these IOP recommendations.

I presented the Conrad 27-09 site survey results and Henry's recommendations of (1) the "gravel pit" transect, (2) the median ridge deep hole, and (3) the northern fracture zone transect, in that priority order. While IOP felt that these were all interesting programs, they chose to re-prioritize the three programs as: (1) median ridge deep hole, (2) northern fracture zone transect, and (3) gravel pit transect; for the following reasons, many of which are operational or environmental.

1. If a bare rock guide base hole is to be attempted and successfully drilled several hundred meters deep, that will very likely take the entire leg, so we should try that first. If it fails early on, we can default to projects that don't take so much time.

2. The hypothesis that the median tectonic ridge is a serpentine diapier is a clearly testable hypothesis with a deep hole through a bare rock guide base, and demonstrating that result would be of major significance.

3. The top of the median ridge is the area <u>least</u> likely to be covered with rubble that has been mass wasted off the "scalloped" walls of the transform.

4. Both of the backup transects depend on some type of "pogo" drilling technique. Neither of these techniques that utilize down pipe motors have been proven successful to date. That is, the down pipe coring mud motor has been unsuccessful to date in use on the Mid-Atlantic Ridge. The somewhat redesigned hard rock Navi-Drill will be tested for the first time on Leg 114. It if proves successful there, then pogo drilling would be a lot more attractive.

5. The gravel pit transect would only be successful if in place basement were recovered from all of the proposed single bit holes. In addition to the uncertainty of being able to spud through the top layers of sand and gravel, the panel was skeptical that in place basement is coincident with acoustic basement on the seismic profiles. It was opined that it is likely that this is instead boulder-sized rubble that has been mass wasted off the scalloped transform walls.

6. Thus the first back up transect to the deep sites on the median ridge should be across the northern fracture zone that is the location of the only demonstratable sediment cover in the area.

7. This northern transect combines the possibility of mapping major upper crustal petrology changes with an investigation of how the median ridge within the transform evolves to the along-strike equivalent valley in the fracture zone extension.

8. It is clear that SWIR will be a high risk adventure, scientifically speaking. Thus the scientific party must be given considerable flexibility in on-site decision making. Bare rock guidebase deployment is viewed as providing additional engineering experience for TAMU as they have requested in the past. There are no other upcoming legs of this nature until possibly the Lau Basin in 1989. These considerations should be borne in mind by PCOM when recommendations are made at their January meeting for the manner in which command decisions are made on board the ship on Leg 115.

Sincerely yours,

Roger L. Larson

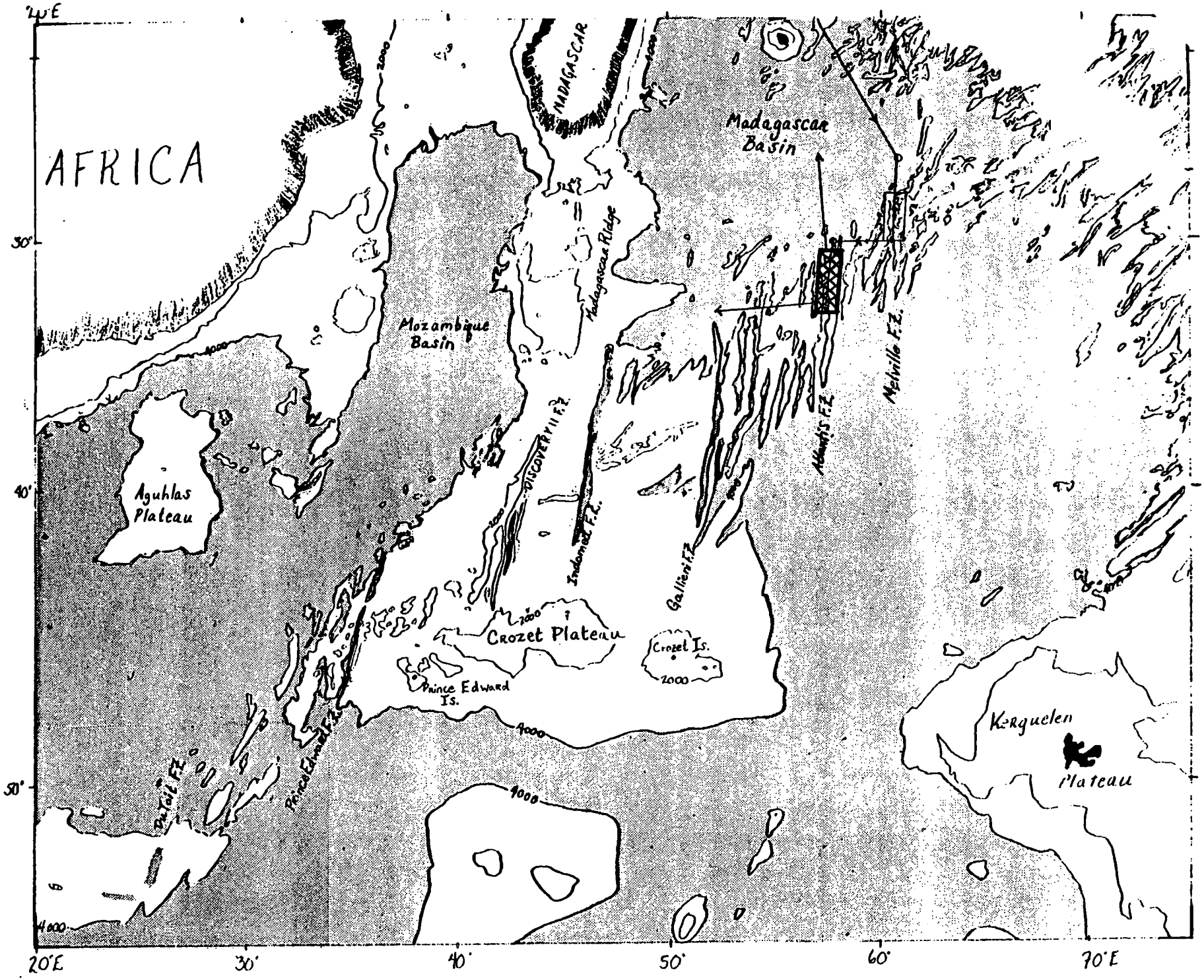

AFRICA
Madagascar Basin
Mozambique Basin
Agulhas Plateau
Madagascar Ridge
Indomed F.Z.
Gallieni F.Z.
Melville F.Z.
Atlantis F.Z.
Crozet Plateau
Crozet Is.
Prince Edward Is.
Kerguelen Plateau
Bathi F.Z.
20°E
30°
40°
50°
60°
70°E
30°
40°
50°
1000
2000
4000

Figure 1b

Summary of the Southwest Indian Ridge Fracture Zone Drilling Program

The Southwest Indian Ridge is the slowest spreading end member accessible for study of the development of ocean crust and fracture zones of the world's oceanic ridges. Its characteristics include the highest density of large relief fracture zones with the greatest abundance of ultramafic rocks of any oceanic ridge system in the world.

DRILLING OBJECTIVES

The prime objective is to obtain core samples and logs from a single site drilled as deeply as possible into the axis of the median ridge in the center of the Atlantis II transform valley. This ridge is hypothesized to be a hydrated (serpentinized) mantle diapir and to mark the principal zone of transform fault deformation. The recovered samples will test the serpentine diapir hypothesis, potentially allowing study of mantle petrology and its alteration characteristics, as well as the deformation characteristics of a zone of primary fault motion. The logging program will emphasize the standard Schlumberger logging tools and the borehole televiewer with temperature and packer measurements as secondary programs.

Rough time estimates based on bare rock guidebase deployment on Leg 106 indicate that ideal weather and seafloor conditions might allow guidebase deployment in a minimum of 15 days, leaving a maximum of 18 days for drilling and logging the deep hole. Weather delays and an extended survey prior to guidebase deployment will shorten drilling and logging time by an unpredictable amount.

Failing this prime objective, the fall back option is to obtain a transect of single bit holes to map basement petrology changes across the fracture zone extension of the active transform north of the northern spreading center / transfrom intersection.

PROPOSED SITES

The prime site is located at the axis of the median ridge in the transform at about 32°32'S, 57°03'E. Water depth is about 4700 m. This is near the southern end of the continuous segment of the 100 km long median ridge and is flanked by

lineated, transform valley floors about 5700 m deep. It is likely that this site has igneous rock outcropping at the surface and requires use of a bare rock guidebase to stabilize the bottom of the drill string.

The secondary transect of sites begins in a fracture zone valley along strike to the north from the transform median ridge and extends to the ENE into another broad shallow valley that is an along strike extension of the scalloped wall that bounds the east side of the transform. The first valley is 5000 m deep, probably sediment free, and located at about 31°36'S, 57°03'E. The second, broader valley is 4200 m deep, contains sediment, is the site of a heat flow survey and is located at about 31°34'S, 57°10'E.

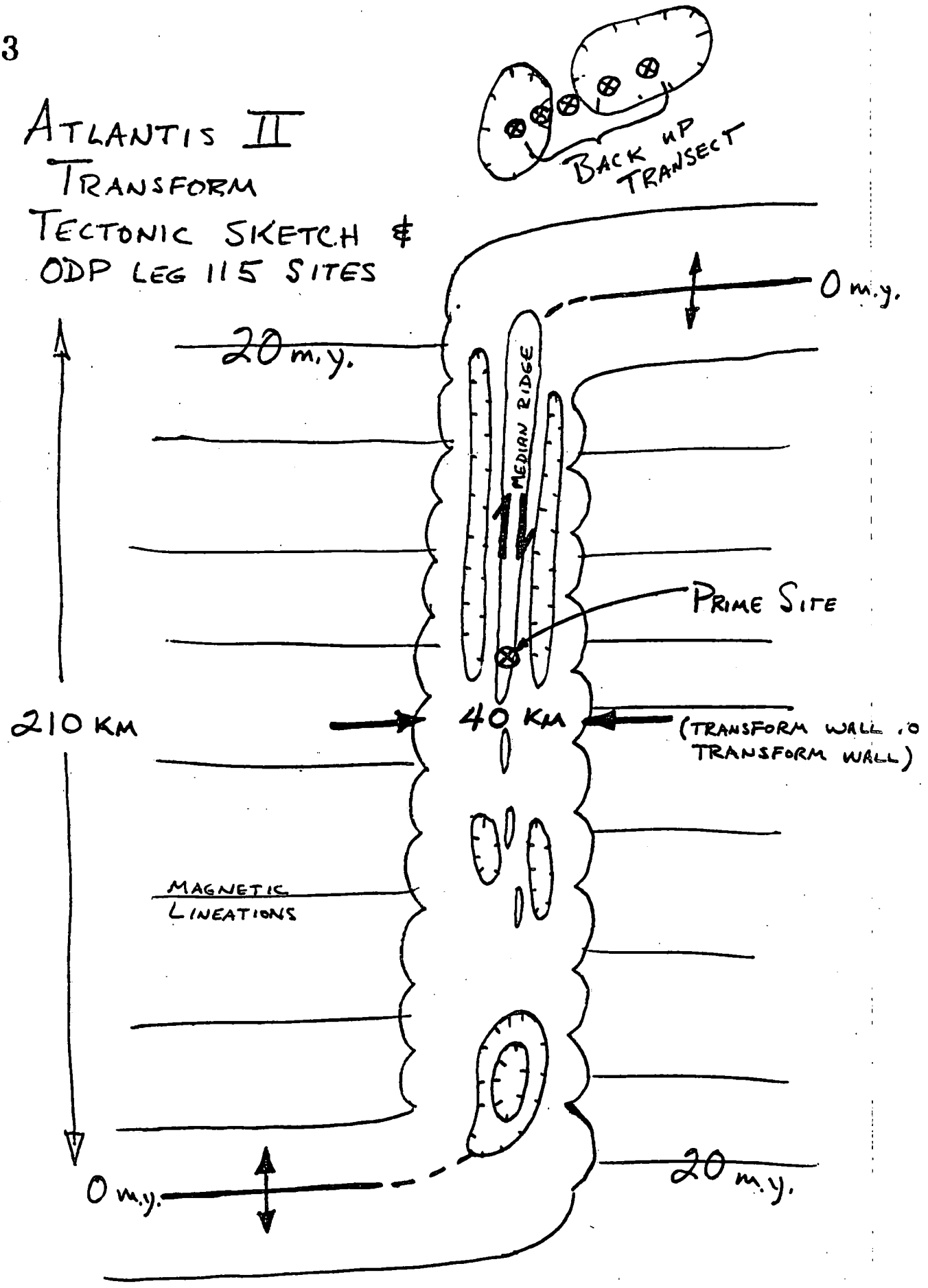
STATUS OF SITE SURVEY

Conrad 27-09 conducted a detailed Sea Beam, dredging and coring survey of the Atlantis II transform in October 1986. The Sea Beam bathymetry outlines the detailed morphology of the transform and its fracture zone extension to the north as well as the adjacent spreading centers and lineated magnetic anomaly patterns. Four dredges were recovered from the median tectonic ridge that contain a mixture of gabbro, diabase, and peridotite with varying levels of serpentinization. The prime site is located where a dredge recovered entirely ultramafic rocks. The secondary transect to the north is also well imaged by Sea Beam with the along strike transform valley appearing to be sediment free on a 3.5 KHz pinger lowering. The valley to the ENE contains at least enough sediment to accommodate a heat flow survey.

The prime, bare rock re-entry site will require additional surveying with down pipe TV and sonar scanning to locate a site flat enough to deploy the bare rock guidebase. An unsupported bare rock spud-in should also be attempted prior to guidebase deployment as a preliminary penetration test.

Further detail is available from the following proposals: JOIDES #89/B (H. Dick), JOIDES #186/F (R. Von Herzen), and JOIDES #89/B Revised (H. Dick, et al).

ATLANTIS II TRANSFORM TECTONIC SKETCH & ODP LEG 115 SITES



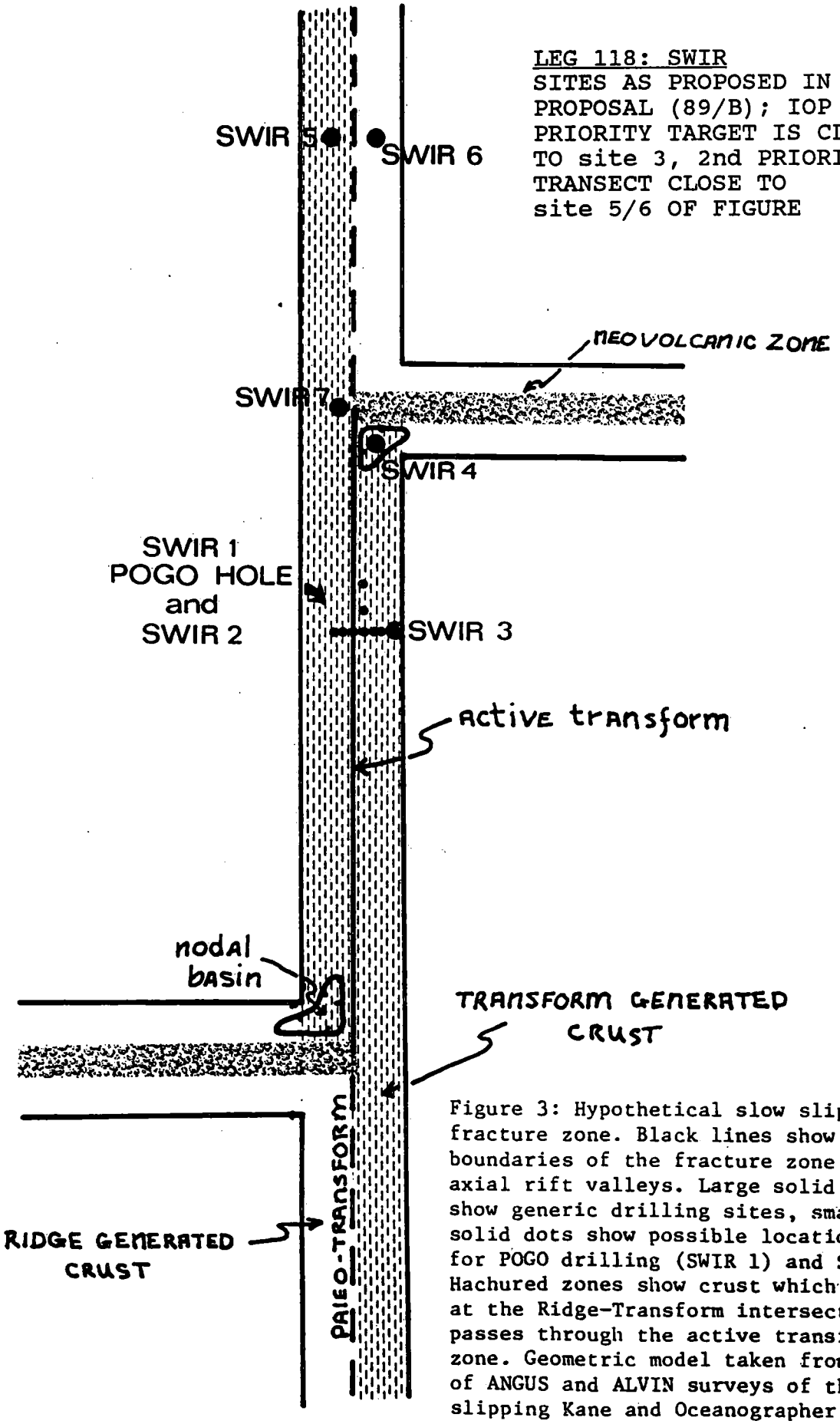


Figure 3: Hypothetical slow slipping fracture zone. Black lines show the boundaries of the fracture zone and axial rift valleys. Large solid dots show generic drilling sites, small solid dots show possible locations for POGO drilling (SWIR 1) and SWIR 2. Hachured zones show crust which originates at the Ridge-Transform intersection and passes through the active transform zone. Geometric model taken from results of ANGUS and ALVIN surveys of the slow slipping Kane and Oceanographer fracture zones (Karson and Dick 1983, 1984, OTTER 1984).

Exerpt from a letter from Roger Larson to Nick Pisias:

October 31, 1986

Dr. Nicklas G. Pisias, PCOM Chairman
College of Oceanography
Oregon State University
Corvallis, Or 97331

Dear Nick:

I recently attended meetings of the Kerguelen Working Group (KWG) and Southern Oceans Panel held at GSO. The KWG has pared their primary objectives down to 82 days of total drilling, logging and maneuvering within the areas of interest for the two legs. These 82 days will be the drilling program for a total of 120 days for both legs, and are split approximately 50/50 between Kerguelen Plateau basement objectives and paleoceanographic transect objectives. However, because the basement objectives and paleoceanographic objectives are geographically mixed, Legs 119 and 120 will also have to be planned with mixed objectives although 119 will be mostly basement and 120 will be mostly paleoceanography. There is some additional data processing that should be done prior to the legs, and no obvious way to pay for it. Other than that, Legs 119 and 120 are in good shape.

KERGUELEN WORKING GROUP SUMMARY

Major Science Programs:

To establish the evolution from pre-Glacial to Glacial climates in east Antarctica and to understand the role of changing climates in the meridianal and vertical evolution of water masses and their associated biota in the Southern Ocean. These objectives are addressed as a transect of sites from Prydz Bay (68°S) to northern Kerguelen (49°S).

To establish the origin of the Kerguelen Plateau and to understand its Mesozoic and Paleogene history of subsidence, rifting, erosion, and how the late Mesozoic-early Tertiary ocean responded to changes of Antarctic climates. These objectives are addressed in several deep holes on the northern and central Kerguelen Plateau.

MERIDIANAL AND VERTICAL PALEOCEANOGRAPHIC TRANSECT

SITE	LATITUDE S	LONGITUDE E	WATER DEPTH M	DRILLING DEPTH M	DRILLING TIME (DAYS)
KHP-1	49 22.4	71 39.3	600	910	7
SKP-2	57 48.9	79 55.8	1500	700	6
PB-1	67 00	78 00	600	500	5
PB-2	67 15	78 00	600	500	5
PB-3	67 30	78 00	600	500	5
PB-4	67 45	78 00	600	500	5
SKP-8	61 17.8	86 46.7	3900	500	6
SKP-9	TO BE SELECTED		--	500	4
					43

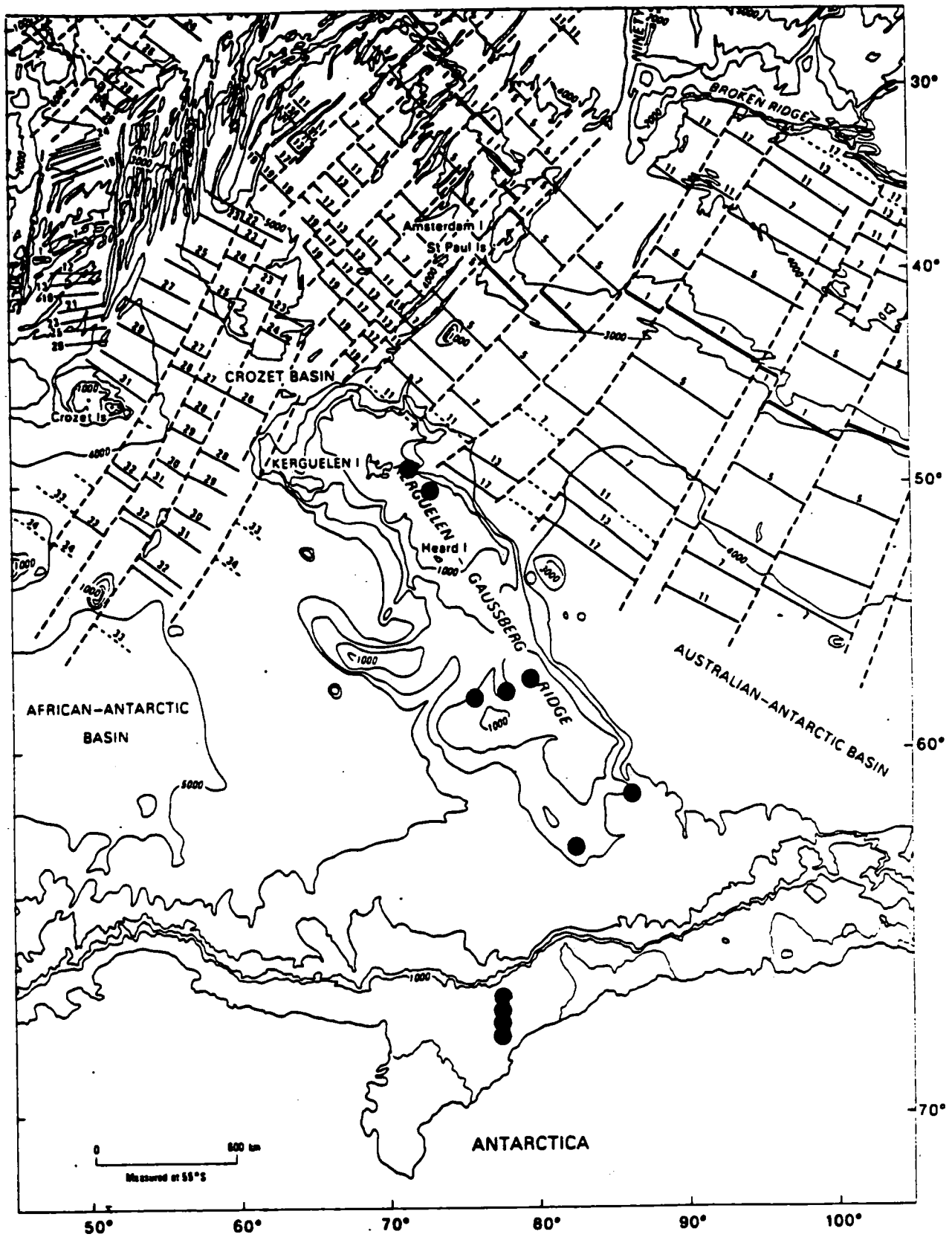
ORIGIN AND MESOZOIC-PALEOGENE EVOLUTION OF THE KERGUELEN PLATEAU

KHP-3/4	50 14.0	73 02.7	750	1650*	18
SKP-3	58 07.6	78 11.4	1500	1300*	15
SKP-4A	58 43.0	76 24.4	1200	400	5
SKP-6A	62 44.0	83 05.2	2300	500	5
					43

SUGGESTED LEGS FOR KERGUELEN-ANTARCTIC DRILLING

LEG 119 SITE	DRILLING TIME (DAYS)
KHP-3/4	18
KHP-1	7
SKP-3	15
SKP-4A	5
	45

LEG 120 SITE	DRILLING TIME (DAYS)
SKP-2	6
SKP-6A	5
SKP-8	6
SKP-9	4
PB-1	5
PB-2	5
PB-3	5
PB-4	5
	41



Location of sites on Kerguelen Plateau and Antarctic margin. See summary table for exact locations.

SITE SUMMARIES

(in order of programs - see below)

MERIDIANAL AND VERTICAL PALEOCEANOGRAPHIC TRANSECT

SITE	LATITUDE S	LONGITUDE E	WATER DEPTH M	DRILLING DEPTH M	DRILLING TIME (DAYS)
KHP-1	49 22.4	71 39.3	600	910	7
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PB-2	67 15	78 00	600	500	5
PB-3	67 30	78 00	600	500	5
PB-4	67 45	78 00	600	500	5
SKP-8	61 17.8	86 46.7	3900	500	6
SKP-9	TO BE SELECTED		--	500	4
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ORIGIN AND MESOZOIC-PALEOGENE EVOLUTION OF THE KERGUELEN PLATEAU

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SKP-4A	58 43.0	76 24.4	1200	400	5
SKP-6A	62 44.0	83 05.2	2300	500	5

MINUTES OF THE OCTOBER 27, 1986 MEETING OF KERGUELEN WORKING GROUP

Members Present: Warren Prell, Chairman; Roland Schlich; David Falvey; Paul Ciesielski; David Elliott; James Kennett (replacing John Anderson); Roger Larson for PCOM; and Carl Brenner for Site Survey Panel.

PCOM GUIDELINES

Roger Larson briefly reviewed the PCOM charge to the working group - "to devise a realistic drilling program or set of drilling priorities for the two ODP legs planned for December 1987 - March 1988 for the general area from Kerguelen Island to Prydz Bay, Antarctica." He also noted that the January 1986 PCOM concensus was, "The PCOM agreed that Prydz Bay objectives and the tectonic basement objectives in North Kerguelen are the highest priorities for these two legs." Larson noted that PCOM had held relatively little discussion concerning priorities for Kerguelen and had not considered plans for central and southern Kerguelen.

PANEL COMMENTS

Sediment and Ocean History Panel - Paul Ciesielski attended recent meeting (10/86) and reported that SOHP affirms Prydz Bay as its highest objective and expressed concerns that drilling on northern Kerguelen may consume so much time that the paleoceanographic concept transect may be lost.

Southern Ocean Panel - Ciesielski also noted that the SOP rates the paleoceanographic transect as its highest priority and that the transect should contain at least one site between north Kerguelen and Prydz Bay and also incorporate several different water depths.

Lithosphere and Tectonic Panels - No new input was available concerning the lithospheric or tectonic objectives for the Kerguelen drilling.

PLANNING FRAMEWORK

Discussions between Roger Larson and Lou Garrison (ODP) indicate that the Kerguelen legs will be about 60 days each with a port call in Mauritius between legs. Leg 119 (northern Kerguelen) should have about 45 operational days in the study area and Leg 120 (southern Kerguelen-Prydz Bay) should have about 40 operational days in the study area.

REVIEW OF PROPOSED SITES

The remainder of Monday (10/27/86) and part of Tuesday (10/28/86) was spent reviewing the specific objectives at each site, site survey data, and proposed drilling plans. In the course of these discussions, numerous modifications were made to the location and proposed penetration depth for many sites. Drilling times were determined using the estimates provided by Jack Baldoff (ODP) (10/17/86) with the addition of 1.5 days for logging at each site. In the summary that follows, the sites are grouped under two broad scientific programs. The first program seeks to establish the Mesozoic and Cenozoic evolution of Antarctic climate and Southern Ocean watermasses (the paleoceanographic latitude and depth transects). The second program seeks to establish the origin and Mesozoic - Paleogene evolution of the Kerguelen Plateau. The following discussion is intended to summarize the background and objectives of each site and explain the rationale for the drilling plans. Attached to this report are the ODP site proposal summary forms for each site. A site location map and a one-page summary of the proposed sites and composition of Legs 119 and 120 are also attached for PCOM use.

MESOZOIC AND CENOZOIC EVOLUTION OF ANTARCTIC CLIMATE AND SOUTHERN OCEAN WATERMASSES (PALEOCEANOGRAPHIC TRANSECT)

The major objectives of these sites are to establish the preglacial climatic record on the margin close to eastern Antarctica and to document the evolution of the Antarctic climates and their effects on the Southern Ocean. The proposed meridianal transect extends from the Antarctic margin to Kerguelen, a span of almost 20 degrees of latitude. One major objective is to recover

the Neogene and older sediments along this transect to study the evolution of oceanic fronts (such as the polar front and the subtropical convergence) which are related to global temperature gradients and hence to glacial conditions in Antarctica. The depth transect will enable study of changes in the vertical structure of water masses as the sources of deep water formation became associated with the Antarctic margin.

Prydz Bay Sites. (PB1-4)

The primary objective at Prydz Bay is to obtain the Mesozoic through Recent climatic and glacial history of Antarctica as recorded in sediments of the broad and deep continental shelf. The drilling strategy takes advantage of a sequence of dipping reflectors with the youngest sediments closest to the shelf edge. After much discussion, the concensus was that four sites (each of about 500 meters penetration) should be planned beginning with the Neogene sediments and stepping backward into the Mesozoic. Since age relationships of these reflectors are poorly known, we cannot estimate the extent of Mesozoic sediments that will be recovered. Recovering a continuous sequence of Cenozoic/Mesozoic sediments was considered a higher priority than attempting to penetrate the reflector (unconformity?) nearest the margin. However, if the transect steps back into monotonous coarse clastic sequences, the co-chief scientists should have the option of going for the basement reflector. This drilling strategy should give maximum flexibility to the co-chief scientists and minimize the potential disruptions due to weather or ice. We estimate about 5 days for each of the sites and recommend allocation of about 20 days to the Prydz Bay drilling objectives.

Proper selection of sites in the Prydz Bay area depends on access to additional multichannel seismic data and possibly to more data processing. The working group had access to only one track that was perpendicular to the shelf. At the meeting we established that numerous parallel tracks do exist and also that some cross tracks are available. The working group unanimously felt that acquisition of these data is essential in order to obtain a three-dimensional picture of the Prydz Bay drilling area. The working group urges PCOM to ensure that these data will be

available to the co-chief scientists for the final site selections.

Southern Kerguelen Transect Site. (SKP-2)

This site is located at 1500m water depth in a thick (1100 meter) Neogene section and is the companion site to SKP-3 which will recover Neogene, Paleogene, and Cretaceous sediments. The Neogene in the upper part of SKP-3 is thin and is possibly missing. Hence, SKP-2 should provide the well preserved, high resolution Neogene component to the paleolatitude transect. Although more sediment is available at SKP-2, we propose to core only 700 meters which should complement the section in SKP-3.

North Kerguelen Transect Site. (KHP-1)

This site serves as the northernmost shallow (600m) site in the paleoceanographic transect and is the companion site to KHP-3/4 which will recover Neogene, Paleogene, and Cretaceous. KHP-1 should be drilled to a depth of 910 meters to provide a high resolution Neogene section for the paleoceanographic transect.

Depth Transect. (SKP-8, SKP-9)

Two sites are proposed to provide depth constraints for the evolution of intermediate and deep water masses in the Southern Ocean. Ideally, sites in the depth transect should be grouped together in a small geographic region and be spaced at approximately 1000 meter intervals. Sites at 1500 meters, 2500 meters, and 3500 meters would be ideal. At this point Site SKP-8 (3900 meters) has been identified as a possible deep site along with SKP-6A (2300 meters) and SKP-2 (1500 meters). However, Neogene sediments may be thin or lacking at SKP-8 and SKP-6A is located near a major gateway between Antarctica and the Kerguelen Plateau. Although seismic data are available to evaluate other potential sites for the depth transect, especially in the central Kerguelen area, the working group did not have the appropriate records. Hence, we recommend that the co-chief scientists along with both the Southern Ocean Panel and the Indian Ocean Panel

review the available data to see whether the depth transect may be located in a more favorable area. At this point we retain Site SKP-8 and time for an additional site (SKP-9) to fill the objectives of the depth transect. [**Post Script (11/86)** A review of Rig Seismic and Marian Dufresne MCS lines and piston core age determinations on the southern Kerguelen Plateau indicate that the flanks of the plateau are Cretaceous to Eocene in age. No Neogene sediments are available for the depth transect in this area. BRM report to IOP.]

ORIGIN AND MESOZOIC-PALEOGENE EVOLUTION OF KERGUELEN PLATEAU

The major objectives of these sites are to establish the origin and evolution of the Kerguelen Plateau by obtaining basement samples and the complete stratigraphic record for the Mesozoic, Paleogene, and Neogene. The sites will also form the Paleogene/Mesozoic component of the paleoceanographic transect. These sites, with deep stratigraphic objectives, have companion sites which recover the high resolution Neogene portions of the record.

North Kerguelen Site. (KHP-3)

This site is located to recover the complete Paleogene and Mesozoic record above basement on the northern Kerguelen Plateau. Neogene sediments will also be penetrated, but Site KHP-1 will recover the complete Neogene section. At Site KHP-3, basement occurs 1650 meters subbottom. Reentry at this site is required to ensure recovery of the Paleogene/Mesozoic sequence as well as any opportunity to sample basement. The recovery of basement at Site KHP-3 is viewed as high risk and unlikely. A companion site KHP-4 could allow recovery of basement at about 700 meters subbottom but basement at both sites is overlain by Paleogene-Cretaceous rocks that are likely to have abundant chert. Hence, if Site KHP-3 must be abandoned prematurely, basement could be possibly obtained at KHP-4, but even here reentry may be required. In view of the overall objectives of the northern Kerguelen drilling program and the time constraints, the working group recommends that KHP-3 be planned as a reentry site and that the maximum effort be assigned to this site rather than planning a move to KHP-4 to recover the older section and basement. We

acknowledge that recovery of basement is unlikely in the northern Kerguelen Plateau with this strategy. We estimate approximately 18 drilling days are required on the basis of adding reentry related times to previous estimates. This estimate needs further scrutiny by ODP.

Central Kerguelen. (Site SKP-3)

This site should recover 1300 meters of Neogene/Paleogene, and Cretaceous sediments in central Kerguelen Plateau. SKP-3 must also be a reentry site if the Paleogene and Cretaceous objectives are to be realized. A companion site SKP-4A will allow recovery of basement beneath 400 meters of Paleogene and Cretaceous sediments. These two sites, along with the companion Neogene site, SKP-2, should provide a complete stratigraphic section of the central Kerguelen Plateau and a high likelihood of recovering basement from this critical area. We estimate approximately 15 days are required for SKP-3 and five days for SKP-4A. Again, these estimates need scrutiny by ODP.

Southern Kerguelen Plateau Site. (SKP-6A)

This site, proposed for the southern Kerguelen Plateau, forms a key component of the paleoceanographic transect lying about midway between Prydz Bay sites and the central Kerguelen Plateau sites. It also provides an opportunity to recover basement from the southernmost portion of the Kerguelen Plateau. The site lies at 2300 meters water depth and has approximately 500 meters of Neogene-Paleogene sediments above basement.

The sites proposed above should provide the Paleogene and Mesozoic history of changing ocean conditions, rifting and subsidence of the Kerguelen Plateau, and samples of the plateau basement, all of which should give insights into the origin of the plateau. Given the time constraints of the drilling program and the relatively thick sections, the working group proposes these sites as the best combination for realizing the tectonic and Mesozoic/Paleogene evolution objectives identified on the Kerguelen Plateau.

PROPOSED COMPOSITION OF LEGS 119 AND 120

The summary sheet suggests one combination of sites for Legs 119 and 120. This proposal incorporates most of the deeper Paleogene and Cretaceous objectives, the tectonic objectives, and basement objectives into Leg 119. The similar objectives should make crew selection a bit easier. The total proposed drilling time is approximately 45 operational days. Site to site transit has not been specifically included in our estimates. In this plan, Leg 120 incorporates most of the paleoceanographic transect objectives and groups sites in the southern Kerguelen Plateau and Prydz Bay onto one leg which seems a necessary logistic combination. This drilling program requires about 41 days operational time.

RECOMMENDATIONS

The Kerguelen working group recommends that this drilling program (as indicated by sites) and drilling priorities (as indicated by time allocated to programs) be the framework for drilling on Legs 119 and 120. We fully appreciate that modifications will be made as new data become available but expect that these priorities would be observed. The proposed drilling program is of necessity a compromise. However, the working group unanimously feels that this program makes a serious attack on most important scientific problems identified for this region.

Much additional work, such as detailed penetration depths and drilling time estimates, needs to be done. In this context, the working group has concerns about the amount of chert that may be encountered in the Paleogene and Mesozoic sections of the Plateau. We ask that PCOM request the operator to review their technology (XCB, core bits, etc.) for drilling and recovering cherts and also to recalculate drilling time estimates taking into account the likelihood of encountering cherts in the deep penetration sites.

We propose that the above guidelines be endorsed by the planning committee and passed on to the operator and co-chief scientists of Legs 119 and 120. We feel that the detailed level of planning necessary for the next iteration of these sites and the best selection of back-up sites is

best done by the co-chief scientists in concert with ODP and the scientific staff of the Kerguelen Legs.

oposed Site: PB-1, 2, 3, 4

All at 70°E between about 67°S and 68°S

ene Area: Amery Basin (Prydz Bay)

osition:

lternate Site:

General Objective: Antarctic Glacial- climatic record and continental margin evolution.

Thematic Panel interest: SOHP

Regional Panel interest: SOP, IOP

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pecific Objectives:

1. Preglacial-climatic record in area closely adjacent to E. Antarctica.
2. Timing of glacial erosion.
3. Early breakup history and paleoenvironments. Continental margin evolution and paleoenvironments.
4. Pollen (vegetational) history of E. Antarctica.
5. Ocean response to changing Antarctic climate.

ackground Information:

Regional Data:

Seismic profiles: Australian (BMR) MCS records

Other data:

Site Survey Data - Conducted by:

Date:

Main results:

Operational Considerations

Water Depth: (m) 800 **Sed. Thickness: (m)** ~1.5K **Total penetration: (m)** 500

HPC X **Double HPC** ____ **Rotary Drill** X **Single Bit** ____ **Reentry** ____

Nature of sediments/rock anticipated: Unconsolidated Sediments to consolidated sedimentary rocks and glacial marine sediments.

Weather conditions/window: January - February

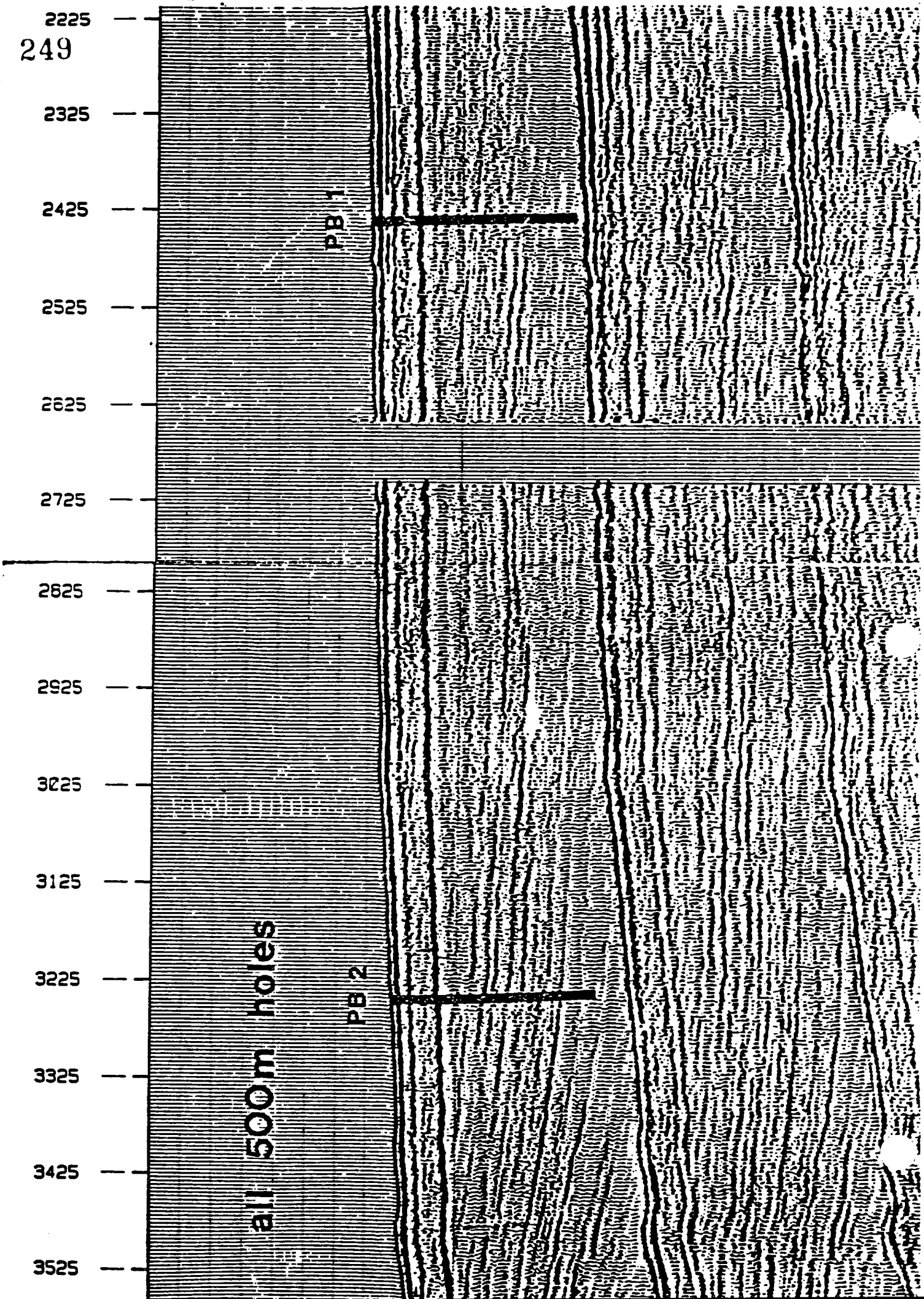
Territorial jurisdiction: Antarctic Treaty

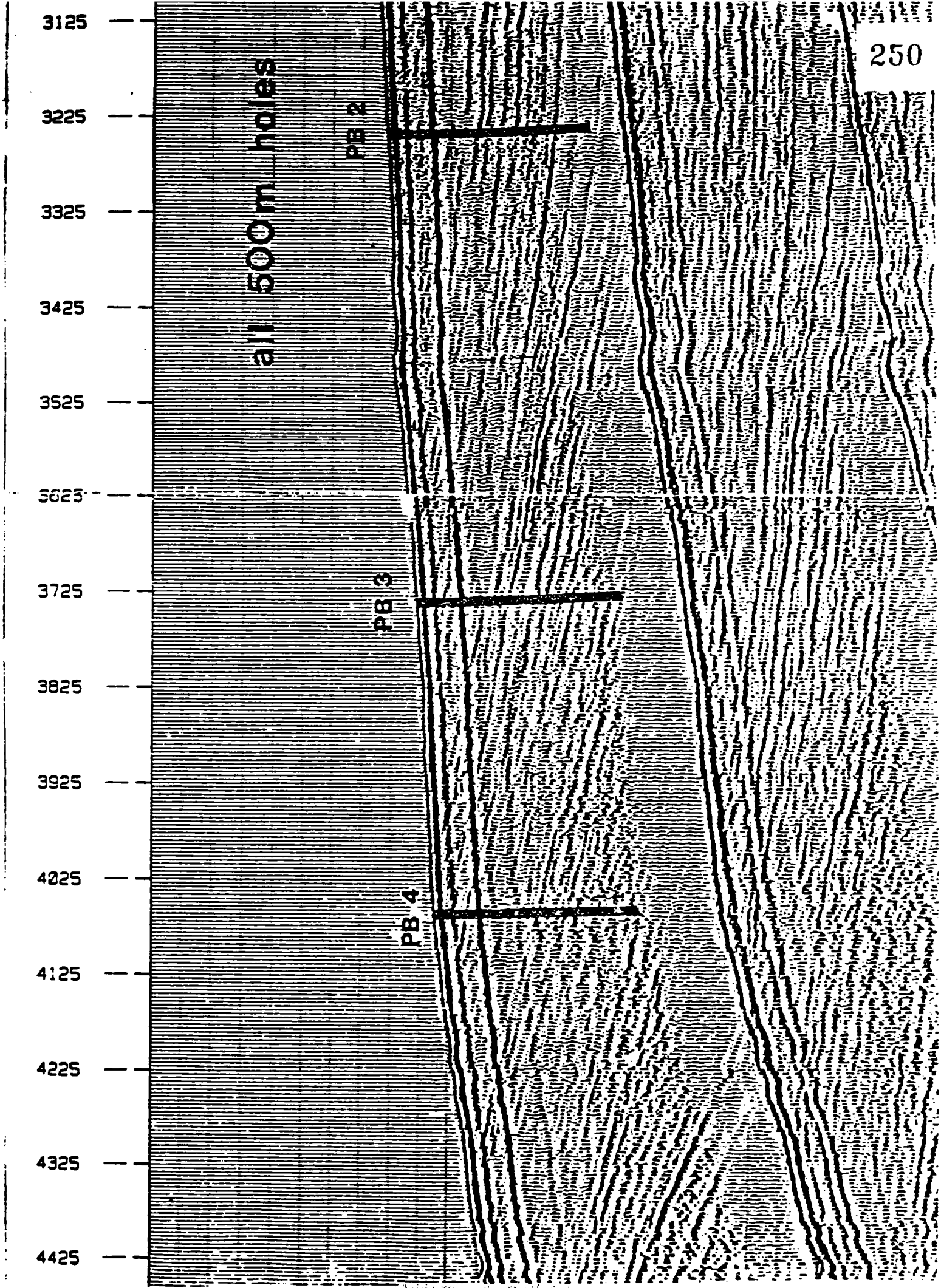
Other: Sites 1-4 are all single bit with HPC; XCB to 500m.

Special requirements (Staffing, instrumentation, etc.)

Good Luck

Pr nent: Southern Ocean Panel **Date submitted to JOIDES Office:**


2225
2325
2425
2525
2625
2725
2625
2925
3025
3125
3225
3325
3425
3525
PB 1
PB 2
all 500m holes


all 500m holes
PB 2
PB 3
PB 4
3125
3225
3325
3425
3525
3625
3725
3825
3925
4025
4125
4225
4325
4425

251

ODP SITE PROPOSAL SUMMARY FORM

Proposed site: SKP2
Raggatt Basin (central part)

General Area: Southern Kerguelen Plateau
Position: 57°48.9'S, 79°55.8'E
Alternate Site SKP2A :57°26,79°17 (RS2-22)
SKP2B:57°20.6,78°44.2'(MD47-14)

General Objective:
Neogene Record of Plateau

Thematic Panel interest: LITHP,TECP,SOHP
Regional Panel interest: IOP,SOP

Specific Objectives:

- Complete stratigraphic record of the Neogene ;
- sample the unconformity (A?)

Background Information:
Regional Data: Single and multichannel seismic,gravity,magnetics,bathymetry
Seismic profiles: RS2-24 97.1354 (SP > intersection
MD47-5 17.01.0621 (SP5838)
Other data: Sonobuoy refraction/reflection, dredges, piston cores

Site Survey Data - Conducted by: BMR and IPG Strasbourg
Date: 1985 and 1986
Main results: Structure and evolution of the Southern Kerguelen Plateau.

Operational Considerations:

Water Depth: (m) 1700 Sed. Thickness: (m) 3500+ Total penetration: (m) 700

HPC X Double HPC____ Rotary Drill X Single Bit X Reentry X(?)

Nature of sediments/rock anticipated: calcareous and siliceous oozes,chalk,chert,volcanics

Weather conditions/window: December-March

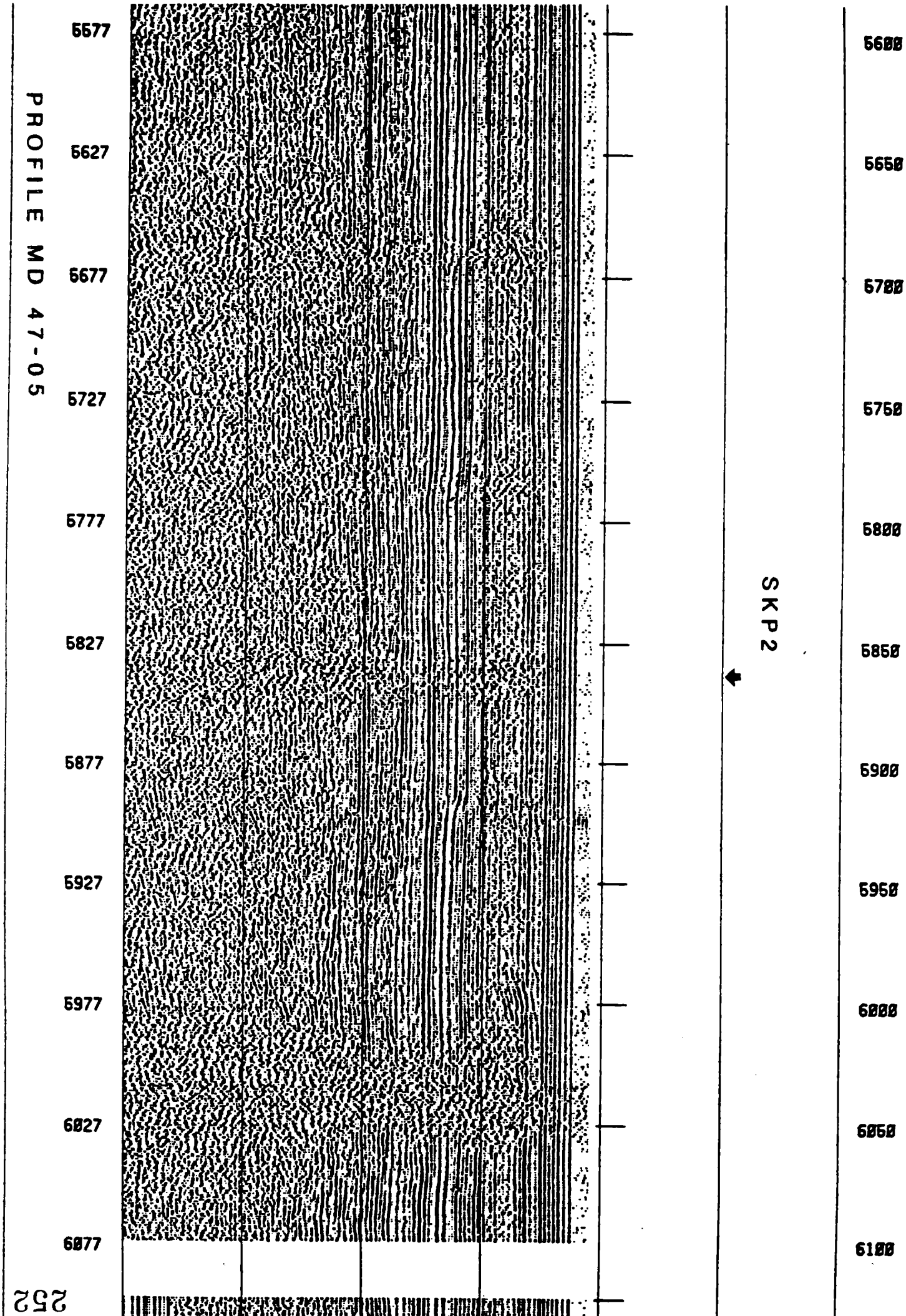
Territorial juridiction: Australian

Other:

Special requirements (Staffing,instrumentation,etc.)

Proponent: R. SCHLICH, M. MUNSCHY
M.F. COFFIN, J.B. COLWELL, H.L. DAVIES

Date submitted to JOIDES Office:


PROFILE MD 47-05
5577
5627
5677
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5600
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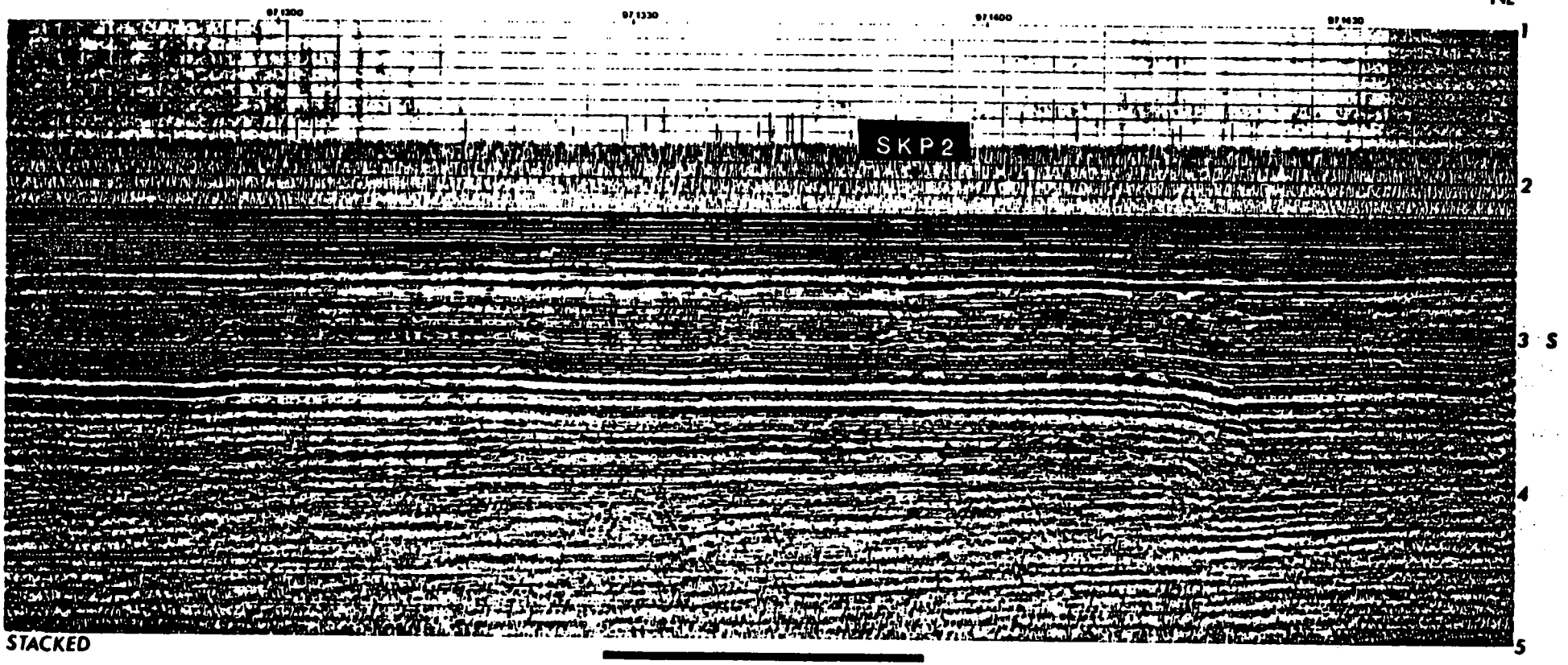
6000
6050
6100
SKP2

RS2-24

SW NE



5 KM

ODP SITE PROPOSAL SUMMARY FORM

Proposed site: SKP8
Eastern Kerguelen Sediment Ridge

General Area: Southern Kerguelen Plateau
Position: 61°17.8'S , 86°46.7'E
Alternate Site: SKP8A 59°32, 85°49

General Objective:
Recover Deep Sediments for Depth Transect

Thematic Panel interest: LITHP,TECP,SOHP
Regional Panel interest: IOP,SOP

Specific Objectives:

- To sample the sediment ridge close to the southeastern limit of the plateau ;
- to document the paleoceanographic history of the Southern Kerguelen Plateau, including the initiation and development of circumpolar and AABW circulation.

Background Information:

Regional Data: Single and multichannel seismic,gravity,magnetics,bathymetry
Seismic profiles: MD 47-08 21.01.0258 (SP 5120)

Other data: Sonobuoy refraction/reflection, dredges, piston cores

Site Survey Data - Conducted by: BMR and IPG Strasbourg
Date: 1985 and 1986
Main results: Structure and evolution of the Southern Kerguelen Plateau.

Operational Considerations:

Water Depth: (m) 3900 Sed. Thickness: (m) 1000 Total penetration: (m) 500

HPC X Double HPC____ Rotary Drill X Single Bit X Reentry____

Nature of sediments/rock anticipated: Calcareous and siliceous oozes,chalk,chert,volcanic

Weather conditions/window: December-March

Territorial juridiction:

Other:

Special requirements (Staffing,instrumentation,etc.)

Proponent: R. SCHLICH, M. MUNSCHY
M.F. COFFIN, J.B. COLWELL, H.L. DAVIES

Date submitted to JOIDES Office:

4900 4950 5000 5050 5100 5150 5200 5250 5300 5350 5400

255

PROFILE MD 47-08

SKP 8

ODP SITE PROPOSAL SUMMARY FORM

Proposed site: KHP 1

General Objective:
Neogene Record of Plateau

General Area: Kerguelen-Heard Plateau
Position: 49°22.4'S and 71°39.3'E
Alternate Site:

Thematic Panel interest: LITHP,TECP,SOHP
Regional Panel interest: IOP, SOP

Specific Objectives: To obtain a complete stratigraphic record from Recent to Oligocene. To sample and date the major unconformity. As second objective, to obtain a complete stratigraphic record from Eocene.
Tectonic (rifting from Broken Ridge) and subsidence history from Eocene to Recent.
Age and evolution of Kerguelen Island (clastic sediments and ash layers).

Background Information:
Regional Data: Single and multichannel seismic, bathymetry, magnetism, gravimetry.
Seismic profiles: MD 26-10 and MD 26-04 profiles.

Other data: Sonobuoy measurement, piston cores.

Site Survey Data - Conducted by: Institut de Physique du Globe de Strasbourg
Date: 1981 and 1983 Museum National d'Histoire Naturelle
Main results: Structure and evolution of the Kerguelen-Heard Plateau.
Lithostratigraphic model of northeastern margin.

Operational Considerations:

Water Depth: (m) 660 Sed. Thickness: (m) 3170 Total penetration: (m) 910

HPC X Double HPC____ Rotary Drill X Single Bit X Reentry____

Nature of sediments/rock anticipated: glauconitic sands, diatomaceous oozes, calcareous oozes with siliceous biogenic components, chalks, clastic deposits.
Weather conditions/window: January- February

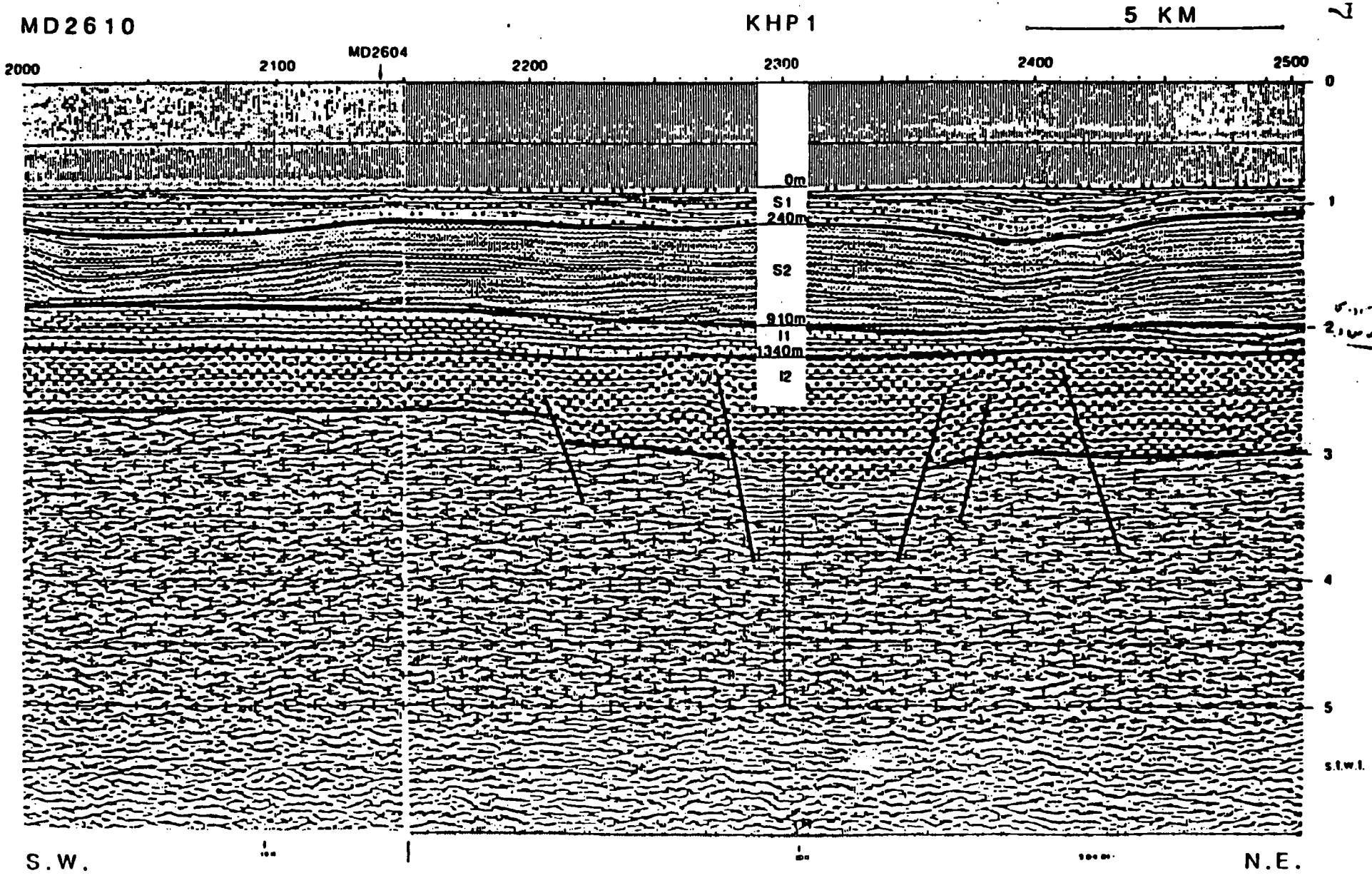
Territorial juridiction: France (TAAF)

Other:

Special requirements (Staffing,instrumentation,etc.)

Proponent:
Schlich et al.

Date submitted to JOIDES Office:
15 May 1985


MD2610
KHP 1
5 KM
MD2604
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2300
2400
2500
0
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2
3
4
5
s.l.w.l.
0m
S1
240m
S2
910m
I1
1340m
I2
S.W.
N.E.

ODP SITE PROPOSAL SUMMARY FORM

Proposed site: KHP 3	General Objective: Origin and Early History of Plateau
General Area: Kerguelen-Heard Plateau Position: 50°14.0'S and 73°02.7'E Alternate Site: 50°01.5'S and 73°31.5'E	Thematic Panel interest: LITHP, TECP, SOHP Regional Panel interest: IOP, SOP

Specific Objectives: To obtain a complete stratigraphic record from Eocene to upper Cretaceous. To sample and date the major unconformity. Age and nature of the basement underlying the plateau. Tectonic and subsidence history from upper Cretaceous to Eocene.

Background Information:
Regional Data: Single and multichannel seismic, bathymetry, magnetism, gravimetry.
Seismic profiles: MD 26-07 and MD 26-13 profiles

Other data: Dredges and piston cores

Site Survey Data - Conducted by: Institut de Physique du Globe de Strasbourg
Date: 1981 and 1983 Muséum National d'Histoire Naturelle
Main results: Structure and evolution of the Kerguelen-Heard Plateau.
Lithostratigraphic model of northeastern margin.

Operational Considerations:

Water Depth: (m) 570 or 750 Sed. Thickness: (m) 1670 or 1500 Total penetration: (m) 1670

HPC X Double HPC ____ Rotary Drill X Single Bit ____ Reentry X

Nature of sediments/rock anticipated: Diatomaceous glauconitic sands, calcareous oozes and chalks, cherts, basalts.

Weather conditions/window: January-February

Territorial juridiction: France (TAAF)

Other:

Special requirements (Staffing, instrumentation, etc.)

Bits to recover cherts

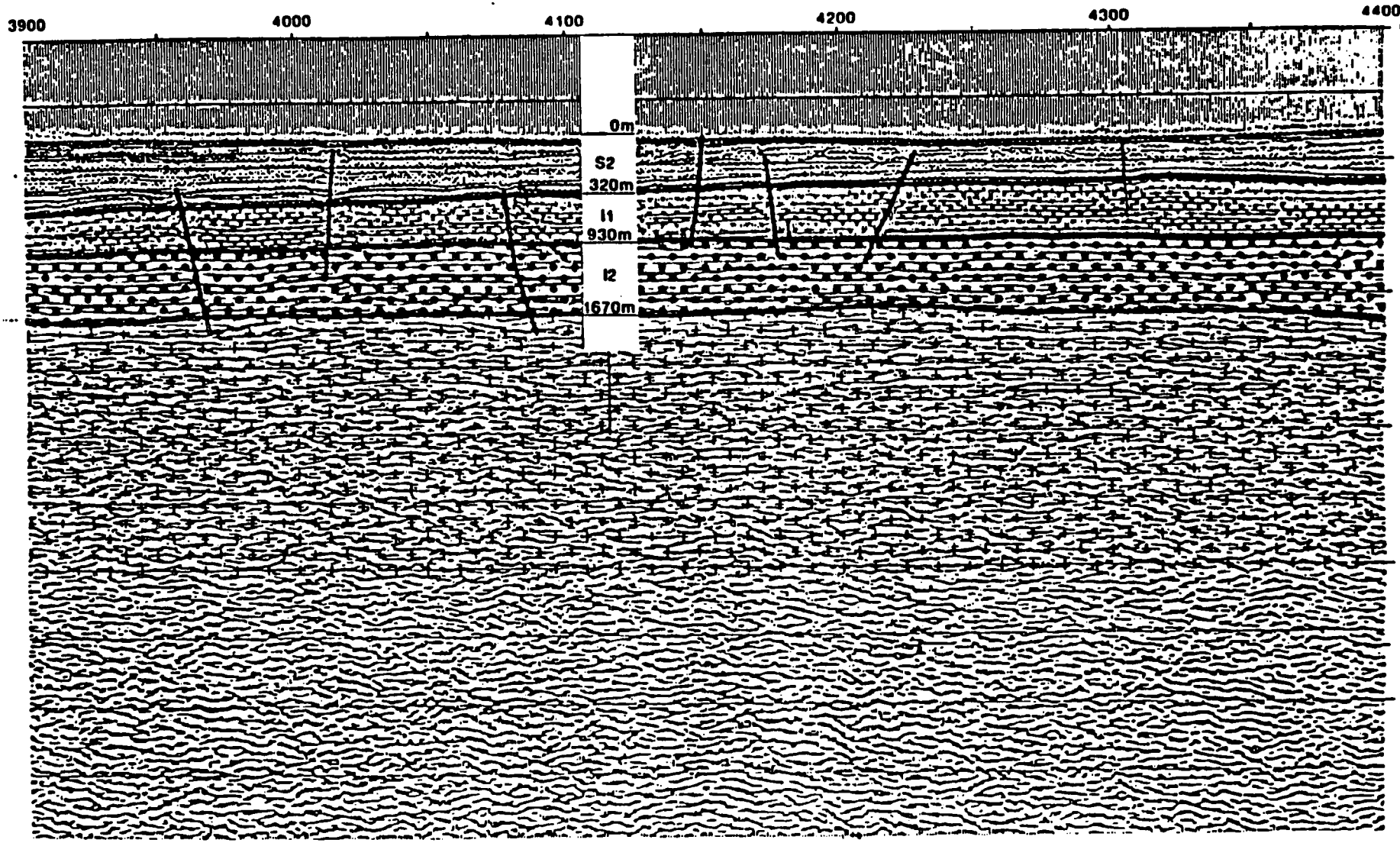
Proponent:
Schlich et al.

Date submitted to JOIDES Office:
15 May 1985

MD2607

KHP3

5 KM



ODP SITE PROPOSAL SUMMARY FORM

Proposed site: KHP 4 Backup to KHP-3

General Area: Kerguelen-Heard Plateau
Position: 49°12.1'S and 72°01.3'E
Alternate Site: 49°10.8'S and 72°05.9'E

General Objective: Oceanic Plateau

Thematic Panel interest: LITHP, TECP, SOHP
Regional Panel interest: IOP, SOP

Specific Objectives: Age and nature of the basement underlying the plateau. To obtain a stratigraphic record from Paleocene to upper Cretaceous. Tectonic and subsidence history from upper Cretaceous to Paleocene.

Background Information:
Regional Data: Single and multichannel seismic, bathymetry, magnetism, gravimetry.
Seismic profiles: MD 26-10 profiles

Other data: Dredges and piston cores

Site Survey Data - Conducted by: Institut de Physique du Globe de Strasbourg
Date: 1981 and 1983 Muséum National d'Histoire Naturelle
Main results: Structure and evolution of the Kerguelen-Heard Plateau.
Lithostratigraphic model of northeastern margin.

Operational Considerations:

Water Depth: (m) 820 or 990 Sed. Thickness: (m) 1340 ? or 704 ? Total penetration: (m) 1350 ? or 720 ?

HPC X Double HPC ____ Rotary Drill X Single Bit X Reentry ____

Nature of sediments/rock anticipated: Diatomaceous glauconitic sands, calcareous oozes and chalks, cherts, basalts.

Weather conditions/window: January-February

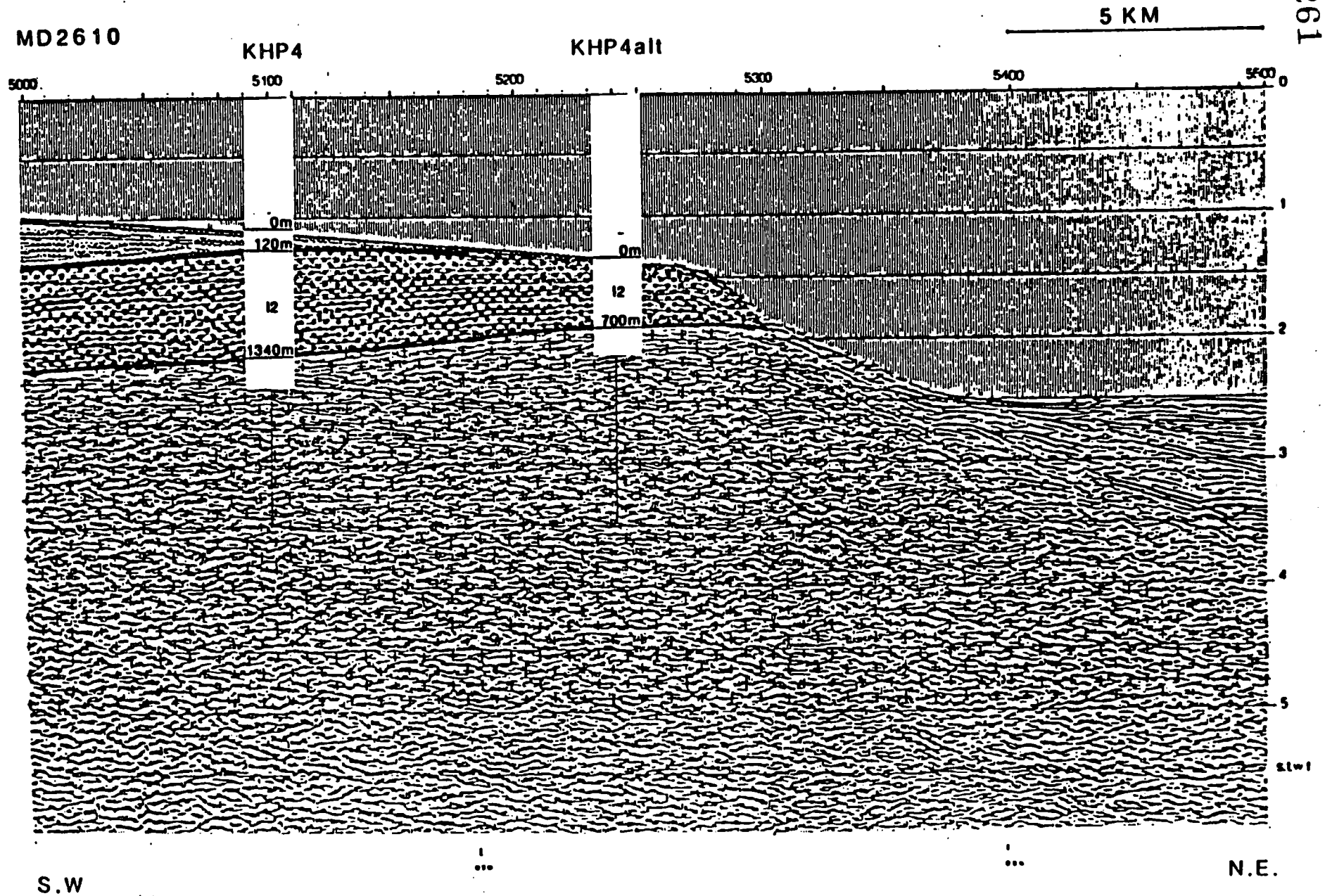
Territorial juridiction: France (TAAF)

Other:

Special requirements (Staffing, instrumentation, etc.)

Proponent:
Schlich et al.

Date submitted to JOIDES Office:
15 May 1985


MD2610
KHP4
KHP4alt
5 KM
5000
5100
5200
5300
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sec
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I2
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0m
I2
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N.E.

ODP SITE PROPOSAL SUMMARY FORM

Proposed site: SKP3
Raggatt Basin (Western flank)

General Area: Southern Kerguelen Plateau
Position: 58°07.6'S,78°11.4'E
Alternate Site SKP3A:57°42,77°53 (RS2-22)
SKP3B:56°53.9,79°58.6'(MD47-17)

General Objective: Submarine Plateau Origin and Early History of Central Plateau

Thematic Panel interest: LITHP,TECP,SOHP
Regional Panel interest: IOP,SOP

Specific Objectives:

- Nature and age of the Paleogene and Mesozoic sedimentary units ;
- sample the major unconformities (A, B and possibly C) ;
- rifting subsidence history of the Southern Kerguelen Plateau ;
- nature and age of the basement if reachable.

Background Information:

Regional Data: Single and multichannel seismic,gravity,magnetics,bathymetry
Seismic profiles: RS2-24 97.0415 (SP

Other data: Sonobuoy refraction/reflection, dredges, piston cores

Site Survey Data - Conducted by: BMR and IPG Strasbourg
Date: 1985 and 1986
Main results: Structure and evolution of the Southern Kerguelen Plateau.

Operational Considerations:

Water Depth: (m) 1500 Sed. Thickness: (m) 1300+ Total penetration: (m) 1300

HPC X Double HPC ____ Rotary Drill X Single Bit X Reentry X

Nature of sediments/rock anticipated: calcareous and siliceous oozes,chalk,chert,volcani

Weather conditions/window: December-March

Territorial juridiction: Australian

Other:

Special requirements (Staffing,instrumentation,etc.)

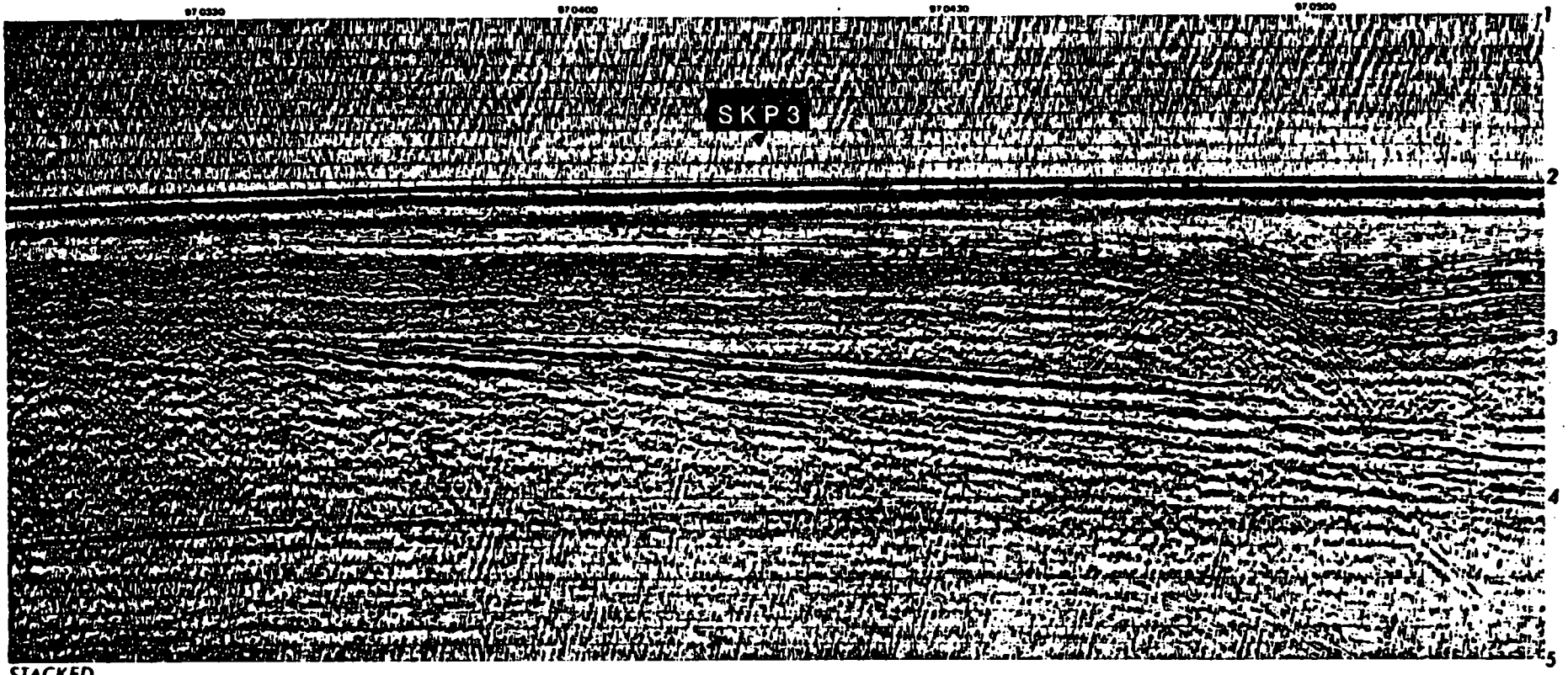
Equipment to drill and recover cherts

Proponent: R. SCHLICH, M. MUNSCHY
M.F. COFFIN, J.B. COLWELL, H.L. DAVIES

Date submitted to JOIDES Office:

RS2-24

SW NE



STACKED

5 KM

ODP SITE PROPOSAL SUMMARY FORM

Proposed site: SKP4A
Western Banzare Bank

General Area: Southern Kerguelen Plateau
Position: 58°43.0', 76°24.4 (MD47-13)
Alternate Site

General Objective:
Recover Basement from Central Plateau

Thematic Panel interest: LITHP,TECP,SOHP
Regional Panel interest: IOP,SOP

Specific Objectives:

- Nature and age of the oldest sediments (SKP4 only);
- nature and age of the basement at 59°S.

Background Information:
Regional Data: Single and multichannel seismic,gravity, magnetics,bathymetry
Seismic profiles: RS2-29 104.1739 (SP >intersection
MD47-13 28.01.1227 (SP4331)
Other data: Sonobuoy refraction/reflection,dredges,piston cores

Site Survey Data - Conducted by: BMR and IPG Strasbourg
Date: 1985 and 1986
Main results: Structure and evolution of the Southern Kerguelen Plateau.

Operational Considerations:

Water Depth: (m) 1200 Sed. Thickness: (m) 400 Total penetration: (m) 400

HPC X Double HPC____ Rotary Drill X Single Bit X Reentry____

Nature of sediments/rock anticipated: Calcareous and siliceous oozes,chalk,volcanics, basement

Weather conditions/window: December-March

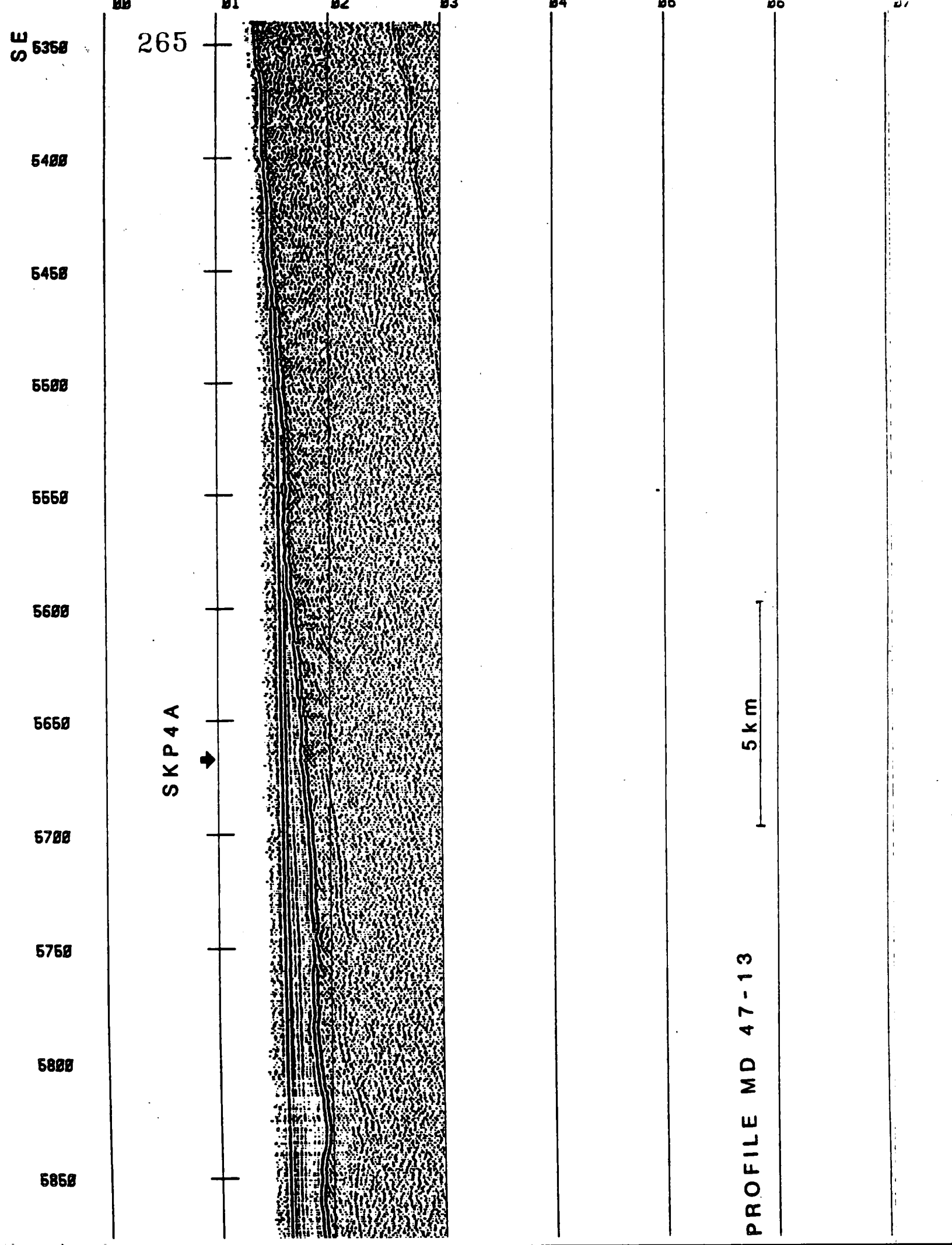
Territorial juridiction: Australian

Other:

Special requirements (Staffing,instrumentation,etc.)

Proponent: R. SCHLICH, M. MUNSCHY
M.F. COFFIN, J.B. COLWELL, H.L. DAVIES

Date submitted to JOIDES Office:


SE
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5400
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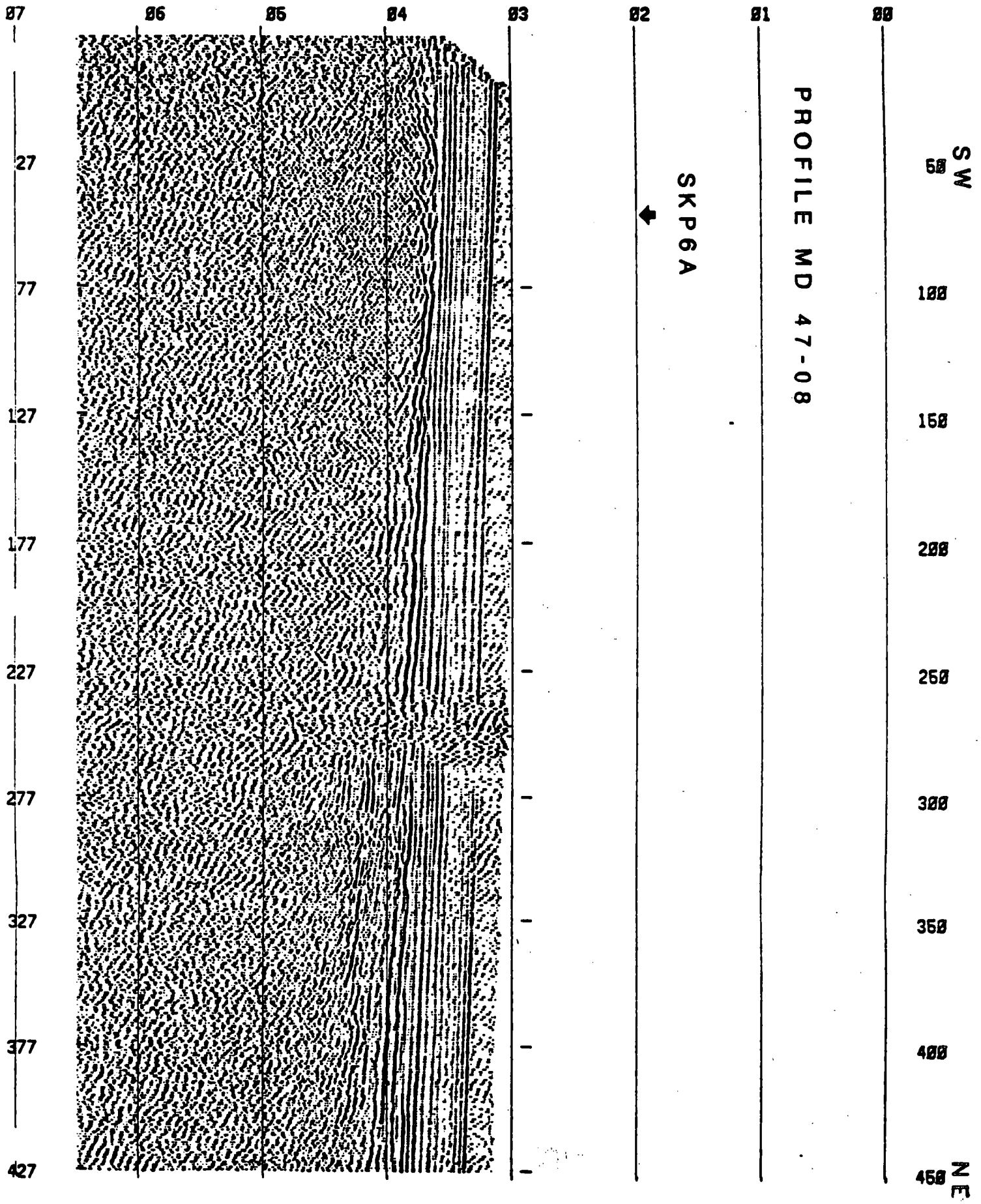
5850
265
SKP4A
5km
PROFILE MD 47-13


07
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377
427
SKP6A
PROFILE MD 47-08
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NE
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450

ODP SITE PROPOSAL SUMMARY FORM

Proposed site: SKP6A
Southernmost Kerguelen-Plateau

General Area: Southern Kerguelen Plateau
Position: 62°44.0',83°05.2'
Alternate Site

General Objective:
Paleoceanography and History of Southern Plateau

Thematic Panel interest: LITHP,TECP,SOHP
Regional Panel interest: IOP,SOP

Specific Objectives:

- Nature and age of the sedimentary units ;
- shift of the polar front ;
- sample the unconformity ;
- subsidence history ;
- nature and age of the basement at 62.5°S.

Background Information:

Regional Data: Single and multichannel seismic, gravity, magnetics, bathymetry
Seismic profiles: MD47-08 20.01.0800 (SP855) > intersection
ND 34C 64.1730 (SP
Other data: Sonobuoy refraction/reflection, dredges, piston cores

Site Survey Data - Conducted by: BMR and IPG Strasbourg
Date: 1985 and 1986
Main results: Structure and evolution of the Southern Kerguelen Plateau

Operational Considerations:

Water Depth: (m) 2700 Sed. Thickness: (m) 500 Total penetration: (m) 500

HPC X Double HPC____ Rotary Drill X Single Bit X Reentry____

Nature of sediments/rock anticipated: Calcareous and siliceous oozes, chalk, volcanics, basement

Weather conditions/window: December-March

Territorial juridiction: Australian

Other:

Special requirements (Staffing,instrumentation,etc.)

Proponent: R. SCHLICH, M. MUNSCHY
M.F. COFFIN, J.B. COLWELL, H.L. DAVIES

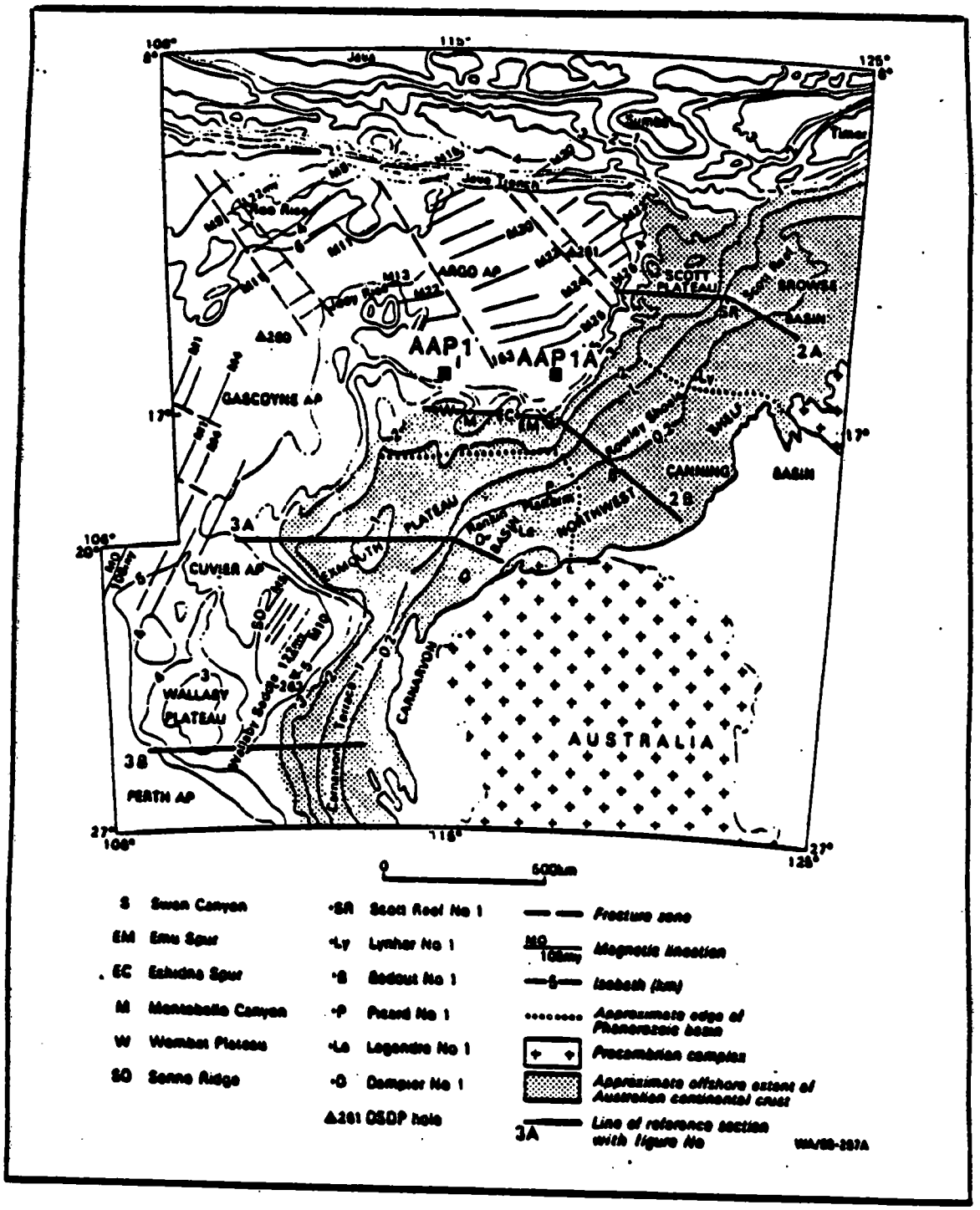
Date submitted to JOIDES Office:

FROM:
A proposal for deep stratigraphic tests by the SOH panel, ODP

Suggested sites: Proposed sites AAP1 (alternate AAP1A) are shown on Fig. 65. Multichannel site surveys could be run by BMR in early 1986. The holes proposed are :

AAP1 : 16°00'S, 114°45'E; total penetration 800m (600m of sediment + 100m of oceanic crust), drilling time: 12 days.

AAP1A: 16°00'S, 117°38'E; total penetration 1350m (1250m sediment + 100m oceanic crust).



ODP SITE PROPOSAL SUMMARY FORM

Proposed Site: AAP1A, ARGO ABYSSAL PLAIN (Figs. 65, 67)

General Area: SE Argo Abyssal Plain
Position: 16°S; 117°38'E
Alternate Site: AAP1 16°00'S, 114°45'E

General Objective:
Nature of sediment and mid-Jurassic oceanic basement: early rifting history of NW Australian passive margins.
Thematic Panel interest: LITHP, SOHP, TECP
Regional Panel interest: IO-RP

Specific Objectives:

- The nature and exact age of oceanic basement in one of the world's oldest oceanic basins.
- Age and lithofacies of the overlying three seismic sequences, widespread on Argo Abyssal Plain - questions of oceanic circulation with relation to climate and configuration of land masses, and variation of facies with eustasy and tectonics.

Background Information:

Regional Data:
Seismic profiles: On Shell profiles N207 and N208; BMR and Atlantis II lines in area.
Other data: BMR and Atlantis II mangetics and gravity data.

Site Survey Data - Conducted by:
Date: Could be included in BMR multichannel seismic survey of Exmouth
Main results: Plateau in early 1986

Operational Considerations

Water Depth: (m) 5700 **Sed. Thickness: (m)** 1250 **Total penetration: (m)** 1350

HPC 300 **Double HPC** ____ **Rotary Drill** 1050 **Single Bit** ____ **Reentry** ?

Nature of sediments/rock anticipated: 400m Cz and Late Cretaceous ooze; 250m mid-Cretaceous claystone; 600m Late Jurassic and E. Cretaceous claystone; 100m mid-Jurassic oceanic crust.
Weather conditions/window: Good, except November to March when cyclones.

Territorial jurisdiction: Australian

Other: Thinner sequence could be drilled elsewhere on N207 or N208 (oldest sequence ca. 300m thick), but oldest sediments might be younger.

Special requirements (Staffing, instrumentation, etc.)

Proponents: Ulrich von Rad and Neville Exon **Date submitted to JOIDES Office:**
undesanstalt fuer Bureau of Mineral Resouces
Geowissenschaften und Rohstoffe G P O Box 378
Stilleweg 2 Canberra, AUSTRALIA
Hannover F.R.G.

ARGO ABYSSAL PLAIN ODP SITE 1A

on Shell line N207

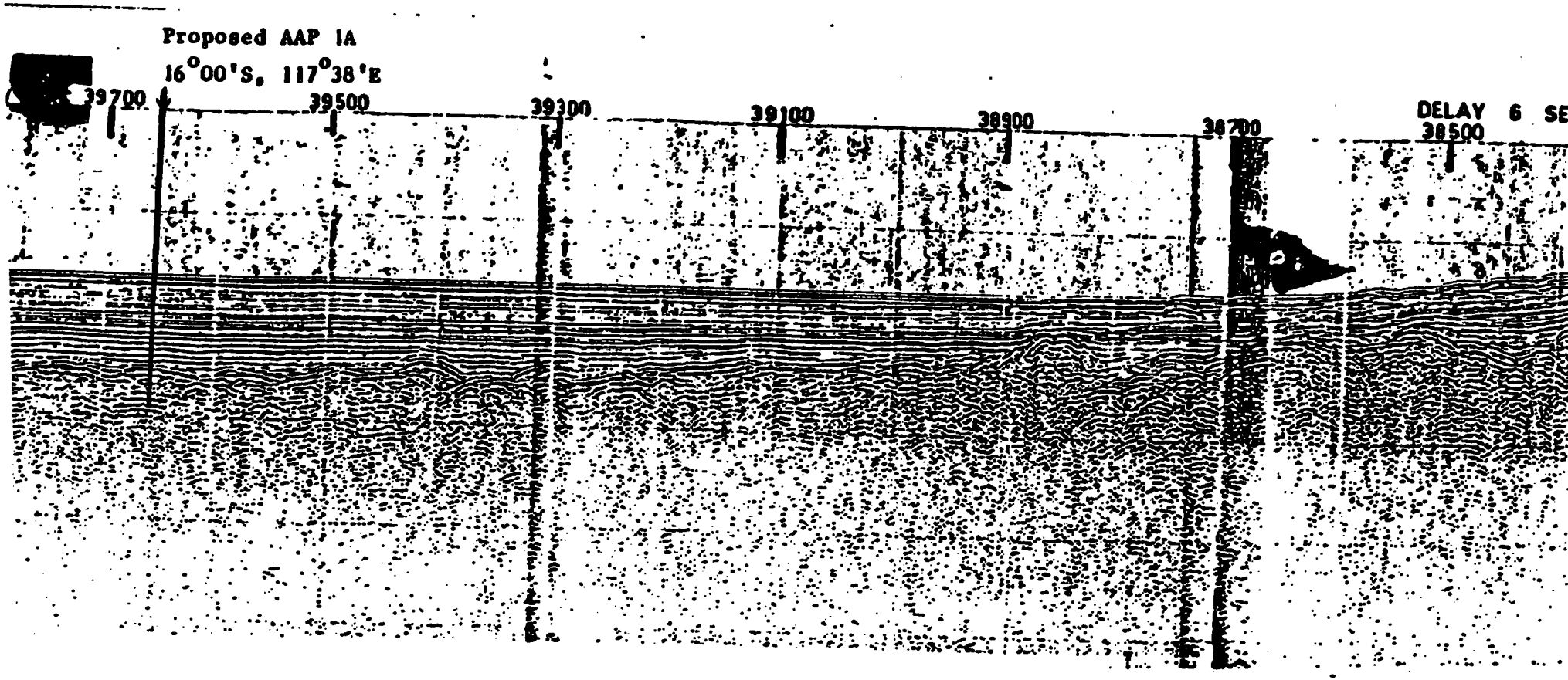


Fig. 67. Argo Abyssal Plain Site AAP1A on Shell line N207

ODP SITE PROPOSAL SUMMARY FORM

Proposed Site: EP5, CENTRAL EXMOUTH PLATEAU (Figs. 72-76, 81)

General Area: NW Australia
Position: 20°15'S, 113°12'E
Alternate Site:

General Objective:
Late Jurassic to Late Cretaceous sea levels. Sedimentological expression of rifting and subsidence history

Thematic Panel interest: SOHP, TECP
Regional Panel interest: IO-RP

Specific Objectives:

Site has a marginal marine-marine sequence dating from Callovian breakup. Barrow Group delta becomes sediment-starved in Late Cretaceous as some of area rifted away on a transform in second margin formation phase. Good record of sea level fluctuations from Late Jurassic on in delta front facies. Objective to drill to breakup unconformity below Dingo Claystone.

Background Information:

Regional Data:
Seismic profiles: GSI Group Shoot line WA76-20. BMR 6-channel.

Other data: BMR magnetics and gravity, later company seismic drilling at Investigator 1 (20°18'S, 113°E)

Site Survey Data - Conducted by: Could be included in BMR multichannel seismic
Date: survey of the Exmouth Plateau in early 1986.
Main results:

Operational Considerations

Water Depth: (m) 900m Sed. Thickness: (m) >5km Total penetration: (m) 2000

HPC ____ Double HPC ____ Rotary Drill Yes Single Bit ____ Reentry Yes

Nature of sediments/rock anticipated: Cenozoic oozes and chalks 600m, Late Cretaceous chalk and limestone 350m, Early Cretaceous shale 500m, Early Cretaceous-Late Turonian shale and sands 550m.
Weather conditions/window: Good, possible cyclones November-March.
Territorial jurisdiction: Australian

Other:

Special requirements (Staffing, instrumentation, etc.)

Because of the delta front facies safety panel may require riser.

Proponents: G H Packham & J B Keene
Ocean Sciences Institute
University of Sydney

Date submitted to JOIDES Office:

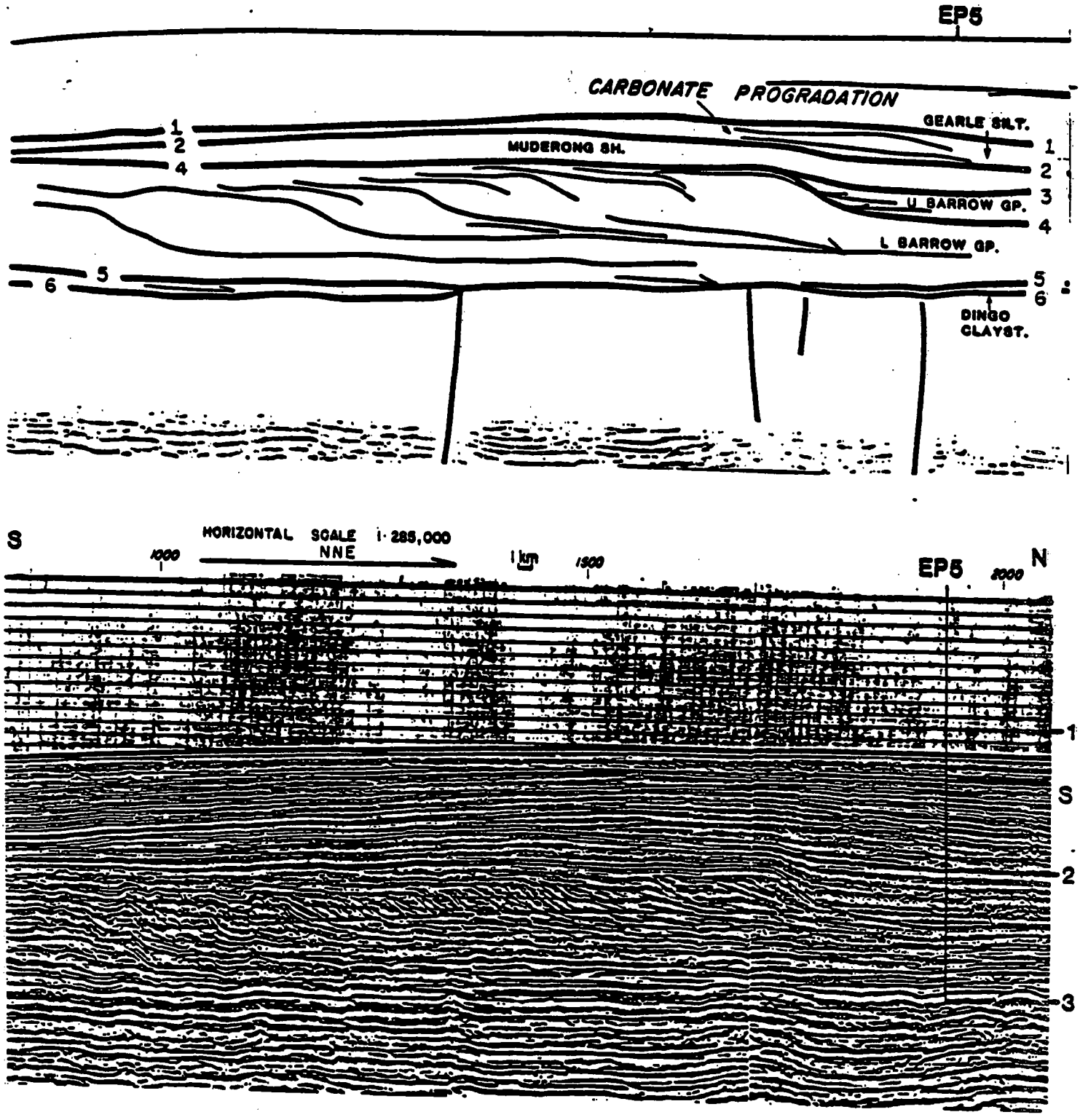


Fig. 81. Location of site EP5

Sediments & Ocean History Panel Meeting

University of Michigan
Ann Arbor, Michigan
October 20 & 21, 1986

3.3 Engineering Priorities

Short term: The primary objective of almost all ODP related drilling operations is the recovery of samples. Any problem that prevents the recovery of COMPLETE sections thus undermines the primary objectives of the program. The SOHP believes that the highest engineering priority should therefore be directed at ensuring the complete recovery of drilled and cored sections. In particular we would like to see engineering efforts directed to (in order of priority):

1 - HPC/APC (and drilling) recovery in sandy sediments (including unconsolidated carbonates)
2 - undisturbed recovery of gassy sediments
3 - enhanced recovery in sections of consolidated and mixed lithologies (i.e. interbedded cherts and carbonates).

In addition, the SOHP recommends high priority be given to the development of:

- a pressure core barrel
- the ability to recover samples in high temperature environments

Long Term:

- the ability to drill deep (2500-3000 m), stable holes in water depths greater than 3000 m
- the ability to drill through salt

The University of Rhode Island Graduate School of Oceanography
Narragansett Bay Campus, Narragansett, RI 02882-1197

275

30 November 1986

Dr. Nicklas G. Pisias, Chairman
JOIDES Planning Office
College of Oceanography
Oregon State University
Corvallis, OR 97331

86-1002
RECEIVED DEC - 5 1986

Dear Nick:

The Lithosphere Panel has two major priorities for engineering development for FY88 and beyond:
(1) development of improved methods of drilling and coring in young, fractured crustal rocks, and
(2) development of drilling and logging techniques for high-temperature hydrothermal conditions

Drilling and coring crustal rocks

One of the most important engineering accomplishments of the new Ocean Drilling Program has been the development of new techniques for spudding holes in areas with little or no sediment cover. The successful utilization of the Hard Rock Guide Base and downhole drilling and coring motors on Legs 106 and 109 have opened up exciting opportunities for using crustal drill holes to address problems of fundamental scientific importance to the lithospheric drilling community. While the problems associated with starting holes in this kind of tectonic setting have been largely overcome, the combined experiences of Legs 106, 109 and 111 indicate that current ODP drilling and coring methods, which are basically designed for use in sedimentary formations, are not adequate when working within the highly abrasive, fractured and unstable formations that characterize young oceanic crust. New drilling and coring techniques, specifically designed to deal with the unique problems of crustal drilling, are clearly needed.

In co-operation with LITHP, TAMU has prepared a report summarizing the status of crustal drilling in ODP and options for future development. This report, which will be formally presented to PCOM in January, recommends a long-term (~5 years) engineering development effort in order to significantly enhance our capabilities in this area. Although, various options are currently being explored, the emphasis will probably be on reduced hole size, possibly using small diameter mining diamond coring technology. A system such as this will require specialized bits, drill collars, and casing not in the suite of tools currently utilized by ODP. In order to improve recovery rates and the representativeness of

the recovered material, side-wall coring techniques should be explored. Finally, the report recommends the utilization of a land drilling test program to evaluate potential systems before deployment at sea.

In the shorter term, more operational experience is needed on the Hard Rock Guide Base and the capabilities and limitations of the downhole drilling and coring motors. Deployment of another guide base should be planned on either SWIR (Leg 115) or in a western Pacific back-arc basin. With this additional experience it may be feasible to design a smaller and cheaper guide base which could have a major impact on later ridge crest drilling plans. The downhole drilling and coring motors have shown great promise as a means of spudding holes in areas with little or sediment cover, possibly even without a guide base. However, more experience is required in using these motors in different types of formations to evaluate how effectively they can be used in future drilling efforts. This kind of information will be essential in planning a major crustal drilling program in the eastern Pacific.

High-temperature drilling

Submarine hydrothermal systems are an integral part of a fundamental planetary process with major physical, chemical and biological implications. There is enormous interest both within and outside the ODP community for crustal drilling within active hydrothermal systems in a variety of tectonic settings (sedimented and unsedimented ridge crests, seamounts, back-arc basins). The high temperature conditions (>1000^{0}C) and potentially corrosive hydrothermal fluids present major operational and safety problems over and above the normal difficulties encountered in drilling young crustal rocks. Drilling ultra-deep crustal holes (e.g. 504B) is and will continue to be a major LITHP objective. Relatively high temperatures will also be encountered in these deep holes.

High-temperature drilling will require specially designed drill string components, bits, and logging tools as well as new safety precautions to avoid hazards such as steam flash blow-outs. Drilling in continental geothermal areas provides us with some operational experience with these problems, but a major engineering development effort within ODP is needed to develop and adapt the necessary tools for use at sea.

Summary

The Lithosphere Panel's two highest priorities for engineering development for FY88 and beyond are the development of improved crustal drilling and coring techniques and high-temperature drilling capabilities. Both will require a long-term (~5 years) development effort and a significant commitment of manpower and resources on a level equal that employed to develop and construct the Hard Rock Guide Base. In both cases, this development must begin now (preferably in

FY87) if these new tools and techniques will be available for use in the early 1990s when the drillship is in the eastern Pacific and ready to carry out this work. Without a substantial, long-term commitment from ODP to develop this new technology and a corresponding commitment from PCOM for a multi-leg, focussed drilling program using these tools, it is unlikely that the highest priority lithospheric drilling objectives as outlined in the COSOD report will be achieved within the current drilling program.

Sincerely,

Bd

Robert S. Detrick Jr.
LITHP Chairman

UNIVERSITY OF WASHINGTON
SEATTLE, WASHINGTON 98195

Department of Geological Sciences, AJ-20

86-1017
RECEIVED DEC - 8 1986

December 3, 1986

TO: Nik Pisias
Chairman, JOIDES Planning Committee

FROM: Darrel Cowan
Chairman, TECP

RE: FY 1988 and long-term engineering priorities

In FY 1988, the Makran leg will be of greatest interest to TECP. As in any active accretionary prism, a prime objective is the measurement of in situ pore pressures and, if possible, permeabilities. Reliable packers are essential for these measurements. We support whatever expenditures are necessary to improve the reliability of the TAM rotatable drill-string packer prior to this leg. Moreover, TECP again emphasizes the eventual need for a wire-line packer that can measure pore pressures over shorter intervals than is possible using a drill-string packer.

In the longer term, our primary engineering needs will also be instruments for measuring physical properties in situ during and after drilling. When we ranked drilling targets in the Western Pacific at our October meeting in Ottawa, we included among our top nine legs a hole on the Nankai accretionary prism that will be dedicated to the measurement of physical properties. All of the required instruments and techniques are outlined in the forthcoming report on the Workshop on Physical Properties of Marine Materials held at Cornell in June 1986. It is premature to introduce them all here, but high-priority requirements will include the development or adaptation of devices for measuring pore pressure, permeability, and shear strength in soft sediments, in the hole and preferably ahead of the drill.

DSC/scb

IFREMER

Dr Nick Pisias
PCOM Chairman,
JOIDES
College of Oceanography
Oregon State University
Corvallis, Oregon
Etats-Unis

DIT/ISM N° 86.133 Paris, December 12, 1986

Object : TEDCOM membership , TEDCOM meeting,
Riser Drilling Workshop.

Dear Nick :

I. There are three vacancies at TEDCOM, as it appears in the september meeting closed session report.

First, Mr Gardner, from Exxon has officially resigned and Exxon Company has proposed Dr Paul Stanton as his replacement. Paul has attended as an observer the last TEDCOM meeting and his expertise has been appreciated.

Second, Mr Bingman from Shell has not shown up since two years. He has not ever answered any mail, and at our closed session we have considered him as resigning.

Third, Mr Newson from Sandia National Laboratories has officially resigned.

We have a real need for mining expertise and it is why we have contacted Mr Walter Svendsen of Longyear Corporation in Minneapolis. This engineer has already agreed to be a candidate.

So I ask that, at the next PCOM meeting, the candidacies of MM. Stanton and Svendsen be examined and, it is my wish, approved.

We need also a replacement for Mr Bingmann, but we are not yet ready to propose a name.

II. We need also your approval for the two following events :

. The riser drilling workshop, which has been talked about since a long time now, must take place before COSOD II, and TEDCOM "pressurized area" working group has already begun to prepare this workshop. It is necessary that as a minimum one member of each regional panel ~~and of each regional panel~~ and of each concerned thematic panel attend that workshop, as well as one member of each participating country. But the more attendants, the better

. The fourth TEDCOM meeting (the frequency is every 8th month)

It seems logical and efficient to have these two meetings at the same period and at the same place, since some people will attend both meetings.

The proposed place is Houston (Texas).

The proposed period is MAY 4-5-6-7, the week after OTC and the International Petroleum Conference.

We have still to decide if the Workshop will come first and TEDCOM meeting second or vice-versa.

On these topics, I need PCOM decision before the end of January.

I look forward to seeing you in Hawaii.

Best regards.

Jean JARRY

c.c. B. Harding
J. P. Cadet
B. Biju Duval