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RECEIVED AUG 17 1987

OCEAN DRILLING PROGRAM
SITE SURVEY PANEL MINUTES

Instituttet for Teknisk Geologi
Lyngby, Denmark

June 30 - July 2, 1987

Present: John Peirce* (Chairman, Canada)
Fred Duennebier* (USA)
John Jones* (UK, Alternate for Kidd)
Birger Larsen* (ESF)
Alain Mauffret* (France)
Heinrich Meyer* (Germany)
Kiyoshi Suyehiro* (Japan)
Jack Baldauf (TAMU)
Carl Brenner (ODP Databank)
Tom Pyle (JOI)
Tim Francis (PCOM liaison)
Michael Wiedicke (JOIDES Office)

Guests: Ulrich von Rad (BGR, Exmouth Plateau)
(July 2)

Regrets: Steve Lewis* (USA)

* Panel members

EXECUTIVE SUMMARY

Site Survey Panel Meeting, June 30 - July 2, 1987
Inst. for Applied Geology, Copenhagen, Denmark

1. In support of TAMU's efforts to mount a hull array to improve 3.5 KHz data on the RESOLUTION, the SSP passed the following:

RESOLUTION The SSP reiterates that it values highly the underway geophysics data collected by the JOIDES RESOLUTION, especially because her tracks are often in inaccessible locations. The SSP encourages TAMU to continue to strive to improve the underway 3.5 KHz and seismic systems. Our technical recommendations are given in the 111T geophysics report.

2. Because there seem to be several legs coming up where the scientists involved in site surveys may not be members of the shipboard party, the SSP felt it necessary to reemphasize the desirability of having site survey scientists: a) invited to the post-cruise meeting, b) given access to shipboard data, and c) invited to submit papers on their work to the Part A volume. Therefore we restate our motion from our April 1, 1986 meeting to wit:

April, 1986 MOTION: (Langseth/Duennebier)

The SSP recommends that scientists chiefly responsible for site surveys normally be invited to post-cruise meetings in order to encourage collaboration between site survey and drilling scientific activities.

The SSP reiterates its support for the inclusion of a synthesis of site survey data within Part A of the ODP Proceedings. Part A manuscripts on site survey work should be submitted pre-cruise whenever possible. Interpretation of the survey data in light of the drilling results should be included in Part B.

3. Indian Ocean

a) SWIR (118)

Site survey data have not yet reached the Data Bank, severely constraining its ability to produce a high quality synthesis and the necessary overlays for the Co-Chiefs' package.

b) Kerguelen (119/120)
SKP sites cannot be approved by SSP until it has seen full-sized seismic sections and magnetic profiles and MD-48 dredge descriptions.

Site SKP-3/3A is not positioned on crossing MCS lines, although it is a deep reentry site. Could it be repositioned?

c) Broken Ridge/Ninetyeast Ridge (121)
Northern Ninetyeast Ridge sites approved. Site surveys for Broken Ridge and South/Central Ninetyeast Ridge not fully processed. Complete packages will be ready by September.

d) Exmouth Plateau (122)
EP-2. Needs info on sediment hardness to estimate difficulty of spudding into Paleogene.

EP-6. Core needed if reentry planned because of active erosion at site.

EP-7. (Top of Plateau) OK for SSP, PPSP may have some concerns.

EP-8,10,11. Extensive data processing needed. Spudding problems need to be discussed and alternative strategies reviewed with PPSP.

EP-9. OK for SSP but PPSP may not approve this site as Paleogene and Cretaceous appear to be in stratigraphic trap position.

e) Argo Abyssal Plain.
Site AAPI-3 approved by SSP once fully processed seismic and navigation deposited with Data Bank.

4. West Pacific

All is not well with site surveys in WPAC, contrary to our prior opinion. Much of the problem is due to poor communication between SSP/Data Bank and WPAC/site proponents. Some major holes exist nevertheless.

a) Bauda-Sulas-S.China Seas. Detailed synthesis of data needed. SSP unable to assess without adequate information.

b) Bonin I & II. Appears OK. Site by site review scheduled for next meeting.

c) Vanuatu. Sites IAB-1,2, BAT-2b and DEZ 2,4 appear to be OK. Site BAT-2 appears to be bare rock and not feasible. Sites DEZ-1,3 and 5 may be bare rock (basement or carbonate) and cannot be drilled unless presence of soft sediment demonstrated.

d) Japan Sea. Site J/b needs a core. No problems expected for sites J/d,3 and J2a. Site J3a needs side scan M SeaBeam. Site JS-2 needs high resolution SCS.

e) Nankai. Outstanding problem should be resolved with new data recently acquired.

f) Zenisu. New site survey just completed.

g) Great Barrier Reef. The current proposal is totally inadequate from a site survey perspective. Major safety problems exist at some sites.

h) Sunda. SSP needs synthesis ASAP after October site survey. Little time exists for full MCS processing and review before drilling begins.

i) Lau Basin. Recent German survey has provided much more info. Side scan data needed and possibility of some GLORIA time exists. Still need high resolution SCS line at 18°45' S as French attempt for same failed due to equipment problems.

5. Central and Eastern Pacific

SSP watchdogs assigned based on current CEPAC drilling packages. Initial review will occur after 1st CEPAC prospective issued.

6. The next SSP meeting is tentatively scheduled for January 4-7 in Hawaii with the WPAC Chairman in attendance.

ACTION REPORT

ACTION: Panel members bring updated ship schedules to next meeting.

ACTION: TAMU should discuss communications issues regarding science on picket vessel prior to Prydz Bay drilling in light of Leg 113 experience.

ACTION: Baldauf send Peirce an update on the Navidrill problems and status for distribution to the panel members.

ACTION: Baldauf send SSP a letter outlining key TAMU concerns regarding inadequacies of SWIR site survey.

Peirce write Dick (cc: von Herzen & Robinson) urging submission of all available data to Data Bank ASAP. Emphasize time necessary to produce overlays and synthesis.

ACTION: TAMU will add inclusion of site survey science in Part A to the pre-cruise agenda. Francis will remind PCOM of our recommendations.

ACTION: Wiedicke send Peirce a copy of the Wharton Basin fossil ridge proposal.

ACTION: Duennebier and Baldauf talk to Schlich at Strasbourg. Peirce followup with a letter to Schlich and Coffin asking for a detailed explanation of the constraints which led to choosing sites SKP-3 and 3A and reiterating the need for the data requested above.

ACTION: Brenner send copy of SKP proposal to Suyehiro. Send copies of data requested upon receipt for immediate watchdog review in light of above comments ASAP. Make copies of full-sized seismic sections available for PCOM annual meeting in Nov., and make core descriptions available to TAMU. Suyehiro complete watchdog report on receipt of data and forward to Peirce, cc Brenner and JOIDES office.

ACTION: Peirce call/telex Sclater to be sure that the Ninetyeast Ridge SCS data be delivered to the Data Bank by August 1 with sites selected in order to allow timely preparation of the safety package.

ACTION: Peirce write to von Rad and Exon, cc. Falvey, Larsen and Brenner, emphasizing the needs which SSP sees outstanding for the Exmouth Plateau.

Brenner prepare map showing available cores and 3.5 KHz data to assist in geotechnical evaluation of spudding problems.

ACTION: von Rad will send a copy of the So-48 cruise report on the Lau Basin to the ODP Data Bank once translation to English is completed by the end of the summer.

ACTION: Peirce write to Prof. J.C. Bryden (UK Excom) regarding the need for the DARWIN time in the Lau Basin, particularly in the north (Area X).

Duenebeir contact Taylor/Gill regarding specific recommendations for the DARWIN work, details on site LG-7 (which are not given in the 3rd prospectus, and new choices for site LG-1 in light of the SONNE data. Determine if Gill should be invited to the next SSP meeting. Pass comments on to Peirce and Brenner.

Brenner write to Gill, cc. to Taylor, Duenebier and Peirce, to remind him of the need for data submission by the Lau Basin Group. In particular ask how to get a copy of Mobil's seismic base map covering their older work in the area.

ACTION: Peirce write Taylor summarizing critical areas needing immediate attention. SSP watchdogs will be writing WPAC site proponents. Peirce invite Taylor to next SSP meeting. Duenebier discuss with Taylor whether Gill should also be invited.

ACTION: H. Meyer write to Silver, Jongsma and Hilde, cc to Taylor, Brenner and Peirce, to ask for synthesis of seismic tracks, dredge, heat flow and core locations, etc., and any other relevant information for the Banda Sea.

ACTION: H. Meyer write to Rangin (U. Paris 6) and Pautot (IFREMER) for details of coverage at sites SCS-5 and 9 with cc to Taylor, Brenner and Peirce.

ACTION: Peirce write to Taylor, cc to Brenner, H. Meyer, to emphasize SSP needs and arrange for a full review of Banda - Sulu - SCS drilling package at January SSP meeting.

ACTION: Peirce write to Taylor requesting a site by site review of Bonin I and II at the January SSP meeting.

ACTION: Mauffret write to Fisher (USGS), cc Brenner and Peirce, to see if better velocity control is possible at DEZ sites.

Brenner check LDGO data base for any refraction data or cores near DEZ sites.

ACTION: Mauffret write Daniel and Coloot (OSTROM), cc Brenner and Peirce, to find out specific locations of planned diving in Vanuatu area.

ACTION: Suyehiro will bring to the next meeting of the SSP a full set of data which focusses on these shortcomings for sites in the Japan Sea.

ACTION: Suyehiro strive to get Nankai MCS navigation submitted to the Data Bank. He will bring the JNOC line over NKT-2 and the crossing line, as well as any ESP data, for review at the next SSP meeting.

ACTION: Peirce write to Taylor, cc. Kidd, Jones and Brenner, outlining the need for a totally revised proposal for the Great Barrier reef from a site survey perspective.

ACTION: Larsen write by August to Silver, cc to Taylor, Brenner and Peirce, to ask for documentation of existing Sunda data, to explain our requirements for site survey data in active margin environments, and to emphasize the need for timely postcruise communication.

Peirce write to Taylor, cc to Silver, Larsen and Brenner, in the same vein.

ACTION: Peirce write Schlanger with list of SSP watchdogs for CEPAC drilling packages. Ask to have Mauffret invited as next CEPAC liaison. Ask Schlanger to send a copy of whatever documentation is prepared for Aug. PCOM to Peirce and Mauffret. Ask to have copies of 1st CEPAC prospectus sent directly to Brenner, Mauffret and Peirce when issued.

Brenner send SSP watchdogs copies of relevant CEPAC proposals once 1st prospectus issued.

All SSP members prepare watchdog reports and site survey matrices for their areas for January meeting.

ACTION: Peirce write Piasias to schedule meeting and invite guests.

ACTION: Peirce make recommendation to PCOM regarding new Chairman.

1. PRELIMINARY MATTERS

The Chairman welcomed Jack Baldauf as liaison from TAMU for this meeting.

The minutes from the January meeting were accepted after noting that the underway geophysics trials took place on Leg 111 T, not 112 T.

Ship schedules for Germany and Japan for 1988 were received (Appendices A & B). The Chairman reminded others to bring ship schedules to our next meeting.

ACTION: Panel members bring updated ship schedules to next meeting.

2. REPORTS

a) PCOM (Francis)

Leg 113 went quite well, although there was a high rate of failure in coring tools which led to less logging time than desired.

Peirce mentioned that he had reports that scientific communications between the RESOLUTION and the ice picket vessel were very poor.

ACTION: TAMU should discuss communications issues regarding science on picket vessel prior to Prydz Bay drilling in light of Leg 113 experience.

A Navidrill was lost on Leg 114, and the second one failed to operate properly. TAMU hopes to have problems resolved in time for use on Leg 118. Leg 118 has been extended to 52 days. Their prime objective is still a deep hole in the median ridge.

ACTION: Baldauf send Peirce an update on the Navidrill problems and status for distribution to the panel members.

Leg 119 ice vessel will cost \$850 K, J. Barron (USGS) is one Co-Chief. Other invitee has not yet replied. Leg 120 Co-Chiefs will be R. Schlich (France) and S. Wise (Florida State). Sites KHP-3 and SKP-8 dropped for lack of time. about five Australians have applied for scientific positions on either of the legs.

Leg 121 Co-Chiefs will be J. Weissel (LDGO) and J. Peirce (Canada) and will combine Broken Ridge and up to 3 sites on the Ninetyeast Ridge.

Leg 122 will include four sites on Exmouth Plateau. Leg 123 will include site EP-9 and the deep hole AAP1B.

PCOM passed a motion supporting the WPAC drilling plans laid out in the third prospectus.

A CEPAC first prospectus is expected from their meeting in early October.

b) TAMU Report (Baldauf)

Leg 115 drilling clearances in waters of Mauritius were denied at last minute, necessitating a large amount of last minute site selection. Site 706 (MP3) and 707 (CB-1A) penetrated multiple basalt flow units. Site 713 (CB-1) penetrated 106 m of multiple basalt units. Site 715 (MLD-4) penetrated 100 m of shallow Paleogene limestone reef and 77 m of multiple basalt units.

Backup scenarios for Leg 116 were briefly discussed in case they encounter hydrocarbons.

Staffing for Legs 117 and 118 is nearly done.

Leg 118 site survey data were felt by TAMU to be less than adequate for a bare rock drilling site. It was pointed out the SSP had clearly indicated the need for a TV survey. They do not consider the 118 site survey to represent the normally acceptable standard for bare rock drilling sites. All site survey data for Leg 118 are not yet in the Data Bank.

ACTION: Baldauf send SSP a letter outlining key TAMU concerns regarding inadequacies of SWIR site survey.

Peirce write Dick (cc: von Herzen & Robinson) urging submission of all available data to Data Bank ASAP. Emphasize time necessary to produce overlays and synthesis.

A Drilling Engineering Workshop was held at TAMU on May 27/28 and attended by about 70 people, including Lewis for SSP. Proceedings will be published by Sandia in a few months. The conclusions reached were neither as sweeping

nor as authoritative as people has hoped for, although some progress was made in the area of fluid sampling.

The towed 3.5 KHz fish was lost while testing it. Bill Robinson has proposed a scheme for mounting a 12 transducer hull mounted array without a dry dock at an estimated cost of \$125 K.

RESOLUTION The SSP reiterates that it values highly the underway geophysics data collected by the JOIDES RESOLUTION, especially because her tracks are often in inaccessible locations. The SSP encourages TAMU to continue to strive to improve the underway 3.5 KHz and seismic systems. Our technical recommendations are given in the 111T geophysics report.

Because there seem to be several legs coming up where the scientists involved in site surveys may not be members of the shipboard party, the SSP felt it necessary to reemphasize the desirability of having site survey scientists a) invited to the post-cruise meeting, b) given access to shipboard data, and c) invited to submit papers on their work to the Part A volume. Therefore we restate our motion from our April, 1986 meeting to wit:

April, 1986 MOTION: (Langseth/Duennebier)

The SSP recommends that scientists chiefly responsible for site surveys normally be invited to post-cruise meetings in order to encourage collaboration between site survey and drilling scientific activities.

The SSP reiterates its support for the inclusion of a synthesis of site survey data within Part A of the ODP Proceedings. Part A manuscripts on site survey work should be submitted pre-cruise whenever possible. Interpretation of the survey data in light of the drilling results should be included in Part B.

Passed 6 for, 1 abstention.

ACTION: TAMU will add inclusion of site survey science in Part A to the pre-cruise agenda. Francis will remind PCOM of our recommendations.

c) Data Bank (Brenner)

The Budget Committee recommended that the one month of Sr. Scientist time be cut from the ODP Bank budget. This represents a cut of about 2 1/2%.

The SSP is concerned that the Data Bank may lose a senior advocate to defend itself within the Lamont system. Currently there seems to be an adequate network for technical and internal political support, but this situation may change as people change. The SSP consensus is to monitor the situation, but no immediate action appears necessary.

Data Bank activity is up slightly from 1985 to 1986.

Very little WPAC data has actually made it into the Data Bank as yet.

The Data Bank catalog will be reissued by the end of the summer. It will include a lengthy introduction regarding policies and procedures.

The changeover of the LDGO computer system from VAX to SUN network is proceeding. A new system for cataloging data bases on a centralized system (GEOBASE) is proceeding well. JOI has provided some additional \$ to convert the DSDP/IPOD data base to this system.

Leg 115 site survey data was reviewed by John Mutter for the SSP.

The French proposal to drill the fossil ridge in the Wharton Basin is being considered as a secondary backup target for Leg 116.

ACTION: Wiedicke send Peirce a copy of the Wharton Basin fossil ridge proposal.

d) Indian Ocean Panel (Brenner)

Brenner briefly reviewed the last IOP meeting held at LDGO.

e) West Pacific Panel (Suyehiro)

Suyehiro briefly reviewed the last WPAC meeting in Tokyo.

Some concern had been expressed that the Bonin sites were in areas leased by JAPEX, but apparently getting permission to drill will not be a problem.

SOHP has serious concerns regarding the hydrothermal proposal for drilling on the Great Barrier Reef. They are steadfastly opposed to repositioning the site locations already proposed.

WPAC does not consider bare rock drilling in the Lau Basin to be a high priority for them relative to their other objectives.

Duenebier reported that Fryer (HIG) has just completed a diving program on a serpentinite diapir in the Marianas. She discovered aragonite chimneys at depths below the stability field for aragonite, apparently being maintained by cold flowing water. A drilling proposal is being prepared.

f) Central and Eastern Pacific Panel (Lewis)

No report available as Lewis unable to attend.

g) TAMU Budget (Baldauf)

The FY 88 budget requires cuts at TAMU. Options being considered include printing only 1000 hard copies of parts A + B reports and 1000 microfiche copies (instead of 2000 hard copies), author prepared camera ready Part B volumes, elimination of the SEM and XRF and techs needed to run them on board as well as going to an older and simpler XRD system, elimination of 3 staff scientists, reduction in TAMU panel liaisons, reduction in headquarters budget, and reduced software acquisitions.

3. SITE SURVEY ASSESSMENTS

a) Kerguelen (Brenner/Baldauf)

Although Suyehiro is SSP watchdog for SKP and Prydz Bay, Brenner and Baldauf have participated in the meetings of the Kerguelen Working Group (KWP).

The objectives, priorities and recommendations of the KWG and PCOM were reviewed.

The Prydz Bay data were reviewed briefly now that parallel lines are available. These suggest that the strike of the

dipping beds at the landward end of line 21 is parallel to the coast, implying that their true dip is greater than shown on line 21. The one cross line is in deep water and is not relevant to the proposed drilling.

It is not possible for the SSP to approve the SKP sites until they have seen the full-sized seismic sections and the associated magnetic profiles (to check for shallow volcanics which may be present in places). We only had the French/Australian proposal to work from.

The Data Bank needs to receive full sized seismic sections, magnetic profiles, and the MD-48 dredge descriptions as soon as possible. It has received digital navigation for both the French and the Australian cruises, and this has greatly simplified the data synthesis problem.

Sites SKP - 1, 2 and 8 appear to be OK, subject to reviewing the full-sized seismic sections and the magnetic profiles.

Specific concerns of the SSP regarding SKP sites are:

- (1) SKP 3 or 3 A is a reentry site. The SSP is very concerned about the lack of crossing seismic lines for such a deep hole, especially at site SKP-3A.

A pinchout in reflectors apparently interpreted as basement exists at SKP-3. True basement may be much deeper. Are refraction velocities for "basement" available here? SKP-3A is positioned high on a fault-closed structure. Shallow volcanics may occur to the NE.

Could SKP-3 be repositioned to the south at the crossing of lines RS02-27 with lines 30 or 32?

The nearest core is nearly 100 km away.

ACTION: Duennebier and Baldauf talk to Schlich at Strasbourg. Peirce followup with a letter to Schlich and Coffin asking for a detailed explanation of the constraints which led to choosing sites SKP-3 and 3A and reiterating the need for the data requested above.

SKP-4A (200 m basement penetration) SSP needs to see nearby cross line RS02/27.

SKP-6A (50 m basement penetration).
Apparently straightforward, but need to see line 47-07 before turn to be sure.

SKP-6B (1000 m).
Not on cross lines, but not planned as a reentry.
Need to see line 47-06 before turn to be sure.

ACTION: Brenner send copy of SKP proposal to Suyehiro. Send copies of data requested upon receipt for immediate watchdog review in light of above comments ASAP. Make copies of full-sized seismic sections available for PCOM annual meeting in Nov., and make core descriptions available to TAMU. Suyehiro complete watchdog report on receipt of data and forward to Peirce, cc Brenner and JOIDES office.

b) Broken Ridge/Ninetyeast Ridge (Peirce)

Peirce presented Curray's revised choices for the two holes at the Northern Ninetyeast Ridge site. These sites were approved.

Peirce reported a telephone conversation with Sclater who reported that all the SCS data are processed for the southern and central Ninetyeast Ridge sites. Sonobuoys are partially processed and will be completed in time for the September safety review.

ACTION: Peirce call/telex Sclater to be sure that the Ninetyeast Ridge SCS data be delivered to the Data Bank by August 1 with sites selected in order to allow timely preparation of the safety package.

Brenner and Peirce both remind Weissel that sites must be picked for Broken Ridge and seismic data submitted to the Data Bank by August 1 to allow timely preparation of the safety package.

c) Exmouth Plateau (von Rad/Larsen)

Von Rad gave a brief summary of the overall objectives for the program and then presented the data in a site by site presentation.

The processed versions of the new BMR seismic are not in the Data Bank. Apparently the processing is about 50% complet-

ed, but very little is reported to be done yet for sites EP-9 and 10. It will be essential for PPSP to have fully processed seismic in order to make a proper evaluation, particularly at these sites. An isopach map of the thinning Neogene cover will be essential in working out alternative drilling strategies because it will be difficult or impossible to spud into the Mesozoic carbonates at the edge of the Plateau.

Site EP-2: Planned to spud into Paleogene. Needs geotechnical core or other info on the hardness of the sediments of this age near the site. Perhaps 3.5 KHz data from RC-2703 exists which could help.

Site EP-6: Planned to spud in an area of active erosion. Need geotechnical core if reentry planned, but not yet clear if that will be required.

Site EP-7: Approved by SSP once all new data and maps are deposited with the Data Bank. Structural maps show the site to be in a synclinal position. A possible concern to the PPSP may be the occurrence of several pinchouts above the Barrow Delta level.

Sites EP-8, 10 & 11: The seismic data must be fully processed, including deconvolution and migration. Depth sections are highly desirable because variable water depths make it difficult to be sure of the structural attitudes appearing on the time sections. Time structure maps exist. Because it will be difficult or impossible to spud into outcropping Mesozoic carbonates or to set a reentry cone in them, detailed information on bottom hardness is needed (cores if possible or 3.5 KHz (not currently available) or perhaps diving (not scheduled)). The alternative is to plan to spud into the toe of the Neogene section if PPSP will allow it.

Site EP-9: Approved by the SSP once fully processed seismics and navigation are deposited with the Data Bank. However, the Paleogene and Cretaceous sections appear to be in a stratigraphic trap position and PPSP may not approve this site.

ACTION: Peirce write to von Rad and Exon, cc. Falvey, Larsen and Brenner, emphasizing the needs which SSP sees outstanding for the Exmouth Plateau.

Brenner prepare map showing available cores and 3.5 KHz data to assist in geotechnical evaluation of spudding problems.

d) Argo Abyssal Plain (von Rad/Larsen)

Site AAP1-B: Von Rad presented a brief overview of the objectives and then presented the site data. Site approved by the SSP once the fully processed seismic data and accompanying navigation are deposited with the Data Bank. A depth transect of piston cores exists to the NE if needed. Some concern was expressed about turbidite sands coming out of Swan Canyon, but we were assured that the canyon is currently inactive. It seems likely that turbiditic sands will be encountered somewhere in the section.

e) Lau Basin (Duennebier and von Rad)

These notes combine the discussions of July 1 and 2.

The PCOM watchdog report by von Rad is attached as Appendix C, a report on site survey status by the Lau Basin Group is attached as Appendix D, and our updated site survey matrix is included as part of Appendix E.

In summary, the most critical site survey needs are a digital high resolution SCS line along latitude 18°45' S and a side scan sonar survey of the same area.

SONNE cruise 48 was completed in April, 1987. Results are discussed below.

ACTION: von Rad will send a copy of the So-48 cruise report on the Lau Basin to the ODP Data Bank once translation to English is completed by the end of the summer.

Fouchet collected some SeaBeam, magnetics and gravity on a CHARCOT transit, but no SCS due to equipment failure.

The DARWIN may have some time available in October, 1988. Julian Pearce hopes to do some dredging in the Valu Fa area. It is possible that DARWIN could do about 10 days of GLORIA surveying, SCS, magnetics, 3.5 and 10 KHz.

A French/German diving program to Valu Fa is planned for 1989.

ACTION: Peirce write to Prof. J.C. Bryden (UK Excom) regarding the need for the DARWIN time in the Lau Basin, particularly in the north (Area X).

Duenebeir contact Taylor/Gill regarding specific recommendations for the DARWIN work, details on site LG-7 (which are not given in the 3rd prospectus, and new choices for site LG-1 in light of the SONNE data. Determine if Gill should be invited to the next SSP meeting. Pass comments on to Peirce and Brenner.

Brenner write to Gill, cc. to Taylor, Duenebeir and Peirce, to remind him of the need for data submission by the Lau Basin Group. In particular ask how to get a copy of Mobil's seismic base map covering their older work in the area.

The SONNE 48 cruise provided complete SeaBeam coverage of sites LG-1, 2, & 7 from approximately longitude 178° W to 175° 40'W. The Northern Lau Spreading Center (NLSC) is well defined, including a new hydrothermal site. There are no suitable sediment ponds west of the NLSC, but a possible site with pelagic sediments (as opposed to volcanoclastic turbidites) exists to the east of the NLSC at approximately 176° 18'W, 18° 32'S. There are many cores in this area.

Valu Fa is a young feature made up of highly differentiated andesitic lavas in contrast to the NLSC which has a MORB composition. This difference may be related to the positions of the spreading centers in relatively mature and immature parts of the back arc basin. Hydrothermal activity is less localized at Valu Fa than it is at the NLSC and the East Pacific Rise. No connection between Valu Fa and the NLSC has been defined as yet.

SONNE also completed nearly complete photo coverage of the Valu Fa area, as well as a side scan sonar survey (Kiel system), TV controlled grab samples and water temperature measurements on the camera runs.

4. West Pacific Drilling Packages

Each of the WPAC drilling packages was reviewed by the SSP watchdog responsible. A startling number of unanswered questions arose, largely because neither the SSP nor the Data Bank have the same degree of familiarity with the data available as

WPAC because virtually no data has reached the Data Bank except in Nankai and the Bonins. A much higher level of communication is needed over the next few months between WPAC proponents and SSP watchdogs.

ACTION: Peirce write Taylor summarizing critical areas needing immediate attention. SSP watchdogs will be writing WPAC site proponents. Peirce invite Taylor to next SSP meeting. Duennbier discuss with Taylor whether Gill should also be invited.

A full set of site survey matrices for all WPAC drilling packages is attached as Appendix E. These give the details of coverage and needed coverage on a site by site basis.

a) Banda - Sulu - South China Basin (H. Meyer)

Banda Sea - Adequacy of data base impossible to assess without proper maps and sections. Site positions inconsistent with diagrams.

ACTION: H. Meyer write to Silver, Jongsma and Hilde, cc to Taylor, Brenner and Peirce, to ask for synthesis of seismic tracks, dredge, heat flow and core locations, etc., and any other relevant information for the Banda Sea.

The Darwin will be transiting the Banda Sea in February, 1988, and may be available for a small amount of opportunity site work or a single GLORIA line.

Sulu Sea - New Sonne 48 channel MCS line 7 crosses site S5 and line 8 crosses site S8. Monitor record shows up to 6 seconds sub-bottom penetration. Data coverage in Sulu Sea appears to be adequate if data quality OK. Synthesis of Sonne data with older data needed. Site positions are inconsistent with diagrams.

South China Basin - The SSP does not know any details of data coverage or quality. Some site positions are apparently new.

ACTION: H. Meyer write to Rangin (U. Paris 6) and Pautot (IFREMER) for details of coverage at sites SCS-5 and 9 with cc to Taylor, Brenner and Peirce.

Because this drilling package will be near the top of WPAC drilling schedule, a full review must be held at our January meeting.

ACTION: Peirce write to Taylor, cc to Brenner, H. Meyer, to emphasize SSP needs and arrange for a full review of Banda - Sulu - SCS drilling package at January SSP meeting.

b) Bonin I and II (Duennebier)

All data needed either are collected or are being collected this summer. Much of the data has already reached the Data Bank.

Confusion exists as to the correct position of Bonin 8 as the 3rd prospectus does not agree with March WPAC minutes.

ACTION: Peirce write to Taylor requesting a site by site review of Bonin I and II at the January SSP meeting.

c) Vanuatu (Mauffret)

Site IAB-1 OK.

Site IAB-2 - Expect to be able to choose a good site in an area complicated by reverse faulting from the MULTIPSO data. Migration needed; expect completion of same in early 1988.

Site BAT-2b - Expect to be able to choose a good site in a 100 m deep sediment pond along flank of a small spreading (?) ridge. BAT-2 seems to be bare rock (basalt?).

Sites DEZ 1, 3 and 5 all may be positioned on bare rock (basement or hard carbonate). The existence of soft sediments for spudding in has yet to be demonstrated.

Sites DEZ 2 and 4 appear to be OK. Good velocity control is highly desirable in these accretionary prisms, but hard to get.

ACTION: Mauffret write to Fisher (USGS), cc Brenner and Peirce, to see if better velocity control is possible at DEZ sites.

Brenner check LDGO data base for any refraction data or cores near DEZ sites.

Sites DEZ 1, 3 and 5 cannot be drilled unless soft sediment locations can be located. Diving may resolve some of these questions.

ACTION: Mauffret write Daniel and Coloot (OSTROM), cc Brenner and Peirce, to find out specific locations of planned diving in Vanuatu area.

d) Japan Sea (Suyehiro)

An explanation of the gas problem is contained in the WPAC 3rd prospectus.

A catalog showing all ODP relevant seismic sections in the Japan Sea has been prepared by Tamaki. It is titled "Geophysical Data of the Japan Sea for the ODP Data Bank". The SSP compliments and thanks Dr. Tamaki for this superb synthesis.

The Oblique Electrical Resistivity Experiment proposed by Hamano at site J1b was discussed. This experiment hopes to define resistivity structure in the upper 10 km of the crust by receiving electrical signals in a down-hole electrode array. The SSP welcomes this experiment as a novel use of the drill hole. Supporting deep seismic reflection and/or refraction data would be highly desirable to compare with the results of the Oblique Electrical Experiment.

Outstanding requirements for site surveys in the Japan Sea include:

- Site J1b (Reentry) - a geotechnical core
- J1d Crossing seismic lines (planned in '88)
- J1e Crossing seismic lines (planned in '88)
- J2a OK
- J3a Side Scan or Sea Beam
- JS-2 High resolution SCS unless existing SCS can be shown to be adequate for the site objectives.

These requirements must either be met or the SSP must be convinced that they are not necessary in these particular cases.

ACTION: Suyehiro will bring to the next meeting of the SSP a full set of data which focusses on these shortcomings for sites in the Japan Sea.

e) Nankai (Suyehiro)

All of the new JNOC-N55 seismic lines are in the Data Bank. However, the associated navigation has not yet been received.

The possible BSR problem at NKT-2 is still unresolved until the new crossing line is examined.

ACTION: Suyehiro strive to get Nankai MCS navigation submitted to the Data Bank. He will bring the JNOC line over NKT-2 and the crossing line, as well as any ESP data, for review at the next SSP meeting.

f) Zenisu (Mauffret)

A new site survey has just been completed. SSP will review it once WPAC produces an updated drilling proposal which takes the new survey data into account.

g) Great Barrier Reef (Jones for Kidd)

Although the proposal has been completely revised with new BMR seismic from 1982 and 1985 since the SSP last reviewed it, the proposal is totally inadequate in its present form. Documentation provided to us ranges from very poor to totally disorganized. Most of the seismic data provided either has not been processed or has not been adequately processed for the objectives of ODP drilling. No seismic base map worth using was provided. The proposal needs to be totally revised and properly documented before the SSP can seriously consider reviewing it again.

Given the high potential of the scientific objectives and the almost certain objections of the PPSP to some of the sites proposed, the proponents need to make a serious concerted effort to do their work properly ASAP. Reviewing this proposal was a disappointing and frustrating experience for the SSP. The SSP reminds proponents that for an environment such as this we require the following minimum standards, as laid out in the site survey Data Standards matrix:

1. Good seismic base maps at 1:250,000 scale or larger showing shot point locations and line numbers. Digital navigation tapes to allow replotting at any scale preferred.

2. All sites must be positioned on MCS cross lines.
3. All seismic data must be deconvolved, and must be migrated where structural complications exist.
4. Sites which are positioned on anything resembling structural highs should be accompanied by structural maps (in depth and time if variable water depths or velocities exist) at appropriate levels. Isopach or isochron maps are also highly desirable in these situations.

The SSP applauds the paleo-environmental objectives of the Great Barrier Reef proposal, but it laments the lack of resolution in the newly presented seismic data. Perhaps proper processing will change our perspective, but we strongly urge the site proponents to obtain watergun profiles from the Great Barrier Reef and from Marion Plateau to the Queensland Plateau. The quality of the records and increased stratigraphic resolution which we have seen from recent site surveys using water guns convinces us that drilling these sites without a watergun survey will lead to serious compromise in the quality of the resulting science.

A brief site by site synopsis follows:

Site 4: Seismic definition is poor. Site positioned on the side of a structural high (submerged reef?) which is a potential safety problem.

Site 5: Seismic definition inadequate for paleo-environmental objectives. Ideally we need a watergun profile to obtain the needed seismic resolution.

Site 6: Thin section overlying apparent deeper evidence of Paleozoic rifting. Seismic definition of the upper section is poor. Better definition of the deeper events is needed in order to be able to interpret the seismic data in this site properly.

Site 7: Reefal (?) targets at 760 m. Grave safety problems may exist at this site. Superb seismic documentation will be necessary if the proponents seriously want this site to stand a chance of surviving PPSP review.

Site 8: Very poor unsuitable seismic. Site positioned very near to an apparently young fault.

Site 8A: Poor quality seismic.

Site 9: Inadequate seismic.

Site 11: Seismic may be adequate if processing can resolve the sedimentary details.

Site 12: Seismic probably adequate if properly processed.

Sites 13 & 14: Seismic documentation useless. Reefal (?) targets may present a safety problem.

ACTION: Peirce write to Taylor, cc. Kidd, Jones and Brenner, outlining the need for a totally revised proposal for the Great Barrier reef from a site survey perspective.

h) Sunda (Larsen)

SSP had no information beyond the 3rd prospectus. A fully documented data package is needed ASAP after Silver's October cruise is completed. Because this drilling package may be scheduled only one year after the MCS site survey, it is essential to prepare the data package before all of the seismic processing is completed. Much closer communication between the site proponent and the SSP is needed.

Seismic cross lines will be needed for every site, as specified in the matrix for active margin environments. It is unclear to the SSP what, if any, SeaMarc data exist. A GLORIA survey by DARWIN by Masson is planned for the same area and needs to be carefully coordinated with the drilling proposals.

One major concern to the SSP is how Silver will get his 96 channel data processed in time for review by both the SSP and PPSP.

ACTION: Larsen write by August to Silver, cc to Taylor, Brenner and Peirce, to ask for documentation of existing Sunda data, to explain our requirements for site survey data in active margin environments, and to emphasize the need for timely postcruise communication.

Peirce write to Taylor, cc to Silver, Larsen and Brenner, in the same vein.

5. CEPAC Drilling Programs

As our liaison to the last CEPAC meeting was not able to attend our meeting, we had little detailed information to discuss. We agreed to assign watchdogs to the apparently high-ranking CEPAC proposals. List is attached as Appendix G. Once the first CEPAC prospectus is issued each watchdog will be sent a copy of his proposal(s) for review and synthesis at our January meeting.

ACTION: Peirce write Schlanger with list of SSP watchdogs for CEPAC drilling packages. Ask to have Mauffret invited as next CEPAC liaison. Ask Schlanger to send a copy of whatever documentation is prepared for Aug. PCOM to Peirce and Mauffret. Ask to have copies of 1st CEPAC prospectus sent directly to Brenner, Mauffret and Peirce when issued.

Brenner send SSP watchdogs copies of relevant CEPAC proposals once 1st prospectus issued.

All SSP members prepare watchdog reports and site survey matrices for their areas for January meeting.

6. Miscellaneous

- a. Next meeting: The next SSP meeting is tentatively scheduled for January 4-7, 1988, in Hawaii in order to have close access to WPAC data at HIG if necessary. A tentative date of October 13-15 was set as an alternative if PCOM should insist that we meet again prior to their November meeting. Duennebier will host. Taylor, possibly Gill, and the ODP Program Director will be invited guests. A tentative agenda is attached as Appendix H.

ACTION: Peirce write Pisiias to schedule meeting and invite guests.

b. Liaisons to upcoming meetings:

- i. CEPAC - Mauffret
- ii. IOP - none
- iii. SOP - none
- iv. WPAC - Kidd or Jones
- v. PCOM Annual Meeting - Peirce

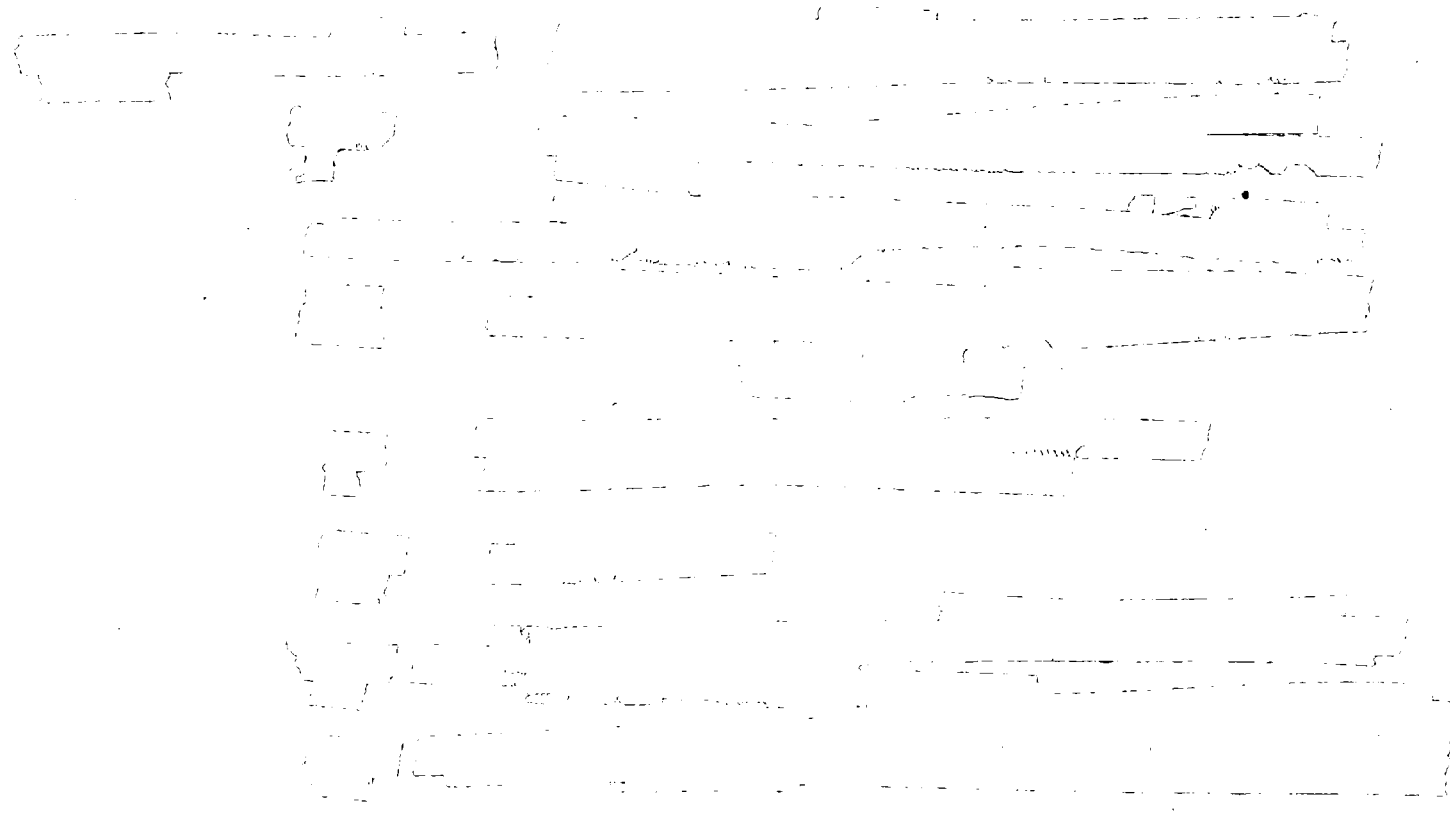
c. Next Chairman

Individual discussions were held with all the panel members regarding their feelings regarding the next panel chairman. Peirce will summarize these discussions in a recommendation to PCOM. The next Chairman should take over at the end of the January meeting.

ACTION: Peirce make recommendation to PCOM regarding new Chairman.

d. Closing

The Chairman thanked Birger Larsen for hosting this meeting in Copenhagen.



Japanese Research Vessels

Geological-geophysical cruises

R/V HAKUHO-MARU (ORI, U. of Tokyo)	JUL 1 - AUG 13, 1987	Bonin Mariana (K. Kobayashi)
	JUN - SEP , 1988	NE Pacific (J. Segawa)
R/V TANSEI-MARU (ORI, U. of Tokyo)	JUL 13 - JUL 25, 1987	Nankai Trough (A. Taira)
	OCT 21 - OCT 29, 1987	Zenisu (K. Kobayashi)
chartered ship (DELP project)	NOV 4 - NOV 20, 1987	Bonin Plateau (H. Kinoshita)
R/V HAKUREI-MARU (JAPEx/GSj)	NOV 1987- MAR , 1988	Antarctica
R/V TAKUYO (MSA)	routine	Philippine Sea

FS "Polarstern"

EXPEDITIONEN - VORSCHAU: Stand 18.06.87

Datum	Hafen/ Fahrtabschnitt	Aufgabe	Koordinator	Fahrtleiter	Kapitän	Besetzungs- stärke
1987						
16.03. - 19.03.	Puerto Madryn	Luftchemie Werft	Miller	Ernst	Jonas Greve	
19.03. - 18.04.						
18.04. - 13.05.	Bremerhaven					
14.05. - 08.06.	ARK IV/1	Biologie und Ozeanographie am Eisrand	Augstein	Krause	Greve	
08.06. - 09.06.	Longyearbyen	Ozeanographie und Biologie in der Framstraße und über dem E. Grönlandschelf	Augstein	Meincke	Jonas	
09.06. - 02.07.	ARK IV/2					
02.07. - 04.07.	Tromsø	Geologie, Geophysik, Ozeanographie und Biologie	Augstein	Thiede	Jonas	
04.07. - 03.09.	ARK IV/3					
03.09. - 24.09.	Werft					
24.09. - 19.10.	ANT W/1	Anreise mit Luftchemie	Fütterer	Hempel	Greve	
(28.09. - 30.09.	Santander, ICES)	Antarktische Halbinsel	Fütterer	Sahrhage	Greve	
(15.10. - 16.10.	Rio de Janeiro)					
19.10. - 20.10.	Rio Grande do Sul					
20.10. - 19.12.	ANT VI/2					
20.12. - 21.12.	Ushuaya oder Punta Arenas					
21.12.1987 - 17.03.1988	ANT VI/3	Weddell See: Shackleton, Kottas, FILCHNER-IV, Geologie, Geophysik, Biologie, Geomorphologie	Fütterer	Fütterer	Suhrmeyer	
1988						
17.03. - 19.03.	Kapstadt	Heimreise Werft Meteorologie, Biologie, Heiße Quellen	Fütterer	NN	Suhrmeyer	
19.03. - 10.04.	ANT VI/5					
11.04. - 26.04.	Bremerhaven					
26.04. - 02.06.	ARK V/1					
(29.05. an und 03.06.	ab Akureyri) Reykjavik					
04.06. - 30.06.	ARK V/2	Ozeanographie, Meteorologie, Biologie	Spindler	Meincke		
01.07. - 03.07.	Reykjavik oder Tromsø	Geophysik/Geologie	Spindler	Miller		
04.07. - 25.08.	ARK V/3					
26.08. - 11.09.	Bremerhaven	Luftchemie	Smetacek	Hempel	Hempel	
12.09.	Wilhelmshaven					
12.09. - 09.10.	ANT VII/1	EPOS I	Smetacek	Hempel		
09.10. - 10.10.	Rio Grande do Sul					
11.10. - 20.11.	ANT VII/2	EPOS II	Smetacek	Smetacek		
20.11. - 22.11.	Ushuaya					
22.11.1988 - 10.01.1989	ANT VII/3					
1989						
10.01. - 12.01.	Ushuaya	EPOS III	Smetacek	Arntz		
12.01. - 10.03.	ANT VII/4					
10.03. - 13.03.	Kapstadt					

SONNE Operations-schedule 1987-1989

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cruise	dep.	- arr.	from - to: (area)	Program	charter/....
SO 50	20 Jul-	12 Sep 87	Kota Kinabala-Singapur	Sediment.	Degens/IFG Hamburg
	13 Sep-	11 Oct 87	SHIPYARD		
SO 51	12 Oct-	2 Nov 87	Singapur-Madras	Sediment.	Degens/IFG Hamburg
SO 52	3 Nov-	12 Jan 88	Madras-Mauritius	Geoch./Hydrotherm.Sed.	Plueger/RWTH Aachen
SO 53	13 Jan-	25 Feb 88	Mauritius-Djibouti	Seismic(refraction)	Makris/IFG Hamburg
SO 54	26 Feb-	2 Apr 88	Djibouti-Hong Kong	Sediment.	IFG Hamburg
SO 55	3 Apr-	19 May 88	Hong Kong-Okinawa	Bacharc basin/Seismic	Makris/IFG Hamburg
SO 56	20 May-	17 Jun 88	Okinawa-Sasebo	Geology	TU-Clausthal+UNI Hamburg
SO 57	Jun-	mid Aug88	Philippine Sea		
	- Sep	88	SHIPYARD		
SO 58	Oct-	Dec 88	Honolulu-Galapagos	Petro./Geoch.	Puchelt
SO 59	Dec-	Jan 89	Panama- Callao		Thiel/UNI Hamburg
SO 60	Feb-	May 89	Callao-Valparaiso	East Pac.Rise/Geochem.	Marchig/BGR Hannover
SO 61	May-	Jun 89	Valparaiso-Valparaiso	East Pac.Rise	Tufar

FS METEOR Operations-schedule 1987-1988

Institut fuer Meereskunde, Leitstelle "METEOR"

Tropelwitzstrasse 7, D-2000 Hamburg 54

cruiſe	dep.	- arr.	from - to: (area)	Program	charter/....
M5/	Jul-	15 Aug 87	Ind.Ocean	Biology	
M5/	15 Aug-	15 Sep 87	Mediterranean Sea	Geochem.(air)	
M5/	15 Sep-	22 Oct 87	Iraklion-Hamburg	Geochem. - Transit	
M6/1	28 Oct-	9 Nov 87	Hamburg-Las Palmas	Oceanography	Siedler/IPM Kiel
M6/2	11 Nov-	28 Nov 87	Las Palmas-Dakar	Oceanography	Zenk/IPM Kiel
M6/3	30 Nov-	21 Dec 87	Dakar- Abidjan	Oceanography	Ruprecht/Kiel
M6/4	29 Dec-	12 Jan 88	Dakar- Dakar		Schenke/AWI Bremerhaven
M6/5	15 Jan-	15 Feb 88	Dakar- Libreville	Sediment.	Lutze/GPI Kiel
M6/6	18 Feb-	23 Mar 88	Libreville-Las Palmas	Sediment.	Wefer/FBGeo/Bremen
M6/7	26 Mar-	19 May 88	Las Palmas-Hamburg		Pfannkuche/
M7/1	30 May-	4 Jul 88	Hamburg-Tromsøe	Geophysics	Hirschleber/IFG Hamburg
M7/2	7 Jul-	1 Aug 88	Tromsøe-Trondheim	Geology	Stoffers/
M7/3	4 Aug-	30 Aug 88	Trondheim-Akureyri	Geology/Sediment.	Thiede/GPI Kiel
M7/4	2 Sep-	27 Sep 88	Akureyri-Hamburg	Geology/Sediment.	v.Bodungen/IPM Kiel
		- 21 Oct 88	SHIPYARD		
M8/1	27 Oct-	20 Nov 88	Hamburg-Bergen	Oceanography	Quadfasel/IPM Kiel
M8/2	23 Nov-	22 Dec 88	Bergen-Hamburg	Oceanography	Heincke/IPM Hamburg

FROM: Ulrich von Rad, BGR, Hannover, FRG Hannover, June 26, 1987
 TO: Nick Pisiyas, PCom Chairman

Watchdog Report for Lau Basin Drilling Program

1. Existing Lau Basin Proposals, all incorporated into the "Lau Basin Drilling Program" (Lau Group, December 1986)

Proponents	Site Surveys *	LG no
(1) MORTON, VALLIER & HAWKINS (USGS/SIO)	S.P. LEE '82/'84: MCS, SBP, M, DR	LG-4
(2) HAWKINS (SIO)	ANTIPODE (1971) PAPATUA '86 & other cruises SCS, M, DR	LG-1, 2, 8
(3) CRONAN (Imperial College, London)	TANGAROA (1981) (? DARWIN 1987/88) C	LG-2, 7
(4) v. STACKELBERG, v. RAD & RIECH (BGR)	SONNE-35 (1984/85) SONNE-48 (1987) SB, M, SBP, DR, C, PH	LG-1, (2), 4 (7)
(5) FOUCHET, FOUQUET et al (IFREMER)	J. CHARCOT (1986) (? J. CHARCOT 87/88): SCS, SB, DR	LG-5

* SB= Seabeam, SCS= single-channel seismics, MCS= multi channel seismics, M= magnetics, SBP= subbottom profiler, PH= photo survey, DR= dredges, C= cores

2. Main objectives (after Lau Basin Group Proposal)

1. Petrological evolution of the Lau Basin (mainly northern basin)
2. Geodynamics of arc rifting and back-arc basin formation
3. Petrology, metallogenesis and hydrothermal effects of an active, differentiated spreading ridge (Valu Fa Ridge, S Lau B)
4. Relationship between magmatism, tectonics and hydrothermal accumulation in sediments
5. Tectonic history of the fore-arc basin (Tonga Terrace)
6. Transect study of heat and fluid flow

3. Proposed Sites (* my favorite sites)

Site	Area (SR=spreading ridge)	Main objectives (see 2)	Site survey data (see 1)	est. drilling days (RE= reentry)
* 1	N Lau SR	1, 4, 6	1, 2, 3	14 + RE
* 2	W Lau Basin	1, 2, 4, 6	1, 2, 3	6 + (RE?)
* 3	Tonga Platform	2, 6	6	4
* 4	Valu Fa Ridge (SR)	1, 2, 3	1, 4	14 + RE
5	east of N Valu Fa Ridge (SR)	1, 2, 3	5	4
(*) 6	Tonga Forearc Terrace	2, 5, 6	6	8
7	mid-W Lau Basin	4	3	3
8	NE Lau Basin (SR)	4	2	6 + (RE?)

4. Strengths of the Lau Basin Proposals

- (1) First, maybe most representative and best surveyed example of active back-arc basin (+ transect to island arc and fore-arc)
- (2) Excellent combination of petrological (hardrock), sedimentological (- tephrochronologic), and plate-tectonic objectives (e.g. basin opening versus magmatic evolution and vertical tectonic history of volcanic arc and fore-arc);
- (3) Highly differentiated (andesitic to dacitic) volcanics at Valu Fa Ridge (interaction of back-arc spreading center with island arc magmatism), associated with new type of hydrothermal deposits (different from EPR!): mainly low-temperature sulfide impregnation of altered volcanics on top, high-temperature sulfides as stockwork mineralization below (new large hydrothermal field discovered by SONNE at S Valu Fa Ridge in March 1987!). French-German submersible presite survey with NAUTILE in 1989.
- (4) Research groups from five ODP member nations (USGS, UCSC, SIO; IFREMER in France; Imperial College, U.K.; BGR, FRG; Japan) have combined their ideas and pre-site survey knowledge to formulate a coherent, balanced, prioritized program which can be drilled in 1(-2) leg(s)!

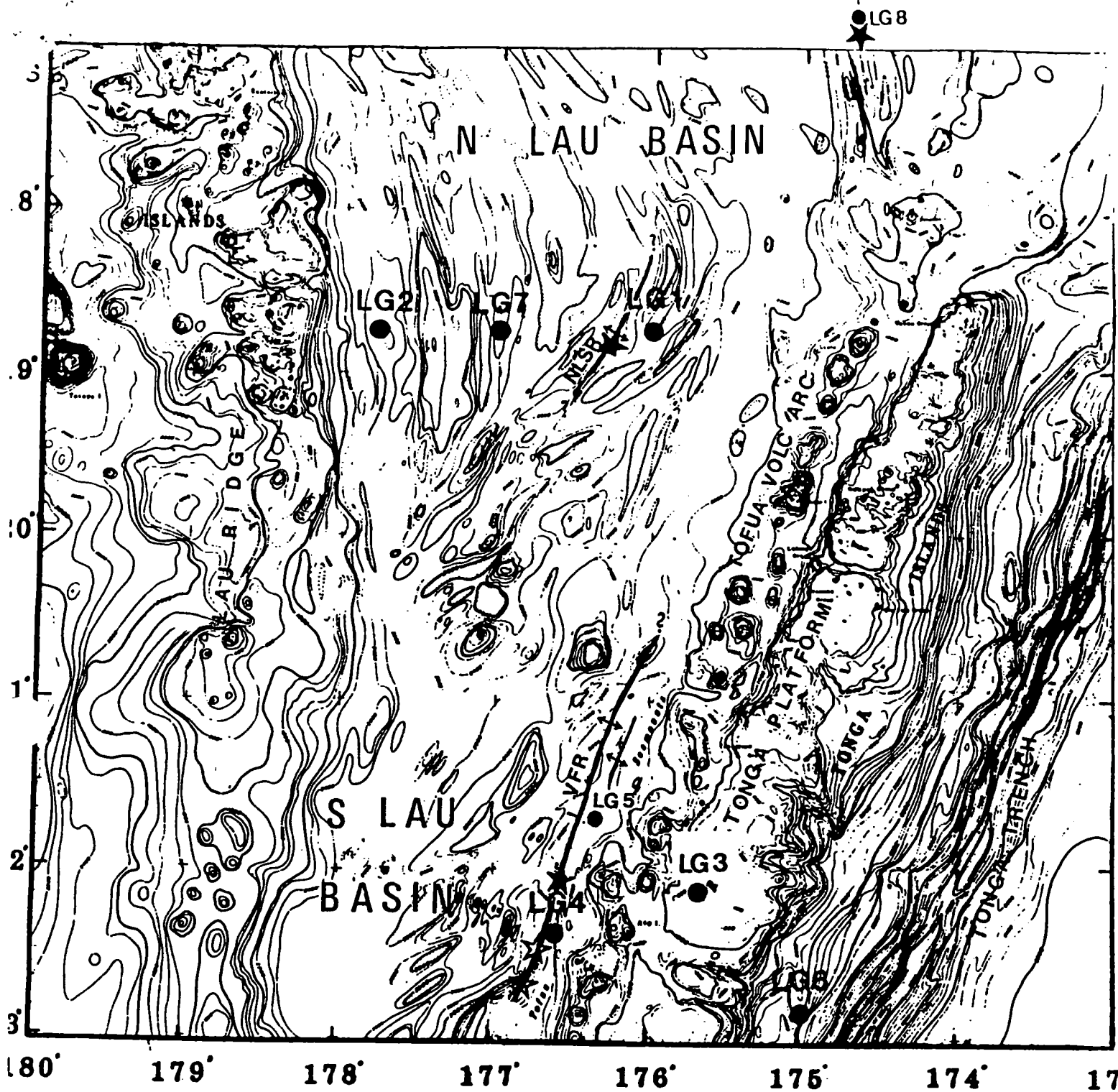
5. Weaknesses

- LG 1: location W or E of spreading ridge. Enough ponded sediments for spud-in only in the E, but ash turbidites ... (see objective 4). See also LG 4 ...
- LG 2: additional seismic site survey necessary to avoid thick volcanoclastic sediment ponds (ash turbidites etc) and to find representative pelagic sediment section for last 2-3 Ma!
- LG 4: I repeat my strong pledge for the necessity of bare-rock drilling (with the navidrill?) in zero-age crust, especially if we want to solve such important and localized problems as the third dimension of the discovered hydrothermal deposits and the crust below it. We might very well miss this important objective, if we do not drill at Valu Fa Ridge proper, but in the sediment ponds, 10-20 km east of it. We should invest the extra time to do the job properly!
- LG 5: There are no unambiguous data (Mn and He anomalies on VFR proper, but not in the basin) to substantiate the speculation that "secondary ridge is a 'site of active geothermal and hydrogeological processes", i.e. a Guyamas-Basin-type situation.

6. Summary

In general, this is an excellent drilling program, except for minor gaps in the site surveys. In my view, the drilling times are underestimated, especially those for the most important re-entry and basement sites LG 1 and 4 (incl. detailed logging programs!). Maybe we should concentrate on LG 1, 2, 3, 4, and 6 and spend a little bit more time at each site. This would probably make it a 1 1/2 leg program.

P.S.: I apologize that this is not an independent, objective watchdog report, since I am involved in some pre-site studies and my institution has supplied information to the drilling proposals.



180° 179° 178° 177° 176° 175° 174° 17

Location of ODP Drillsite Proposals LG 1-8. NLSR = Northern Lau Spreading Ridge (MORB), VFR = Valu Fa Ridge (highly differentiated volcanics)

★ = active and inactive smokers, ☆ = low-temp. sulfide-impregnation of altered volcanic rocks