JOIDES Planning Committee Annual Meeting
December 2 - 4, 1992 - Bermuda Biological Station
REVISED MINUTES

Revised Minutes as adopted by PCOM at its April 24 - 26, 1993 Meeting.

Participants

Planning Committee - PCOM

R. Arculus	University of New England (Canada - Australia Consortium)
J. Austin	University of Texas at Austin, Institute for Geophysics
K. Becker	University of Miami, Rosenstiel School of Marine and Atmospheric Science
W. Berger	University of California, San Diego, Scripps Institution of Oceanography
W. Curry	Woods Hole Oceanographic Institution
R. Duncan	Oregon State University, College of Oceanography
J. Fox	University of Rhode Island, Graduate School of Oceanography
H. Jenkyns	University of Oxford, United Kingdom
Y. Lancelot	Laboratoire de Géologie du Quaternaire, Marseilles (France)
H. C. Larsen	Geological Survey of Greenland, Copenhagen (ESF Consortium)
B. Lewis	University of Washington, College of Ocean and Fishery Sciences
J. Mutter	Columbia University, Lamont-Doherty Geological Observatory
W. Sager	Texas A&M University, College of Geosciences
A. Taira	Ocean Research Institute (Japan)
B. Taylor	University of Hawaii, School of Ocean and Earth Science and Technology
U. von Rad	Bundesanstalt für Geowissenschaften und Rohstoffe (Germany)

Panel Chairs - PANCH

M. Ball	Chair, PPSP	Petroleum Geology Branch, U.S. Geological Survey
M. Delaney	Chair, OHP	Institute of Marine Sciences, Univ. California, Santa Cruz
I. Gibson	Chair, IHP	Dept. of Earth Sciences, University of Waterloo
S. Humphris	Chair, LITHP	Woods Hole Oceanographic Institution
R. Kidd	Chair, SSP	Dept. of Geology, University of Wales, Cardiff
J. McKenzie	Chair, SGPP	Geologisches Institut, ETH-Zentrum, Zürich
E. Moores	Chair, TECP	Geology Dept., Univ. California, Davis
K. Moran	Chair, SMP	Atlantic Geoscience Centre, Bedford Inst. of Oceanography
C. Sparks	Chair, TEDCOM	Institut Français du Petrole, France
P. Worthington	Chair, DMP	Consultant, UK

Liaisons

T. Francis	Science Operator (ODP-TAMU)
D. Goldberg	Wireline Logging Services (ODP-LDGO)
B. Malfait	National Science Foundation
T. Pyle	Joint Oceanographic Institutions, Inc.
D. Reudelhuber	Science Operator (ODP-TAMU)

Guests and Observers

P. Lysne	Sandia National Laboratories, Albuquerque, New Mexico
J. Haggerty	Department of Geosciences, University of Tulsa
D. Rea	Department of Geological Sciences, University of Michigan
R. Carson	Department of Geological Sciences, LeHigh University
K. Moser	University of Texas at Austin, Institute for Geophysics

Advisory Structure Review Committee (ASRC)

B. Biju-Duval	Institut Français du Petrole, France
H. Dürbaum	Bundesanstalt für Geowiss. u. Rohstoffe
D. Eickelberg	Consultant, Germany
L. Garrison	College Station, Texas
W. Hay	GEOMAR, Research Center for Marine Geoscience, Kiel
R. Jarrard	Dept. of Geology & Geophysics, University of Utah
M. McNutt	Dept. of Earth, Atmosphere & Planetary Sciences, MIT
M. Salisbury	Atlantic Geoscience Center, Geological Survey of Canada

JOIDES Office

W. Collins	Executive Assistant and non-US Liaison
K. Schmitt	Science Coordinator

Selected Acronyms and Abbreviations

ACOS	Advisory Committee on Ocean Sciences
AGU	American Geophysical Union
AMC	axial magma chamber
ARC	Australian Research Council
BGR	Bundesanstalt für Geowissenschaften und Rohstoffe
BGS	British Geological Survey
BHA	bottom-hole assembly
BHTV	borehole televiewer
BIRPS	British Institutions Reflection Profiling Syndicate
BMR	Bureau of Mineral Resources
BRGM	Bureau de Recherches Géologiques et Minières
BSR	bottom-simulating reflector
CSDP	Continental Scientific Drilling Program
CSG	Computer Services Group (ODP)
CSM	Camborne School of Mines (UK)
CY	calendar year
DCB	diamond core barrel
DCS	diamond coring system
DEA	Drilling Engineering Association
DFG	Deutsche Forschungsgemeinschaft
DI-BHA	drill-in bottom-hole assembly
DOE	Department of Energy
DP	dynamic positioning
DPG	Detailed Planning Group
ECOD	European (ESF) Consortium for Ocean Drilling
ECR	East Coast Repository
EEZ	Exclusive Economic Zone
EIS	environmental impact statement
ETH	Eidgenössiches Technische Hochschule, (Zürich)
FDSN	Federation of Digital Seismic Networks
FMS	formation microscanner
FY	fiscal year
GCR	Gulf Coast Repository
GSC	Geological Survey of Canada
GSGP	Global Sedimentary Geology Program
HRB	hard rock guide base
HRO	hard rock orientation
IDAS	isothermal decompression analysis system
IFREMER	Institut Français de Recherche pour l'Exploitation de la Mer
ILP	International Lithosphere Program
IMT	Institut Méditerranéen de Technologie
InterRIDGE	International Ridge Inter-Disciplinary Global Experiments
IOC	Intergovernmental OceanographicCommission
IPR	intellectual property rights
IRIS	Incorporated Research Institutions for Seismology
JAMSTEC	Japan Marine Science and Technology Center
JAPEX	Japan Petroleum Exploration Company
JGOFS	Joint Global Ocean Flux Studies
JOI-BOG	JOI Board of Governors
KTB	Kontinentales Tiefbohrprogramm der Bundesrepublik Deutschland
LANL	Los Alamos National Laboratory
LAST	lateral stress tool
LBL	Lawrence Berkeley Laboratory
LIPS	large igneous provinces
LRP	Long Range Plan
mbsf	meters below seafloor
MCS	multi-channel seismic
MDCB	motor-driven core barrel
MMS	Minerals Management Service
MOU	memorandum of understanding
MOR	mid-ocean ridge
MRC	Micropaleontological Reference Center
MST	multi-sensor track
NADP	Nansen Arctic Drilling Program
NAS	National Academy of Sciences

NERC	Natural Environment Research Council
NGDC	National Geophysical Data Center
NRC	National Research Council
NSB	National Science Board
NSERC	National Science and Engineering Research Council (Canada)
OBS	ocean bottom seismometer
ODIN	Ocean Drilling Information Network
ODPC	ODP Council
OG	organic geochemistry
OMDP	Ocean Margin Drilling Program
ONR	Office of Naval Research
OSN	Ocean Seismic Network
PCS	pressure core sampler
PDC	poly-crystalline diamond compact (drilling bit)
PEC	Performance Evaluation Committee
PPI	Producer Price Index
RFP	request for proposals
RFQ	request for quotes
RIDGE,	Ridge Inter-Disciplinary Global Experiments (US)
ROV	remotely-operated vehicle
SCM	sonic core monitor
SCOR	Scientific Committee on Ocean Research
SCS	single-channel seismic
SES	sidewall-entry sub
SNL	Sandia National Laboratory
SOE	Special Operating Expense
SOW	Statement of Work
STA	Science and Technology Agency (of Japan)
TAMRF	Texas A&M Research Foundation
UDI	Underseas Drilling, Incorporated
USSAC	US Scientific Advisory Committee
USSSP	US Science Support Program
VPC	vibra-percussive corer
VSP	vertical seismic profile
WCR	West Coast Repository
WCRP	World Climate Research Program
WG	Working Group
WOB	weight on bit
WOCE	World Ocean Circulation Experiment
WSTP	water sampler, temperature, pressure (downhole tool)

JOIDES Committees and Panels:

BCOM	Budget Committee
DMP	Downhole Measurements Panel
EXCOM	Executive Committee
IHP	Information Handling Panel
LITHP	Lithosphere Panel
OHP	Ocean History Panel
OPCOM	Opportunity Committee (disbanded)
PANCHM	Panel Chairs Meeting
PCOM	Planning Committee
PPSP	Pollution Prevention and Safety Panel
SGPP	Sedimentary and Geochemical Processes Panel
SMP	Shipboard Mearurements Panel
SSP	Site Survey Panel
STRATCOM	Strategy Committee (disbanded)
TECP	Tectonics Panel
TEDCOM	Technology and Engineering Development Committee

Detailed Planning Groups (DPG) and Working Groups (WG):

DH-WG	Data-Handling WG
NAAG-DPG	North Atlantic-Arctic Gateways DPG (disbanded)
NARM-DPG	North Atlantic Rifted Margins DPG (disbanded)
ODWG	Offset Drilling WG (disbanded)
SLWG	Sea-Level WG (disbanded)

FY93 Programs:

NAAG-I	North Atlantic Arctic Gateways, first leg (Leg 151)
NARM Non-Volcanic I	North Atlantic Rifted Margins non-volcanic, first leg (Leg 149)
NARM Volcanic-I	North Atlantic Rifted Margins volcanic, first leg (Leg 152)
NJ/MAT	New Jersey / Middle Atlantic Transect (Leg 150)
504B	(deepening) Hole 504B (Leg 148)

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Summary of PCOM Motions, Actions and Consensus Statements

Leg	Destination	Cruise Dates
152	East Greenland Margin	October 1 - Nov. 26, 1993
153	MARK	approx. December - January
154	Ceara Rise	approx. February - March
155	Amazon	approx. April - May
156	Barbados	approx. June - July
157	DCS-VE3	approx. August - September
158	TAG	approx. October - November

Revised Draft Minutes

Wednesday, December 2, 1992	8:00 AM

Item 973: Welcome and Introduction

Brian Lewis called the meeting to order and welcomed all participants to the 1992 Annual Meeting. Tony Knapp, director of the Bermuda Biological Station, welcomed everyone to the station. Jamie Austin, host of the meeting, thanked Karen Meador for leading the field trip .

Lewis presented an engraved plaque from PCOM to Austin and expressed gratitude on behalf of all of the PCOM for all his efforts during his 1990 - 1992 tenure as the PCOM Chair.

Item 974: Approval of Agenda

Lewis outlined the three-part Agenda for the meeting, noting one specific change in the Agenda which had been requested by the PANCH. Kate Moran would present the report from the PANCH meeting at beginning of panel reports. Lewis also noted corrections to the Agenda Book, specifically, the addition of two pages to the minutes of DMP. No other changes were requested. Brian Taylor asked why the meeting was shortened to only three days.

Motion - PCOM adopts the revised agenda for the December 2 - 4, 1992 meeting.

Bob Duncan proposed, Wolf Berger seconded, vote: 15 in favor, 1 absent.

Item 975: Approval of Past Minutes

Hans Christian Larsen requested correction of the minutes from the Aug. meeting in Corner Brook, NFLD. He wanted the minutes, p. 53, paragraph 2, to indicate more specifically that it was the NARM Non-Volcanic program that was implied in the discussion.

Motion - PCOM approves the revised minutes of the August 11 - 13, 1992 meeting in Corner Brook, Newfoundland, with correction as noted.

Taylor proposed, Duncan seconded, vote: 15 in favor, 1 absent.

Item 976: ODP Liaisons Reports

1. National Science Foundation

Bruce Malfait began by mentioning two items that he would not be able to address. The first was the election of Bill Clinton and its impact on the NSF budget; the effect was as yet unknown. The second was the recent report from the *Commission on the Future of NSF*. Malfait felt that the report was very broad and its interpretation by the new Clinton administration was not yet clear.

A. Status of Renewal Activities

NSF unanimously approved the renewal of ODP through 2003, and approved funding through 1998. Meanwhile, the State Department approved the renewal MOUs and granted NSF permission to negotiate and sign them (Appendix 1.0).

B. Changes in MOUs

Malfait noted that the one of the changes in the MOUs was made in area of defining the terms of the intellectual property rights of partners. In addition, the staffing of Co-Chief Scientists would be facilitated by a change in the renewal period, allowing international Co-Chief balance over the term of the Program, rather than on a yearly basis.

C. Present Partners

NSF had positive responses from five active members for commitment to renewal to 2003, with initial funding of their commitment through 1998. The first renewal MOU would be signed in the UK on Dec. 7, 1992. The remaining MOUs would hopefully be signed early in the coming year. France was still having discussion about the terms of their commitment.

D. 1993 Budget

Malfait explained that the 1993 NSF budget was still uncertain at the program level (Appendix 1.1). The total NSF-ODP funding was projected to be level with 1992. The 1993 JOI

Pyle went on to point out that the $44.7 M target budget for FY94 was short of that projected by the LRP, which was $48.6 M. This FY94 budget target was a significant departure from the LRP budgets; the LRP might not be a valid plan if this budget trend continued.

Taylor asked for clarification of the $1.5 M budget increase for FY94. Pyle responded that this was the projected (i.e. guessed) increase because JOI had received no official numbers from NSF. This figure was chosen as a realistic figure for planning use by contractors.

I. Results Symposia

Pyle reviewed the recent USSAC-supported symposia publications. He noted the upcoming USSAC Symposia on "Western Pacific Active Margins and Marginal Basins" convened by Taylor (Appendix 2.2).

J. Distinguished Lecturer Series

The USSAC-sponsored Distinguished Lecturer program had been a very effective means for information transfer to the science community (Appendix 2.3). Duncan asked if the series would incorporate international outreach programs? Pyle said he was not aware of it occurring yet, but it may evolve if there was interest.

Lewis asked about the tight budgets and PR; could BCOM prioritize these potentially expensive activities? Pyle said yes, he acknowledged that budgets would always constrain these types of activities.

3. Science Operator

A. Operation of the JOIDES Resolution

Tim Francis recounted that during the Aug. meeting the ship was in the Pacific on Leg 145 (Appendix 3.0); this leg was notable for its success with deep piston coring. Francis acknowledged a letter of recognition from David Rea (Leg 145 Co-Chief).

The Sept. port call in Victoria was successful. A large amount of pipe was changed out, the ship had over 400 visitors and still managed to sail a day early for the Cascadia Leg.

B. Operations on Cascadia, Leg 146

This leg (Appendix 3.1) was marred by bad weather but had a number of successes, including drilling the BSR off Vancouver margin. Due to the bad weather, CORKing of 857-D was prevented, the present CORK in the hole was damaged and three bottom hole assemblies were lost. Mustard gas in ammunition dump sites off Vancouver Island had posed a potential safety threat but, possibly due to various precautions, no threat materialized. One unforeseen hazard was discovered at OM-7, in 685 m of water. At this site a high concentration of H_2S was encountered in the upper meters of the site, it was concluded that the sulfide was in the hydrate. There had been no previous record of H_2S in previous drilling or *Alvin* dives in the area.

C. Santa Barbara Site

SB1-A was approved in Oct. by PPSP. It took twenty four hours to core with 196 m APC recovery. Core was very gassy and it was necessary to depressurize the core. The MST records were unreliable as a result of the gas-induced core disruption. Cores were sent back to College Station unsplit.

In addition to the science operations, there was a public relations effort made by TAMU in Santa Barbara in recognition of the local community's sensitivity to offshore drilling. A press release was issued in advance of the drillship's arrival and a TAMU Staff Scientist visited the Santa Barbara media prior to the ship's arrival offshore. No community objections were raised.

D. Preparation for Future Legs: 148 through 152 (Appendices 3.2 - 3.5)

1) <u>Leg 147: Hess Deep:</u>

HD-3 would be drilled in 3075 m of water on the Intra Rift Ridge. The hard rock guide base would be used to install 20 m of casing into the hole. If things go as planned, the ship would remain on one site for the entire leg. Francis also raised the possibility that ONR ocean bottom seismometers, previously lost in this area, may be recovered by *JOIDES Resolution* .

2) <u>Leg 148: Hole 504B</u>

The pre-cruise meeting occurred in Sept., the prospectus was out in Oct. 92. The HARVI and HRTHIN software issue was critical to this leg and had been brought up to PCOM. Francis updated PCOM on TAMU efforts to use 4D (database program) to rewrite the software.

3) <u>Leg 149: Iberian Abyssal Plain</u>

IAP 4, 2, & 3C would be drilled on this leg. The plan for these holes was for RCB drilling to bit destruction, this would hopefully get into basement. If the hole remained stable, then they would drop a funnel and change bits to drill into basement. If basement drilling was accomplished at each site, then the APC coring of the site would be done as the last step. If the holes weren't stable and needed casing then only two would be finished.

4) Leg 149: Iberian Abyssal Plain

The schedule has been modified to end Leg 149A and start Leg 149B in Ponta Delgada. Scientists would join there. The change saves a couple of days, allowing Legs 150, 151 and 152 to start that much earlier.

5) Leg 150: New Jersey Sea Level

Francis commented that since the future of Leg 150 was on the agenda he would not go into details of the leg's status other than to note that TAMU had withdrawn invitations to all of the science party.

6) Leg 151: Atlantic Arctic Gateways

The RFP for the ice support vessel went out in Sept. and would close for bids on Jan. 8. TAMU hoped to have a decision by Feb. 1. The safety review for this leg would occur at the next PPSP, April 2, in Kiel, Germany. TAMU was pursuing acquisition of satellite imaging of sea ice for the cruise.

7) Leg 152: East Greenland Margin

Satellite imaging of sea ice conditions was also planned for this leg as a safety tool. The safety review for the leg would be in April at PPSP.

E. Staffing (Appendices 3.6 - 3.8)

1) Legs

Staffing of upcoming legs was reviewed by Francis.

2) Department of Information Services

Francis announced that John Coyne was appointed new manager of Information Services, replacing Tom Janacek who was leaving ODP.

3) International Scientists

Previously, EXCOM suggested to TAMU that they employ three staff scientists from international countries. Francis was glad to announce that Peter Blum (Switzerland) was recently hired. In addition, two more international staff scientists had been added, for a total of three.

In the technical support staff department, EXCOM suggested a hiring level of 10 international employees. To date, TAMU had hired five and was looking for more.

F. Developments at ODP-TAMU (Appendices 3.9 - 3.11)

1) Equipment Status Report

a) Core log integration was currently the number-one priority, Staff Scientist Peter Blum had been assigned to the problem.
b) Familiarity with Sun workstations was being gained.
c) Natural Gamma would be tested on Leg 149, it would use the MST track.
d) The MST upgrade was on hold until data handling issues were resolved.
e) The resistivity tool was tested on Leg 146 by Moran.
f) Sedimentology X-ray installed for Leg 146, the tool passes whole core sections through it but a composite section must be made to get a complete section.

Moran informed Francis that the x-ray machine was not on the ship for the leg. There was some confusion on this issue, Francis thought that it had been put on board.

g) XRF upgrade was scheduled for Leg 149. The unit had been on the ship since 1985; the upgraded software would be PC-based.
h) Real time navigation was still on hold and under evaluation.

Taylor protested that five years was a long time for an essential technology like navigation to be on hold. Francis countered that it may not have been such a high priority to non-geophysicists; core-log integration had been a designated as a higher priority by SMP.

i) Autotitration units for pore water measurements would be installed in the Chemistry lab in spring 1993.
j) Macs and PCs would be networked in the Chemistry lab.
k) HPLS system was to be removed from the Chemistry lab.

l) A bar code identification system was being developed.
m) The color measurement system from Leg 145 leg was operating better.
n) Seismic Towing system was under design.
o) Three new Zeiss microscopes were installed in San Diego, two old ones came off. The Kappabridge, for measuring magnetic anisotropy, was also installed. All ship's PC's are being upgraded to 486s. Universal VCR on board from Leg 147.

2) Publications

a) FY 92

FY92 ended with *Init. Reports* to Leg 140 and *Sci. Results* 127 - 128 published and distributed.

b) FY93

Init. Reports of Leg 141 and Sci. *Results* of Leg 129 were due to be distributed in Dec., 1992.

4. Wireline Logging (Appendix 4.0)

A. Leg 144

David Goldberg presented an overview of the wireline logging operations on Leg 144. Six holes were logged (std. tools w/SES), the holes were poor on the atolls and guyots.

B. Leg 145

Four holes out of seven were logged (std. tools). The quality of the logs was excellent, a paleoclimate signal was indicated. The 884 hole had particularly exciting results from the log-to-paleomagnetic stratigraphy correlations. A detailed sedimentation-rate record was reconstructed.

C. Leg 146

Five holes were logged (std. tools), a VSP/OSE was successful. Site 888 logs (non-prism) were used as reference sections for the prism drill sites. At Site 889, the BSR was a target and low velocities were measured using a VSP, indicating free gas below BSR. On the Oregon margin a thrust fault was drilled, a decrease in porosity and density beneath the fault zone was measured. FMS imaging above this thrust fault in the accretionary prism was accomplished; shallow FMS logs showed images of folds, slumps and fractures.

D. New Tools & Developments (Appendices 4.1 - 4.2)

1) High-T Cable & T-Tool

The high-temperature temperature tool would be tested in an autoclave in Dec., deployment on the drillship was scheduled for Leg 148.

2) High-T Resistivity Tool

A four-to-six month delay in manufacturing had canceled plans for a Leg 148 test.

3) Other Developments

1) CD-ROM

In Sept., a logging CD-ROM was endorsed by IHP. Premasters of the Leg 139 prototype CD-ROM were available from LDGO for testing and a reply reaction to the prototype was requested from PCOM. It was planned that FMS data from holes would be available on CD ROM.

Francis asked about the relocation of the Schlumberger field office from Houston to Paris/Algiers and its potential impact on the TAMU contract for severing and back-off services (tied also to LDGO contract). Goldberg did not feel it would adversely affect these Schlumberger-provided services.

4) Old Business

Goldberg addressed the previous PCOM request to do a survey of Co-Chiefs and Staff Scientists about logging services. LDGO had completed a short survey and Goldberg summarized the responses. Overall, on a scale of "excellent", "good", or "poor", the respondents were asked to rate Schlumberger services, LDGO special logs and the processing/distribution of data from LDGO. Responses (25-30% rate of return of surveys) indicated a generally "excellent" report card with areas identified where improvement was needed.

Paul Worthington brought up a point about the MAXIS coming on the ship in Jan.. MAXIS would replace CSU as the logging interpretation system on board now. He wondered if there would be an overlap of these systems, since the geochemical tools would not be serviced by MAXIS? Goldberg replied that the MAXIS addition would be implemented with the winch changeout and that both CSU and MAXIS would be on board, the geochemical tool would be protected.

5. Indian Ocean Synthesis Volume

Duncan asked for an opportunity to present the Indian Ocean Synthesis Volume to PCOM. The Synthesis would be published as AGU Monograph 70.

Coffee Break 9:45 - 10;15..........

Item 977: Annual Reports by Panel Chairs

1. Panel Chairs Report

A. Proposal Review Process (Appendix 5.0)

1) Problems

Moran outlined the main problems with the process of proposal review identified by the Panel Chairs. Their first concern was that proponents did not know what was required for safety approval for shallow water drilling. This situation was compounded by the problem of proponents not getting the site survey data into the data bank. The lack of a lead proponent identified for DPG legs was the third serious problem that arose in dealing with proposal review and revision (as well as site survey data collection).

PANCH expressed concern about the credibility gap that was developing in the proposal review as a result of the Santa Barbara & Leg 147 planning. The PANCH felt that the credibility of the planning process was compromised by the modification of scheduled legs and the approval of apparently hazardous shallow drilling sites in Santa Barbara (in contrast with the wholesale cancellation of Leg 150).

2) Recommendations

PANCH made the following recommendations in regard to the proposal review process:

a) PPSP must define data and data quality required for shallow water drilling safety assessment.
b) Proponents of legs with identified safety problems must attend the Aug. SSP meeting.
c) SSP should maintain a watchdog system, but should be assisted by thematic panel Chairs.
d) DPGs must assign a lead proponent.

Mutter asked if the requirement for proponents attending the SSP meeting applied to scheduled or not-yet scheduled legs. Rob Kidd replied that the intent was to identify proposals early-on in order to add time to the safety review process; he felt that it was the lack of time available prior to scheduling that was the problem. Mutter was concerned that this would involve a large number of proponents at the meetings. Kidd acknowledged that it would have to be dependent to some extent on the rankings of proposals.

B. Question of Less-than-a-Leg proposals (LETHAL) (Appendix 5.1)

PANCH recommended no change from last year's proposal review for the less-than-a-leg proposals and that these proposals continue to receive the same review process as 'normal' drilling proposals. PANCH felt that the program must maintain its ability to react to a hot thematic topic. However, in some cases, a minimum lead time was necessary for drilling objectives, similar to the Santa Barbara Basin example. It should be made an absolute requirement that a proposal be into PPSP during their March meeting in the FY before drilling.

PANCH wanted PCOM to mandate that SMP/IHP define a routine procedure for processing cores collected on add-on sites (like Santa Barbara). This would avoid missing any data acquisition procedures due to these shortened types of legs. Moran reiterated that, although the decision for the Santa Barbara core processing had been made in advance, there needed to be a standardization of procedure for these types of cores.

C. ODP Scientific Output Recommendations (Appendix 5.2)

PANCH recommended that scientific results should be presented in the form of thematic summary volumes. PANCH agreed that these summary volumes should be a collection of results papers for specific thematic topics that have been investigated by ODP. These results papers should be prepared and presented at symposia which were organized through the existing thematic panels. One symposium per year should be organized and the summary volume published via the most appropriate (to the topic) non-profit making society. PANCH would work contract had been approved at $43.2 M ($ 25.4 M in US funds and $ 17.8 M in international funds).

E. 1994 Budget

The international subscription would increase to $ 2.95 M per year. JOI would be given the 1994 target budget in early January. Complications for projections of the 1994 budget were the number of partners in the program and the 1994 NSF budget.

F. Russian Membership

Malfait announced to the group that, as of Oct. 1, Russia (FSU) had officially become inactive.

Austin asked for clarification of the status of the negotiations with France and whether they must respond by January; if they did not, would the program be impacted? Malfait indicated that the discussions were ongoing at that moment.

2. JOI Inc.

A. Advisory Structure Review Committee

Tom Pyle began by mentioning the Advisory Structure Review Committee (ASRC) that was set up by JOI from a mandate by EXCOM (Appendix 2.0). The ASRC's purpose was to review and evaluate the science and technology advisory structure of ODP. The ASRC was meeting for the first time Bermuda and would meet one more time before reporting to EXCOM on their findings.

B. RFP for JOIDES Office

EXCOM also mandated the international operation of the JOIDES Office (Appendix 2.0). As a result of the RFP by JOI, three proposals from international partners were received. These bids had been evaluated and best offers were requested. The final proposals were due in mid-Dec., with a decision to be made before Christmas.

C. RFP for Logging

As per EXCOM mandate, the RFP for the ODP wireline logging services had gone out from JOI (Appendix 2.0). The proposals were due by Jan. 15, 1993. Potential members of the review committee for the logging proposals were: Lysne, Worthington, Becker, Draxler, Wilkens, Sondergeld, and Yamano; all of whom have been asked. JOI was trying to finalize membership for the review committee and requested additional names from PCOM. The decision on the contract would be made by mid-to-late Feb., in time for drafting the FY94 budgets and presentation to BCOM in March.

D. Core Repositories

EXCOM requested a least-cost option from JOI for continuation and enlargement of core repository facilities (Appendix 2.0). TAMU completed the study of repository options and reached the conclusion that the repositories should continue to remain at TAMU and LDGO. These facilities have committed to cover the storage needs of the program through next phase. JOI agrees and would forward them to EXCOM.

E. RFP for Database and Computer Upgrades

The Computer RFP Evaluation Committee and JOI were working with TAMU to implement the database and computer upgrade (Appendix 2.1). The RFP Evaluation Committee met in Nov. and approved the RFP procedure sequence.

F. Megaprojects of OECD

OECD held a pre-meeting in Brest to design a program for continental and ocean drilling with thematic interests entitled "Astronomy, Drilling and Global Change". The program plans a "dry" COSOD in Aug. 1993 when they would be planning the development of a continental drilling program similar to ODP (Appendix 2.1).

G. Public Relations

Public relations activities at JOI included completion of a short version of the ODP video. JOI personnel also consulted on museum exhibits and participated in the ASTC meeting in Ontario (Appendix 2.1).

H. Budget for 1994

Pyle explained that, based on recent input from NSF, the long range plan would not be realized under the present budget projections for FY94 (Appendix 2.1). The target budget for FY94 was $44.7 M based on a $1.5 M increment over FY93 ($43.2 M + $1.5 M = $44.7). Such a small budget increase indicated that FY94 would be a difficult budget year.

with ODP scientists in producing these, at a level of one per year. Any output from these symposia should be in the outside literature, not in TAMU publications.

D. DCS (Appendix 5.3)

Moran reiterated the commitment to DCS from the thematic panels, its relative support level between the panels was still the same (LITHP, OHP and TECP rank DCS higher than SGPP). SGPP and SMP panels were concerned that DCS development had delayed other technical developments. PANCH agreed with the TEDCOM "plan" for DCS testing on both land and water. However, if the next sea trial did not recover core, PANCH agreed that development should stop. There was a general feeling, not a consensus, of PANCH that some type of cut-off date needed to be identified.

E. ODP Computing System (Appendix 5.4)

PANCH considered the shipboard computer system central to ODP activities. Moran emphasized that PANCH saw it not as special but central. PANCH would like to see a commitment from the operator and funding agencies in support of the both philosophically and financially. The time frame for financial commitment to upgrading the system suggested that substantial funds would be required in the second half of the next fiscal year.

PANCH recommended that replacement proceed quickly, this also required that steps be taken prepare for the financial outlay necessary for replacement. PANCH also recommended that core-log data integration be included in the computing RFP.

F. Core Repositories (Appendix 5.5)

Moran briefly touched on the subject of core repositories. Since the decision had already been made by JOI with respect to funding of additional repository space, Moran recognized that further input from PANCH would not be necessary at this point.

G. Working Groups (Appendix 5.6)

PANCH agreed that PCOM should thank and disband both the Sea Level and Offset Drilling Working Group. PANCH questioned the need for a Caribbean DPG. There was PANCH consensus to encourage the proponents to work together to put together a complete drilling program. Eldridge Moores and Lewis drafted a letter to the proponents explaining this position.

Austin reminded that the Caribbean proponents were given the same message after the last PCOM meeting. The proponents had indicated they wanted a DPG but would wait for the Bermuda meeting to see if the panels repeated their mandate to work together; now they would probably go and do that. Duncan asked if LITHP was watchdogging this project. Susan Humphris said yes, there was evidence that the two Caribbean groups were working together.

H. Deep Drilling RFQ (Appendix 5.7)

PANCH supported the TEDCOM position of sending out a request for quotation (RFQ). However, PANCH wanted to caution PCOM that deep drilling was a big money item and it had not been ranked as a budget item against other special technology developments.

I. Long Range Planning

PANCH agreed that the ship's track should be thematically driven. Since the thematic approach was relatively new to ODP, a mechanism should be communicated to the broader community in the form of outside newsletters. PANCH wanted more people to know that themes would drive the ship track and that it could be modified as a result of thematic objectives. To assist PCOM in the long rang plans for the program, the thematic panels have agreed to include a review of long-term science objectives at each of their meetings.

J. Interactions with Other Global Programs (Appendix 5.8)

The PANCH recognized that many panel members overlap with other global programs. All panels have been making an effort to include reports from other groups in the meetings. These include: RIDGE, FDSN, ILP, NAD, and IGBP.

K. Service Panel Recommendations to TAMU (Appendix 5.9)

Service PANCH wanted to give notice to PCOM that service panels would prefer a more direct link to TAMU with regards to panel recommendations that do not have major budget implications. Moran explained that such service panel recommendations often concern operational items. The PANCH recommended this as a way of improving the existing system of rapid, often cursory, assessment of panel recommendations made by PCOM. Suggested options presented for implementing this were: 1) allow non-budgetary recommendations to be made directly to TAMU, or 2) query PCOM for service panel recommendation approval over Internet.

L. Housekeeping (Appendix 5.10)

Moran emphasized to PCOM that secretarial support to US panel Chairs was very useful and the PANCH wished to encourage other member countries to assist panel Chairs with this support (amounts to about 1 month support). The increase to 2500$/yr. was just what it costs.

PANCH recommended that the thematic panel Chairs and SSP Chair report directly to PCOM at the spring meeting for purposes of: 1) ranking process and 2) identification of any site survey problems. Lewis agreed that the presence of thematic panel Chairs would be helpful for long range planning input. Taylor asked if the idea for this was from PANCH or Lewis. Lewis said it was a consensus from the PANCH and added that the ideas of the thematic panel Chairs would be very valuable for deciding on the projected ship track and four year plan. Taylor countered that panels were asked to discuss these issues at their meetings and their ideas should be in their minutes. Ulrich von Rad added that there were PCOM liaisons to the panel meetings and that should help transfer information. Peggy Delaney saw the idea coming largely from Lewis, but she felt she had seen the value of having PANCH at the past annual meeting when dealing with problems that have arisen. She felt that the SSP and thematic panel Chairs were more effective in person for problem solving but that the long range ranking presentations were more effective coming from the minutes than in person.

Austin asked what role PCOM liaisons would have if PANCH come to PCOM meetings; why send PCOM to panels if this became policy; money and time could be saved if liaisons stayed home? Lewis answered that one of the main reasons would be for solving problems face-to-face. He questioned if the liaison system was really working well and felt PCOM needed more information for long range planning issues - that would be the value of the thematic Chairs. Lewis asserted that having thematic Chairs at PCOM meetings would not make the PCOM liaisons superfluous, particularly in the PANCH mind. Moores agreed and added it wasn't necessary for thematic PANCHs to be at the PCOM meeting the whole time. He felt PCOM liaisons were necessary for non-LRP issues taken up at panel meetings. Judy McKenzie added that PCOM liaisons were interpreters of PCOM policies and were frequently asked for interpretations at panel meetings.

Francis changed the subject of the discussion to take up the recommendation made that service panel Chairs direct panel suggestions directly at TAMU. He explained that, at present, TAMU often responded directly to these panel suggestions. However, as a warning to PCOM, Francis pointed out that it was not just budget that limited TAMU's ability to respond, it was manpower also. TAMU couldn't handle too many demands without disruption to its system. Moran agreed with the point that the panel recommendations often require human resources, SMP wanted TAMU to know that they understand these constraints, but have made the suggestions to let TAMU know the SMP position.

Lewis wanted to clarify for PCOM and PANCH what the formal process should be. The correct path for panel recommendations/suggestions was from the panels to PCOM, and from PCOM to JOI. Lewis favored implementing the PANCH "Option 2" recommendation, having PCOM deal with the panel recommendations via Internet. After reaching a PCOM consensus via e-mail the panel recommendations could be made directly to JOI; Lewis felt that this system was particularly attractive because it took care of business without taking up time at PCOM meetings.

Larsen commented that, in his opinion, the problem of panel participation in long range planning and ship scheduling was not one of communication but was due to the overloading of work of the PANCH. In view of this problem, Larsen felt it would be better for the panel Chairs to spend their time with their panels, and not at PCOM meetings.

2. TECP (Appendices 6.0 - 6.1)

A. Meetings

Moores reported that TECP met twice in 1992, once in Las Vegas, the other in Grenada, Spain. TECP had been using its meetings to view on land equivalents of drilling targets.

B. Structure Data Sheet

TECP commended development of structure data sheet software.

C. Leg 141 Pressure Core Sampler

TECP was disappointed with the many problems associated with the development of the pressure core sampler, particularly on Leg 141; TECP felt that there was a need for greater commitment to develop it to good use.

D. Linkage with Other Projects

TECP had developed links with other global earth science projects, Moores cited the "Continental COSOD" as an example - Mark Zoback (TECP member) was the convener. There were many other good opportunities for linkups at the interface of continental and ocean drilling; combined on-land and offshore drilling programs would develop soon.

E. High-Temperature Borehole

TECP was not supportive of a waiver of testing requirements for these types of tools.

F. Core Repository

Moores noted that the issue had been decided. However, TECP was in favor of internationalization of facilities, but with a minimal number of sites.

G. ODWG

TECP supported the disbanding of the ODWG. The panel did have reservations regarding the inheritance of the idea of a "global average" oceanic crust. TECP felt that this was still an unresolved issue. TECP recommended that there be careful documentation of sites, specifically including the 3-D structural setting, detailed maps and cross-sections (at scale).

H. SLWG

TECP found the SLWG report comprehensive. The panel did perceive a need for more integration of studies of epeiric and eustatic sea level fluctuations with mantle dynamics. TECP supported thanking and disbanding the SLWG.

I. Quality of Proposals (Appendices 6.3 - 6.5)

The quality of several TECP proposals improved recently due to the panel system of watchdogs. Moores summarized the status and tectonic themes of high-interest TECP proposals and the role of the TECP watchdogs in developing these proposals toward maturity.

J. Publications

Moores, as editor, encouraged GSA Today to publish ODP-related articles. Recent articles on the drilling programs related to accretionary prisms and hotspots were well received by readers. Other articles were being solicited for future issues; this publication was a very good way to get news and results out to a broad science community.

In reference to Moores' comments on the ODWG, Mutter asked why TECP emphasized the requirement for cross-sections and maps only in reference to OD-type proposals and not, for example, accretionary prism proposals. Moores wanted to make it clear that these requirements were considered desirable for all drilling targets in any structural setting. Mutter noted that it was specifically stated only in reference to the OD programs and was not emphasized for others. Moores agreed to be more careful to add the recommendations for drilling proposals in all structural settings.

8. SGPP (Appendices 7.0 - 7.1)

McKenzie reported that SGPP held two meetings in 1992; one in Miami, Florida, the other in Kiel, Germany. She then briefly explained the SGPP's thematic activities.

McKenzie stressed that there have been many recent, highly successful drilling legs associated with SGPP themes. In particular, Atolls & Guyots for sea level (Legs 143, 144), Nankai, Cascadia and Barbados for fluid studies (Legs 131, 146, 110), Middle Valley for metallogenesis (Leg 139) and gas hydrate studies were successfully added on to CTJ and Cascadia (Legs 141, 146). Pending proposals in the 1994 Prospectus and legs that stressed SGPP themes include NJT (Leg 150 - sea level), Amazon Fan (sedimentary processes), MAP-VICAP (sedimentary processes), TAG (metallogenesis), N. Barbados Ridge (fluids) and Med. Sapropels (paleoceanography and carbon cycles)

A. Proposal review (Appendix 7.2)

1) Spring 1992

SGPP reviewed 14, 6 were ranked within SGPP mandates.

2) Fall 1992

SGPP reviewed 24 proposals, 15 were ranked within SGPP mandates. Overall, the sea level and sediments-types of proposals are fewer relative to fluids and paleoceanography proposals. SGPP had now begun to receive specific gas hydrate proposals.

B. Personnel (Appendices 7.3 - 7.4)

SGPP had sixteen members. This year, three US members were rotating off: Christie-Blick, Flood and Hay. As a result, SGPP would be losing it's expertise in sea level and sediments and would need to replace those leaving with equivalent-expertise people. CV's of US nominees were available and on file with the JOIDES office, nominees represented a broad base of experience to choose from. All had been asked and would be willing to serve. The German member, Mienert would be replaced and SGPP would also get a new ESF representative, Finn Surlyk, to replace McKenzie who became panel Chair this year.

Lewis brought up the policy issue of replacing partner country representatives who become Chairmen by another panel member from that country. This issue would also come up before PCOM with the pending internationalization of the JOIDES Office in 1994. EXCOM would be discussing this issue in Jan. and their decision would potentially impact the panel membership policy. Lewis felt that the policy would probably have to be interpreted such that, in this example, Finn Surlyk could be nominated for his expertise, not as an additional ESF representative. In response, McKenzie noted it became a lot more work for an individual to serve both as the panel Chair and, in her case, the ESF representative.

1-Add. TECP nominations for panel membership (Appendix 6.2)

Since it was decided to review the pending panel membership changes and nominations during the individual panel Chair reports, Moores asked to present the TECP membership changes. TECP submitted nominations for replacing US members Atwater and Moore. The new German member would be R. Von Huene, the new ECOD member was Carlo Doglioni.

4. OHP

Delaney presented the OHP report, OHP held two meetings in 1992, the spring meeting was in St. Petersburg, Florida and the fall meeting in Marseilles, France.

A. Membership (Appendix 8.0)

OHP Can/Aus member Davies was replaced by Carter. ESF representative Jansen was replaced by Backman. French representative Vincent would rotate off this year. Among the US members, Loutit and Bralower needed to be replaced. Nominations for these positions were placed before PCOM.

B. Core Repositories (Appendix 8.1)

OHP was in favor of maintaining the refrigeration of cores. The panel did not favor moving cores or adding additional repositories to the system, although there was some support for additional core facilities if it was necessary. OHP did want to recommend that repository facilities include the equipment needed to duplicate ship programs, specifically the split core sensing capabilities.

C. Links with Other Programs

OHP felt that ties with other research programs existed due to overlapping membership of OHP panel members. Visibility was an important issue to OHP and the panel strongly supported the ODP lecture series. OHP was satisfied with ODP representation at both ICP IV and AGU. The *EOS* article on Leg 138 and Rea's *Nature* article on Leg 145 were commended.

D. SLWG Reports (Appendix 8.2)

OHP recommended that PCOM accept the SLWG report and disband the group. Delaney stressed that OHP would like to add a caution that thematically, sea level was in two panel mandates. The SLWG report specifically called for a single "sea level program" and it wasn't clear if this meant another structure outside the existing panels. SGPP & OHP did not favor establishing a group like this and wanted to keep the existing panel structure intact.

OHP cautioned that a commitment f one leg per year, as recommended in the report, is premature in the absence of highly ranked proposals in this area, and, in any case, would need to be balanced against the needs of other highly-ranked, thematically-based science. The target list of geographic areas and proponents contained in the report was valuable but should not be viewed as a closed group; being on this list was not the only way to get involved in sea level drilling.

In order to better implement the goals of the SLWG report, OHP had designated watchdogs for sea level proposals. They were Carter, Hine and Raymo. The first two had strong research interests in sea level, Raymo had research interests outside sea level specifically so that she could add balance to the watchdog group.

E. NAAG DPG

1) NAAG - I Leg 151

OHP wanted to make it clear to PCOM that they anticipated that the NAAG - II would be in the in FY95 Prospectus (requested a two year gap). The intention of the break between legs had been to incorporate new science from the first leg into the second leg before scheduling it. OHP would take on this responsibility, using the Leg 151 results to polish up the NAAG - II program (given that there would not be a second DPG to accomplish this).

F. Other Issues Important to OHP (Appendix 8.3)

1) Leg 151 Iceboat

OHP recommended that the message 'maximize scientific opportunity' be added when discussions of cost savings in contracting the iceboat occur.

2) Leg 145 APC strategy

OHP commended the shipboard support personnel for allowing the implementation of the aggressive drilling strategy on Leg 145. The leg was able to accomplish major scientific goals as a result of this drilling strategy.

3) Proposal Status

Delaney indicated that there were several OHP proposals with proponents actively working to develop them to maturity and increase drillability.

Austin took this opportunity to point out that the panel membership issue of "corporate memory" would impact long range planning of multileg programs. He specifically referred to the one-third rotation of membership each year.; this, he argued, would mean that there would be gaps, particularly in panel watchdog assignments. Austin asserted that watchdog responsibility for long-term, multileg proposal development and planning could be affected if the watchdogs change in mid-stream; watchdogs very often influence the developments of programs. Delaney agreed that this was a requirement of the panel structure if there were only 16 members with a three year commitment each; it was up to panel Chairs to reintroduce the corporate memory needed for new members to continue the ongoing work of the panel. Francis pointed out that corporate memory was enhanced by the presence of foreign partner members who do not rotate as frequently.

Pyle initiated a discussion on the question of refrigeration of cores. Delaney indicated that OHP felt strongly about the requirement for refrigeration and it should remain a requirement. Ian Gibson explained that there would be a disastrous degradation of cores without refrigeration and the incremental cost of such curation was not a major item. Pyle remained skeptical about the need for refrigeration of all cores. Austin asserted that the cost-related issue was whether to build refrigerated or non-refrigerated storage. Pyle requested more information on the effects of refrigeration vs. non-refrigeration of cores. Moran to provide.

5. LITHP

Humphris outlined the 1992 LITHP year, meetings were held at Davis, Calif., and Paris, France. As a result of recent science engineering decisions, LITHP had decided to rewrite their White Paper.

A. Short Term Planning (Appendix 9.0)

1) Leg 148

LITHP was not able to evaluate the benefits of running the high temperature borehole tool at site 504 B from the data they were given; therefore, it was recommended that the tool be used only if it meets third-party tool guidelines. There was a general LITHP concern over testing tools in 504B. LITHP also recommended that testing in 504B be limited to tools that would provide scientifically useful information for the hole.

On the issue of contingencies for Leg 148 abandonment, LITHP felt that if 504B was abandoned the ship should go back to Hess Deep (if there was sufficient time). The second LITHP option (less developed) was to offset from 504 B and start drilling a second hole nearby to look at heterogeneity in the crust.

2. Proposal watchdogs

LITHP watchdog for NARM was Coffin, ODWG watchdogs were be a group of three: Bloomer - transverse ridges, Campton - Med. valley walls, Bender - rifted crust.

B. Long Term Planning Issues (Appendix 9.1)

1) Engineering Issues

Humphris explained that, of the thematic panels, LITHP was most dependent on technological and engineering developments to make decisions regarding long-term planning. Therefore, LITHP would like to request that a TAMU engineer attend all LITHP meetings.

a) DCS

After the Leg 142 test of the DCS failed, LITHP reviewed its priorities. LITHP continued to strongly support DCS as the most likely method for drilling formations that were beyond current capabilities and have strong thematic interest in LITHP. LITHP did agree that the next sea test must be successful for continued support by the ODP community. Humphris lead a brief discussion on finding test sites that would allow for testing of DCS in a less hostile environment. LITHP recommended that VE-3, at the Vema Fracture Zone be considered for the next test site.

b) Deep Drilling

LITHP supported a deep drilling RFP process for the study of deep drilling objectives.

c) Fluid Sampling

LITHP reviewed plans for the high temperature fluid sampler and enthusiastically supported it. However, LITHP felt that it did not replace *in situ* fluid sampling, a technology that needed continued development as outlined in the RFP submitted to PCOM.

2) Scientific Issues

a) ODWG report

LITHP recommended that the report be accepted and the working group disbanded. Humphris indicated that the drilling programs to attempt OD objectives were mature and LITHP did not want to see a DPG formed, it would cause too much delay. LITHP would seek and nurture proposals within the ODWG report mandate and work to get them scheduled.

b) Global science connections

LITHP had identified ten members with connections to other global science programs, specifically: RIDGE, NADP, FDSN, and several others. In the spring meeting members would update each other on the activities of these groups. The TAG proposal represented an opportunity to interact with one of these programs (RIDGE).

c) Post-Drilling Borehole Science

LITHP identified 20 holes that were appropriate for post-drilling research. Because the number was limited, there would be increasing demand for use of these holes. LITHP recommended that the appropriate thematic panel be included in the process when PCOM & EXCOM review requests to use these holes; it was also recommended that the *JOIDES Journal* publish the specific guidelines for post-drilling hole usage.

C. White Paper Revision (Appendix 9.2)

In regards to LITHP White Paper, Humphris emphasized that the overall goals of LITHP had not changed. Rather, the emphasis and time-scales of drilling-related activities the panel was interested in was changing. Revision of the LITHP White Paper should not be viewed by the ODP community as a closed activity. The LITHP timetable for revision was presented. In Feb., draft sections of the White Paper would be due. In March, the draft would be discussed at the LITHP meeting. In June-July there would be an open meeting for community input on the draft, discussion at the meeting would be based on the draft. The draft would be rewritten in Aug. with a target of Oct. for approval of the final draft by LITHP. In Dec.. LITHP would be able to present the revised White Paper to PCOM for final approval. Humphris acknowledged that this was an ambitious schedule and would require help from TAMU engineering, TECP and other global geoscience programs. LITHP was asking for endorsement from PCOM and requesting help from the JOIDES Office for obtaining funds for this program.

D. Membership (Appendix 9.3)

Humphris reported that six LITHP members would rotate off this year, three were international partner members (ESF, Germany, Can/Aus). The panel would be losing seismic expertise and need to replace them with suitably qualified individuals. Nominations for two new US members were presented. Humphris noted that the previous addition of Mike Coffin would bring the total to seventeen members. The panel Chair would be required to be replaced next year, Sherman Bloomer was nominated unanimously by LITHP to replace Humphris.

Jeff Fox went back to the subject of 504B alternatives and asked if the there had been any guidelines developed for siting a second, offset hole there? He pointed out the model dependency of the heterogeneity test, different models suggested different hole spacing to test them so, he asked, how would LITHP choose? Humphris answered that LITHP had discussed this issue had made no decision yet,. Humphris did add that this option was the second choice and it did not have a completely developed proposal to justify it.

Richard Arculus asked if LITHP included any people with expertise in ash geochemistry, someone who could effectively evaluate the Canaries-type proposals? Humphris responded that several current members had experience in geochemistry of basalts, mafics and ultramafics. There was not a sedimentologist or ash layer expert on LITHP, others were cursorily familiar with the subject. Arculus replied that he was the watchdog for the Canaries proposal and was enthusiastic about it; there would be more proposals like it and they would require a combined hard/soft rock expertise for evaluation. He feared that these proposals would fall between the panel experience and "the cracks", PCOM needed to make sure that didn't happen.

Larsen wondered if the subset of LITHP that was formed to develop the ODWG proposals toward maturity would develop conflict of interest problems. Humphris said that would not be a problems because this group wished to evaluate the scientific merit of the proposals and then see if they could be scheduled in a timely way. The intent was not to duplicate a DPG, but to make sure that proposals were generated to address the ODWG objectives.

On a final note, Lewis thanked the thematic panel Chairs and expressed PCOM's appreciation for their work, praising them for their high level of skill and professionalism.

6. SSP

A. Activities (Appendices 10.0 - 10.1)

Kidd expressed SSP's appreciation to PCOM for help in implementing the one-year SSP and Thematic Panel schedule for review of proposals. In the past year, new deadlines were implemented relative to Thematic Panel meetings. The SSP tried to implement its review of data in one year to give PPSP the second year to review proposals. However, it was found that this schedule did not leave enough time for PPSP if there was a first-round failure at the safety review, Kidd would explain this later.

SSP met three times in 1992, two were as scheduled, the third was called in Nov. to allow for a final review of late site survey data submissions. At the April meeting, the site survey deficiencies were pointed out to proponents based on their preliminary submissions. In Aug., SSP was able to review the actual submitted data, none of the proposal site survey packages were complete, some were very close. SSP determined that there were eleven proposals close enough to being ready for recommendation to PCOM for inclusion in the FY94 Prospectus. The incompleteness of the FY94 Prospectus proposal data packages compelled SSP to request PCOM set a Nov. 1 deadline for final site survey package submission.

In Nov., a subset of SSP met at LDGO. SSP found that six of the Prospectus proposals had complied with the requests of SSP and were now ready for Safety panel (Alboran, Ceara, Amazon, Barbados, E. Equatorial Atlantic Transform, NARM - Newfoundland Basin). Four were flagged for PPSP preview due to their potential for safety problems. In addition, SSP concluded that some were not ready for PPSP, Mark and TAG in particular. SSP's opinion was that, with additional data submission work, they could be made ready for the April PPSP meeting. Vema was looked at again, V-3 was sufficiently ready, 1 & 2 were not. Of VICAP-MAP, only the MAP portion was ready.

Mediterranean proponents did make a major effort to gather together sufficient data for a "hybrid" Mediterranean Ridges & Mediterranean Sapropels leg. Kidd reported that proponents met in Trieste and that he had also attended the start of that meeting but did not stay around; there had been a lot of activity going on. But Kidd was most disappointed to find that when SSP got together in November sufficient data just didn't appear — and these were two highly-ranked proposals. The data for most of those sites were incomplete Kidd said. Kidd recognized that there were ship opportunities in the coming year and proponents would probably complete the data packages for next year's scheduling.

B. Other SSP Activities:

This year, SSP worked with the ODWG to develop improved guidelines for offset drilling. SSP recognized the need for developing similar sets of guidelines for BSR drilling (with PPSP) and for shallow water drilling (working group?).

C. Membership

Kidd rotates off as Chair of SSP at the end of this year and joins PCOM. Kastens would replace Kidd as SSP Chair. Scrutton replaces Kidd as the UK representative. Louden and Pautot would rotate off this year, replacements had yet to be appointed. Kidd expressed SSP's desire to gain members with expertise in submersibles, deep-towed geophysics and industry shallow water site investigations.

D. Causes for Concern (Appendix 10.2)

1) Lead-times for PPSP Review

SSP felt it must reemphasize that a complete site survey package was only the first hurdle in the process of safety review. Proponents needed to allow time for sites to be removed, relocated or inserted in the safety review process. Time was also required for further feedback from PPSP on the safety requirements when data was considered insufficient in the initial review (i.e. Leg 150). The time was needed for things like consultation of industry contacts (closed file).

2) Lack of Cooperation

In 1992 the SSP deadline system had been successful for six programs who were able to respond in a timely manner. The lack of cooperation from the other highly-ranked programs was an area of SSP concern.

3) Communications

To facilitate communications with SSP, it was recommended that DPGs designate a contact person to coordinate deposition of data in the data bank. The lack of a lead person had caused problems with the watchdog-to-proponent communication.

4) Reprints

SSP wanted to make it clear that it was not prepared to accept a reprint approach; proponents needed to provide data, even if a hole had been drilled there before.

5) Shallow Water Drilling Guidelines

Based on the Leg 150 experience this year, it was clear to SSP that new survey guidelines for shallow water drilling would be necessary.

6) Data Bank

Due to illness of Carl Brenner, data bank manager, there would be an interim management of the data bank at LDGO. Kidd explained that, at present, Brenner was on long term disability. The position required a full-time commitment to replace Brenner. Unfortunately, LDGO could not provide this; Greg Mountain was to provide management to the data bank on a part-time basis.

Mutter acknowledged Brenner's great contribution to the data bank. While he was on leave, no full-time replacement could be made. The present temporary replacement would continue until it was determined (by Brenner) if he would return. Until that time, Mountain would do it for the next six months. Full-time replacement could not be made because of the leave situation.

E. Recommendations (Appendix 10.3)

1) Proposal Review

SSP recommended that, if a one-year schedule was maintained for SSP/Thematic Panel review prior to scheduling at the annual PCOM meeting, then the procedure should be that SSP, with the help of its liaison PPSP Chair, flag potential safety problems in April. If these proposals were highly ranked, then invite the proponents to present data as part of the Aug. SSP meeting. SSP's goal was to make sure that each proposal had the minimum amount of data required by PPSP. To go along with this, SSP urges PCOM to consider what the backup plans for potentially problematic legs were. In Dec. PCOM should formally consider these possibilities and have plans for dealing with all contingencies.

2) Communications

SSP recommended that DPGs name a lead contact person for assembling SSP data. Likewise, thematic panels should name a lead site survey data proponent for panel-driven proposals. SSP also recommended that the thematic panels follow up on site survey needs for their highly-ranked proposals, particularly those that make the Aug. prospectus.

3) Meetings

SSP recommended that it meet three times a year. The Aug. meeting should be longer in order to review the complete data packages (SSP used to meet three times a year).

4) Safety Guidelines Working Group

SSP recommended that both SSP and PPSP should be involved in any working group formed for the development of shallow water drilling safety guidelines.

Duncan queried Kidd about the issue of data bank staffing, asking if Mountain was going to be able to do the proper amount of work for the required job? Kidd expressed reservations that Mountain, one of the best people to do the job, would be able to do it on a solely part-time basis. The manager position was essential and Kidd would like to see LDGO go to JOI and ask for a full-time temporary replacement; it was a full time position, no matter how good Mountain was.

Francis wanted to make PCOM aware that the site survey packages for Leg 150 arrived very late to the PPSP meeting, actually the day before, and standard procedure normally required that they arrive two weeks ahead. PPSP understood that this was a result, in part, of the site survey data bank manager situation but, nonetheless, it may have contributed to the problems with the Leg 150 approval.

Lunch Break 12:30-1:15 ....

Lewis commented that the job description for ODP data bank manager required them to put together the data packages for the Co-Chiefs, PPSP and the TAMU safety review panel. The continued absence of this dedicated person would create a big hole, Lewis felt that PCOM needed to help resolve the problem caused by the absence of a LDGO data bank manager. Pyle wanted to make it clear the JOI had not been notified about this situation. Lewis tabled the issue to allow the interested parties time to try to solve it.

Berger wanted Kidd to identify what criteria SSP used for determining when a site survey package was complete. Kidd referred Berger to the published matrix of required date for different types of drill sites, the JOIDES Office sends site survey data requirements to proponents as soon as a proposal gets submitted. Kidd acknowledged that there were shades of gray in this area; depending upon the data quality, some proposals may require better data than what they submitted. Lewis brought up the provision in the MOUs that require that any data used for drill site selection was required to be deposited in the data bank and was an obligation for proponents. Berger expressed a concern that these requirements could be endless and slow the process by requiring more work of proponents, ultimately leading to delays in the scheduling of legs. Kidd explained that each category of required data was evaluated and proponents were notified of what essential data must be deposited. Vital information was attempted to be assembled. Some non-required data may be essential for PPSP and therefore must also be deposited.

Mutter wanted to know who's responsibility it was for depositing data that exists but was not acquired by, or in possession of, the proponents? Kidd made it clear that responsibility rested with the proponents, even if they didn't acquire it. SSP would work with proponents to help facilitate this process. Lewis again stressed the "legal" obligation proponents have, according to the ODP rules, for putting data in the data bank if it was used for determining site locations. Kidd stressed that SSP was dismayed that, for the first time, they were experiencing a reluctance on the part of academics to deposit newly-acquired data.

Lewis wanted to know if PCOM felt this issue required action? Mutter perceived that it did, but was not sure how PCOM could proceed effectively. Kidd related that SSP was taking action by having watchdogs deal more closely with proponents, helping them in the data acquisition process if they were requested to do so.

Taylor questioned what specific change PCOM had made that precipitated this problem with lead time for safety review. Kidd explained that it was the switch from regional-based to thematic-based planning. Taylor wondered how that happened since the changeover had been several years ago. Kidd stated that it was recent from the SSP point of view. Taylor wanted to know why PCOM had been able to successfully schedule the Atlantic proposals in 1991 for FY93.

Kid responded that those proposals had been ready for PPSP review at the time of PCOM putting them on the schedule, but both SSP and PPSP Chairs had requested back-up for potential safety problems (e.g. Leg 150).

7. IHP

IHP met twice in 1992, the spring meeting was in College Station, Texas and the fall meeting was in Marseilles, France. Gibson explained the IHP mandate and then presented information regarding the panel's recommendations in the areas it was mandated to advise PCOM on.

A. Shipboard Computing Environment (Appendix 11.0)

1) Computing environment on board

The IHP wanted to emphasize to PCOM that the structure of the computing system was the most important factor in determining the shipboard computing environment. Gibson stressed that this issue had been raised at the last three PCOM meetings and he wanted to reaffirm IHP's conclusion that science was hampered by the present shipboard computing environment. Gibson offered a thumbnail sketch of the situation involving the HARVI and HRTHIN software on the ship as an example. This particular software issue had been a chronic problem with the shipboard computing system and was only solved by TAMU after complaints by Co-Chief scientists were received. Gibson asserted that this was only one example and there were many others where temporary repairs were being made to overcome system shortcomings.

2) Core-Log Integration

IHP also wanted to alert PCOM to the fact that integration of logging data with core data was essentially impossible within the confines of the present shipboard computing environment.

3) Data Handling WG Recommendations

Once again, IHP urged PCOM to accept the recommendations the DHWG and the RFP Review Committee and, in addition, allocate funds to do something about it. Gibson expressed IHP's concern about the RFP funding. He explained that since the funding of any proposals would fall in the next financial year, PCOM needed to identify where the money would come from and plan for it.

Lewis advised that the DHWG recommendations had been adopted by PCOM. Gibson responded by pointing out that the important part, allocation of sufficient funds, had not been done. Arculus thought that at the Aug. PCOM meeting the conclusion about funding a computer upgrade was that there was not a sufficient amount of money in the budget to allocate anything to an RFP at that time. Gibson realized this but, due to its importance, there should be funds allocated at some level, even given the uncertainty of funding. Arculus asserted that PCOM was not ignoring the problem, and because of a limited budget, unfortunately had to compromise; something was being done.

B. ODP Database Structure - At Present (Appendix 11.1)

IHP had concluded that the present database system (a VMS-based S1032 system) was inadequate and outdated; the rational archiving of data was almost in a state of collapse. Using the system took too much time and this had lead to non-usage. IHP was concerned about the ever-growing backlog of database work at TAMU. Presently, accessible databases do not exist for paleontology data or core description data.

In IHP's opinion, PCOM may have to urge TAMU to address this issue or run the risk of the historical record of the project being lost. Gibson acknowledged that some of the present data base problems would be solved by the new system (still at least a year away), but TAMU would need funds for catch-up and archiving of this enormous backlog of data.

C. Publications & CD-ROM (Appendix 11.2)

As mandated, IHP reviewed current publications in detail. Gibson was pleased to report that IHP concluded the publications were timely and would prepared; *Proceedings* volumes were serving the science projects and community well. IHP urged PCOM not to change the publication process, creating additional publications to expand data to a larger community was supported.

IHP wanted PCOM to recognize that CD-ROM would eventually evolve as a data distribution media, it was cheap and accessible. Gibson related that GSA was publishing in CD-ROM, as was USGS — both for graphics and data. IHP strongly supported the publication and distribution of ODP data on CD-ROM. A CD-ROM would be published in the back of each volume, microfiche distribution should be discontinued in favor of digital format distribution.

At this point, Goldberg wanted to take the opportunity to inform PCOM that LDGO would be asking for support for CD-ROM production in the Leg 143 Reports volume at this meeting. He commented that the price tag for CD-ROMs would be cheap, relative to microfiche, but initially there would be a cost for developing the capability.

C. IHP/PCOM/JOI/TAMU-ODP (Appendix 11.3)

IHP considered the question of — did the present structure of ODP allow for quick response to rapidly evolving IHP/SMP technologies? This question arose as a result of the recent IHP experiences trying to implement a computer system upgrade. Gibson illustrated the problem by outlining the recent history of IHP recommendations to PCOM for upgrading shipboard computing. It was clear from his narrative that the evolution of the DHWG and eventual implementation of its recommendations would take four years. In the opinion of IHP, four years was too long for developing a computing system and therefore, IHP had concluded that the ODP structure was not able to respond fast enough to the rapidly-changing computing scene.

D. Membership (Appendix 11.4)

Gibson reported that three US members, Moore, Sager and Wise, had resigned from IHP and would need to be replaced, nominations were placed before PCOM for these positions.

8 SMP (Appendix 12.0)

A. Shipboard Lab Review (Appendix 12.1)

1) <u>Paleomagnetics</u>

SMP recommended that software upgrades be implemented and that higher demagnetization be allowed following the IHP-prepared recommendations.

2) <u>Micropaleontology</u>

Moran reported that, unfortunately, there were no software packages available for micropaleo data input. Moran reminded PCOM that SMP had previously set priorities for software acquisition on the ship and this critical item had been prioritized above HARVI & HRTHIN. This was an example, stressed Moran, where TAMU (and PCOM) should have consulted SMP recommendations before responding to problems of software (of which there are many).

3) <u>Physical Properties</u>

The natural gamma tool was under development and the resistivity tool was evaluated on Leg 146 by Moran. She felt that work was still needed to optimize data acquisition from it. In addition, the GRAPE software was upgraded due to an error found on Leg 148 in order to make appropriate bulk density data measurements.

4) <u>Sedimentology Lab</u>

SMP recommended routine use of a multispectral photometers that were recently acquired and possesses increased speed and accuracy. In addition, SMP recommended acquiring a new, upgraded VCD program; specific recommendations from SMP were made to TAMU.

5) <u>Petrology</u>

SMP recognized that data acquisition software was needed in the Petrology lab to replace HARVI & HRTHIN and that the problem was being worked on by TAMU.

6) <u>Geochemistry</u>

SMP's opinion was that good progress was being made in upgrades for equipment and computers in this lab. Software packages recommended for this lab were prioritized.

7) <u>Underway Geophysics</u>

Moran wanted to clarify for PCOM that SMP had been assured by TAMU last year that navigation would be implemented. As a result, SMP had removed it from their priority list for ship's equipment. However, it was not done so it was now back on the top of the priority list.

Will Sager related his recent experience with the seismic data acquisition system on board, he felt it also had some severe problems and limitations and was in need of improvement.

B. Physical Properties Special Meeting (Appendix 12.2)

Conclusions from the Physical Properties Special Meeting were highlighted by Moran:

1) The meeting concluded that the discrete measurement of index properties was OK at present.

2) A discrete resistivity measurement system was needed now. The group encouraged the development of core image system with a future direction being the development of an induction method for future whole core analyses.
3) The GRAPE system needed more strict controls on core being run through the system, there was a need to inspect a core so junk was not collected as data. A workshop on MST methods and procedures was recommended to improve this.
4) Measurement of velocity under effective stress conditions was now feasible. Small improvements were required for the Hamilton Frame.
5) Natural Gamma should be tested in a Leg 148 trial, as per the TAMU plan.

C. Core-Log Data Integration - Status (Appendix 12.3)

Moran summarized SMP's assessment of the status of core-log integration efforts to date: 1) TAMU had purchased workstations, 2) natural gamma development was underway, 3) magnetic susceptibility measurements would be implemented on Leg 145 and 4) Staff Scientist Peter Blum was named as the core-log data integration specialist.

Moran reported that SMP and DMP jointly recommend that: 1) the ODP TAMU staff science member leads development of core-log integration, 2) hiring of TAMU staff for core-log data integration software was required for effective development of core-log integration and 3) the job description of the core-log data integration specialist required better definition — SMP/DMP would work with TAMU on development of the job's responsibilities.

D. Shipboard Computing (Prioritized) (Appendix 12.4)

SMP's definition of the components of computing were defined as: 1) data acquisition (80%), 2) data base and 3) data retrieval. Moran explained that data acquisition priorities for software development were based on the criteria that those that didn't exist were ranked highest. The second most important criteria was the amount of development work that would be required to develop the software and the third criteria was the feedback from users.

The prioritized list consisted of (in descending order): paleontology, natural gamma, XRF/XRD, discrete physical properties, core-log data integration, paleomagnetics, VCD/smear slides/color, petrology, MST, SAM/Corelog, chemistry.

Moran added that SMP was generally critical of software development that progressed with the developer separate from the user; SMP's opinion was that this doesn't make for effective software. In SMP's opinion, TAMU would be the best organization to develop MST, SAM/Corelog and chemistry software; other packages could easily be contracted outside of ODP.

Arculus asked why XRF/XRD was so highly ranked. Moran explained that, at present, XRF data manipulation still required hand written work.

E. Technical Staff (Appendix 12.5)

SMP recognized TAMU's success in implementing shore-based training for technical staff and wanted to urge its continuation. The increase in staff to two systems manager was a major improvement; kudos from Moran to the Leg 146 technical staff, they were excellent.

F. Equipment Needs (Appendix 12.6)

Moran set forth the SMP priorities for equipment (in descending order): navigation, natural gamma and MST upgrade, hard rock velocimeter, XRF PC upgrade, resistivity equipment for discrete core measurement, bar code reader, seismic workstation, seismic towing system.

G. Third-Party Equipment Priorities (Appendix 12.7)

Likewise, the third-party equipment priorities were (in descending order): color reflectance (Mix - US), electrical resistivity imaging (Jackson - UK), Infrared spectroscopy (Herbert/Amoco - US), XRF split core scanner (Herbert/Jansen - US/ND).

H. Membership

After the Feb. SMP meeting, King would rotated off. Nominations for King's replacement, and for a new SMP Chair would be available for the next PCOM meeting (Moran steps down from the Chair after Feb.). The Feb. SMP meeting would be joint with IHP.

9 DMP (Appendix 13.0)

Worthington presented his last DMP report to PCOM, Peter Lysne becomes DMP Chair in 1993. DMP met three times in 1992, in Kailua-Kona, Hawaii in Jan., at KTB, Windischeschenbach, Germany in June and held a joint meeting in Sept. with SMP in Victoria, B.C., Canada. Upcoming

1993 meetings would all be in the US, in College Station, La Jolla, and Santa Fe (joint with LITHP).

A. Membership

Worthington briefly reviewed DMP membership changes since the last PCOM. Two international partner representatives were replaced, Crocker (Can/Aus) was replaced by Salisch, Yamano (Japan) was replaced by Kanazawa. US members Sondergeld and Gieskes would need to be replaced, nomination for Sondergeld was presented but the nominee for Gieskes' position had not yet been determined. Worthington also noted that he would no longer be Chair in 1993 when Lysne takes over.

B. Highlights of 1992 (Appendix 13.1)

1) Booklet on ODP DMP

Worthington introduced the newly-published booklet, *Downhole Measurements in the Ocean Drilling Program - A Scientific Legacy*, produced by DMP with TAMU. He felt that the booklet was a high-quality publication and would contribute much to visibility of the downhole measurements program in ODP. DMP recommended that this type of publication be considered by SMP and other panels, particularly thematic panels, as a high-impact way to communicate ODP science to the greater earth science community.

2) Guidelines for Third-Party Tools

Worthington explained that DMP wanted to reinforce the guidelines for the usage of third-party tools and was assisting in production of another brochure with TAMU to accomplish this. Worthington stressed that once guidelines and standards for third-party tool developers were in place (Phase I) DMP would insist on maintenance of the standards.

3) High-Temperature Tools

Worthington reported that DMP was monitoring the development of a high-temperature temperature tool, a high-temperature borehole fluid sampling tool, a high-temperature natural spectral gamma tool. and a high-temperature resistivity tool.

3) *In Situ* Pore Fluid Sampling WG

DMP noted that this working group was successful in achieving its goals; however, the RFP was not successful in being funded by PCOM.

4) Successful Joint Meeting with KTB in June

5) Lithospheric Characterization

Worthington reported that observations in the KTB hole illustrated that heterogeneity was the rule when interpreting logs from non-sedimentary boreholes. DMP felt that this raised the question of: what was a log measurement indicating in an oceanic borehole? Answering this question would require a new emphasis on cross-hole work. DMP's opinion was that the time was right for developing the technology to address ODP needs for such cross-hole work. Worthington pointed out that this type of technology would be useful at 504B and volunteered DMP's input to LITHP for determining a distance-away for siting a second hole at the site. Lysne mentioned that DMP would have an industry expert on cross-hole tomography coming to the spring DMP meeting.

C. DMP Thrusts for 1993 (Appendix 13.2)

1) Updated Tool Development Plan

Worthington noted the EXCOM criticism of the updated tool development plan; however, the budget was not available so DMP would pursue this in the coming year.

2) High-Temperature Tools

DMP would help ODP collaborate with the developers to keep costs down on these tools.

3) Third-Party Tools

DMP would be developing specifications and guidelines on third-party tools for ODP in 1993. DMP would then pursue guidelines for the management of these third-party tools once they were tested, including designation of a specific person to supervise third-party tools on the ship.

4) Interprogram Collaboration

DMP encouraged interprogram collaboration with the KTB, RIDGE, and CSDP programs, the new DMP booklet was viewed as one way to help in the process. Lysne wanted PCOM to recognize that tool development would require lots of money and a major thrust of the DMP in 1993 would be to build bridges with other programs in order to be able to continue development in the present climate of limited funding.

D. Current Issues (Appendix 13.3)

1) Copies of the DMP Booklet

The target audience for distribution of this document was JOIDES institutions, international partners, ODP logging schools, future and past shipboard scientists. Booklets would also be distributed at the ODP booth at AGU.

2) Third-Party Tool Approval

DMP recommended that PCOM delegate authority to DMP to approve deployment of third-party tools. Worthington explained that the current move to the use of third-party tools required DMP expertise in the final evaluation stage. However, DMP was not allowed to formally approve anything and final approval had to come from PCOM — who must rely on the DMP recommendation. As an example, the high-temperature tool that was needed for Leg 148 would be tested soon but there would not be enough time to get both the DMP endorsement and formal PCOM approval in time for the leg. In this specific case, it would be better for PCOM to pass the authority to DMP.

3) Membership for an Industrialist

DMP had nominated a person for DMP membership who was employed for a competitor of Schlumberger. DMP felt that this was a problem for the membership of this person and requested guidance on the issue.

As the retiring DMP Chair, Worthington thanked PCOM for taking positive action on recent issues of importance to DMP. He cited, as an example, the support PCOM gave to FMS tool implementation. Lewis praised the valuable time, effort and expertise that Worthington had contributed to ODP during his successful tenure as DMP Chair.

10. TEDCOM

A. Actions of 92 (Appendix 14.0)

Charles Sparks reported that TEDCOM held two meetings in 1992, one in May and one in Oct.. A DCS review was held in April, in Oct. subcommittees met to discuss the deep drilling RFP. Sparks was pleased to report that TEDCOM had established a closer working relationship with TAMU in 1992, particularly with regards to the details of DCS development. Sparks elaborated on the fact that this change was a favorable development for TEDCOM, TAMU and PCOM. The impetus for change came largely from the Leg 142 events.

B. Membership (Appendix 14.1)

TEDCOM membership was in the state of crisis due to extremely poor US participation in the last year, Sparks suggested ways that PCOM could assist TEDCOM to improve the situation. TEDCOM would like to nominate Zingraaf to be a member, he currently came at his own expense.

C. DCS (Appendices 14.2 - 14.9)

TEDCOM concluded that the success of the DCS test on Leg 142 was prevented by an accident that caused damage to the equipment. However, the control system for the DCS was not precise enough to allow for success regardless of the accident.

1) Status of May TEDCOM Recommendations

Sparks reviewed the status of the DCS program. He illustrated the heave compensation system for DCS, emphasizing that it must be extremely accurate. TEDCOM recommended that the entire system should be studied in a simulation study; the best approach being to have the instrument on the API string. TEDCOM also recommended: 2) measurements be taken of the main compensator characteristics, 3) measuring the accelerations and stresses at the top of the API string, 4) the DCS be modified to allow easy manual intervention, and 5) extensive land testing of DCS be done before the next deployment.

So far, Sparks explained, extensive DCS simulation studies and instrumentation work had been done. TEDCOM had high praise for TAMU's quick action on the first of their recommendations. Sparks recognized that, according to the Aug. PCOM minutes, he had caused problems by recommending a TEDCOM member to be the consultant for the control systems evaluation. Sparks wanted to clarify that this idea was originally approved at the Dec. 1991 PCOM meeting and he felt justified taking the action based on that approval. Austin remarked that it was Pyle's suggestion to be careful about doing it that raised controversy at the Aug. meeting.

2) Russian Drilling Technology

TEDCOM considers some of the Russian drilling technology as very good (they have drilled the deepest hole) and therefore, TEDCOM wanted to maintain a dialogue with them in areas where technology could contribute to ODP, often a low cost. One area in particular was in the DCS system.

Sparks used the example of operations on Leg 142 to illustrate how the BHA drilling was a time sink for drilling in collapsing holes. The Russian retractable bit technology was extremely useful for this type of drilling. TEDCOM recommended TAMU should define a study of retractable bit applications in ODP so that the Russians could estimate costs for developing their technology to address this problem.

3) October TEDCOM Recommendations

In Oct., TEDCOM recommended comprehensive land testing prior to an at-sea deployment, two tests were specifically recommended before DCS was used on the ship. The first was proposed to be the Amoco Tunisian land test (without compensation); Sparks reported that this test was no longer possible. The other recommended test was one with simulated heave and compensation (proposed to be drilled in west Texas). If necessary, more complicated land testing should be tried with API string simulation.

TEDCOM recommended that seatests be scheduled in 1994, the system would be ready. Further study of retractable mining bits should be investigated but TEDCOM would not recommend funding such studies until the DCS system was proven at sea. Out of concern for optimizing the chances for success of DCS on the sea trial, TEDCOM recommended an easier site than that chosen on Leg 142. Specifically, the site should have mild environmental conditions (wave and wind), be near a port for personnel transfer, have good bottom conditions for spudding the hole. Humphris asked what the TEDCOM recommendation for water depth was to maximize time on bit. Sparks replied that it a 1500 m water depth was appropriate.

D. Deep Drilling RFP (Appendices 14.10 - 14.17)

Sparks expressed TEDCOM's disappointment over the Aug. 1992 PCOM minutes in regards to the Deep Drilling RFP (p. 52). The reason for disappointment was that, in Dec. 1991, PCOM had given strong endorsement to launching the RFP for deep drilling in 1992. Sparks disagreed with the new PCOM position and TEDCOM reviewed the RFP in detail during their Oct. meeting. Sparks felt this was a fruitful session and resulted in a completely modified RFP.

Part of TEDCOM's review of the deep drilling RFP included an analysis of the old *Engineering for Deep Sea Drilling for Scientific Purposes Report* produced for DSDP. TEDCOM analyzed the report in detail and found its recommendations stimulating but not directly applicable to today's problems. Sparks cited one particular example where the DSDP study recommended drilling specifications that included an oil-industry-type of riser, for reasons of blowout prevention and safety. TEDCOM agreed that the use of circulating mud would be required, but for different reasons. For deep drilling, TEDCOM would recommend a slimline riser to circulate mud that would act to stabilize the wall of the hole, not as a safety measure.

1) TEDCOM Deep Drilling RFP Recommendations

Sparks outlined TEDCOM's recommendations to PCOM:

1) The RFP be should be changed to an RFQ, in an industry-like fashion; this move would reduce costs and simplify the process for bidders.
2) The RFQ specifications should incorporate the LITHP and TECP hole scenarios since the LITHP hole would require a riser and the TECP hole would not.

The purpose of the RFP would be to find out what the cost of the slim line riser system would be, an area already studied by some members of TEDCOM. Sparks estimated it would be a figure of about $ 1 - 1.5 M, the cost of the tensioners was unknown but would probably be more costly.

2) RFP Topics

TEDCOM recommended that the RFP include:

a) a slimline riser design for 4000 m water,

b) an optional seafloor BOP system
c) an extension of the drillstring to 10,500 m
d) specifications for alternate coring vessels if *JOIDES Resolution* cannot do the work.

Sparks explained that the RFP was a detailed document, ready for distribution and available from TAMU.

The TEDCOM timetable for the RFP called for a review by PCOM at this meeting, it would then be mailed to consultants in Jan. with responses due by mid-March. TEDCOM would review the RFP responses at it's March meeting and decide on the award to so that results of the study could be ready by the TEDCOM fall meeting. Sparks concluded his report by citing the Dec. 1991 PCOM motion declaring support for "immediate and expeditious implementation of a deep drilling RFP".

Lewis mentioned that PCOM would come back to this item later in the meeting as an action item. Kidd wanted to know what the study would cost. Sparks replied that the cost would be between $50,000 and $100,000.

Austin brought up the RFP for the Zaremba study. He felt that the Zaremba study illustrated how important it was for an RFP to specify exactly what ODP wants. Austin went on to explain that Zaremba was a consultant who did a study for ODP but clearly did not understand what ODP wanted. In addition, Sparks reminded, the DCS III RFP was launched by PCOM without clear questions to be answered and the result was a report where the technological points addressed were not those of concern; TEDCOM agreed that these RFPs should be carefully designed.

Francis distributed copies of the RFP for the *Feasibility Study for Deep Scientific Coring in the Ocean* prepared by TAMU (Appendix 15).

Coffee Break 3:30 ....

11. PPSP

A. Message of PPSP (Appendix 16)

Ball had only a single message for PCOM from PPSP as his report this year, the message was that a one year lead-time for safety review did not work. Ball wanted to make it clear that PCOM needed to get back to planning as far in advance as far as possible. PPSP recommended that PCOM provide them tentative plans so that PPSP could preview highly-ranked proposals in light of these plans.

B. Leg 150

Ball noted that the issue of Leg 150 would be discussed later. He felt that PCOM shouldn't concentrate on assigning blame, everyone needed to learn from the experience and go on. The lesson should be, he felt, was that the program had to make long-term plans to avoid this problem. Ball explained that PPSP wanted to avoid having high pressure situations develop due to late-stage evaluations.

Austin brought up his personal observation, based on his attendance at the PPSP meeting, that the PPSP's membership needed to be augmented and changed in light of the new type of drilling objectives the program would be pursuing in the future. Ball related that several new members had been added recently, and many were experts in the field of shallow water drilling.

Lewis asked for Ball's reaction to the idea of setting up a shallow water drilling working group. Ball was positive about the idea himself, but mentioned that some members of the panel think the *JOIDES Resolution* should not drill in shallow water regardless of the review process, specifically because of the overpressured shallow gas problem and lack of blowout prevention on the ship. Lewis wanted to know if that meant that the door would be closed forever to the possibility of shallow water drilling? Ball indicated that the PPSP vote was six to three in favor of considering shallow water drilling; three others, who did not vote, were opposed to it; there was only a slim majority for considering it at all.

Taylor asked what the impact of PCOM's planning time frame was. Ball repeated that planning needed to proceed faster to get proposals to PPSP sooner. Lewis suggested that potential drill sites could be presented to PPSP for review at an earlier date. Taylor questioned if the PPSP requirement for comprehensive site survey data packages would preclude early reviews for immature proposals. Ball assured him that SSP could provide these given enough notice.

Taylor disagreed because this often required acquiring data from proponents. Ball suggested putting more pressure on the proponents to complete their packages. Lewis suggested that PCOM could possibly require proposals to have a preliminary safety review in order to get in the prospectus.

Item 978: Scientific Reports of Recent Drilling

1. Leg 144

A. Operational Highlights

Janet Haggerty, Co-Chief Scientist, reported that several alternative coring systems were used on Leg 144 to improve recovery. This leg provided good operational tests of these drilling techniques and allowed an opportunity to compare advantages of each. The MDCB was used to improve recovery from 2% to 39% . The DCB system utilizing a geoset bit improved recovery from 6% (with RCB) to 13.2% . A PDC bit used with the CB system had recovery comparable to the RCD, but this brought up longer sections of intact rock.

The leg successfully spudded 10 holes with essentially no pelagic cover and experienced no hardware loss. A mini hard rock guidebase was used for the first time in sedimentary rock on MIT Guyot. A successful reentry into a fully-obscured, freefall reentry funnel was necessary in order to save logging objectives. This was necessary because the sediments had a tendency to liquefy and presented problems for high resolution stratigraphy.

Also developed on this leg was a "piglet" for pipe; it was smaller than a traditional pig and was used to facilitate the coring and recapping on board.

B. Objectives

<u>1) High Resolution Stratigraphy.</u>

Unfortunately, the high resolution stratigraphy that was hoped to be recovered in core was suspect due to the large degree of liquefaction of the pelagic sediments. The pelagic sediments that were recovered were also winnowed, another unexpected result.

<u>2) Establish the Stratigraphy of the Carbonate Platforms.</u>

<u>3) Determine the Age and Cause(s) of Platform Drowning.</u>

C. Marshall Islands

Cretaceous platforms were expected in the Marshall Islands, Haggerty had hoped that the Eocene Limuluk platform would have Cretaceous sediments beneath it. The drill encountered basalt, clay-rich sediments and then a Paleocene to Eocene platform section with a mid-Eocene manganese crust. Only in the Miocene section was there evidence of pelagic sedimentation encountered, apparently Limuluk had no Cretaceous history

D. Lo-En Guyot

Discoveries at Lo-En Guyot were a surprise, largely due to the possibility of high resolution stratigraphy. The best pelagic cap was found here. Geophysical records indicated that there would be a Cretaceous platform beneath the pelagic cap. Instead, they found igneous basalts beneath the pelagics and indications were that these formed at 30° S. The upper basalts were fractured and infilled with pelagic sediments of late Turonian age and included reworked Santonian fossils.

E. Wodejebato Guyot

At Wodejebato, drilling techniques were critical; it was found that the MDCB recovered well compared to RCB. Drill sites were located in the lagoon and on ridges along the perimeter of the guyot. The inner perimeter ridge was continuous around most of guyot, the outer perimeter was not as extensively developed around the guyot. Using facies and ages, it was possible to correlate the five sites drilled. Anticipating mid-Cretaceous ages, it was not expected that only Late Cretaceous (Maastrictian) ages were found near the surface. This indicated that the outer perimeter ridge was an apron of forereef deposits and not a reefal buildup.

F. MIT Guyot

MIT Guyot exhibited a morphology different than the others drilled and had no pelagic cover. Holes were drilled deep in the lagoonal area to over 900 mbsf. RCB was used until it was necessary to switch to DCB to try for better recovery. Drilling encountered lagoonal sediments deposited in a low energy, marine-to-nonmarine, restricted environment. An unusual polymictic breccia containing mixed volcanics and carbonates was drilled. After drilling into alkalic basalts with flow breccias an additional 200 m was drilled into the guyot edifice.

G. Seiko Guyot

Seiko Guyot also had perimeter ridges present, covered by a little pelagic cap. The south perimeter ridge was drilled but no well-developed bioherm was found. It was concluded that the shallow water sediments were deposited at two different time periods. A significant weathering profile characterized the contact at Seiko and Wodejebato but was not found at MIT.

H. Conclusions

Haggerty summarized that overall, despite poor recovery, the logging was excellent. She felt that sea level changes were detectable in the logs and could possibly be quantified with more work. Paleoenvironments were identifiable from the core and their observations suggested the presence of numerous sequences deposited in shoaling-upward cycles.

Work to-date on the core and paleontology data collected on Leg 144 suggested that sea level changes and paleoceanographic reconstructions could be determined for these areas. Major differences in the evolution of the paleoclimates between the drill sites had already been detected. Assemblages seemed to indicate that migration paths changed for Tethyan fauna during the Cenozoic. Moores was enthusiastic that the Leg 144 data on changes in faunal provinces could be compared to the timing of collisional events in the Alpine region. He felt that paleogeographic and paleoceanographic linkages could possibly be indicated by the data.

Austin reminded PCOM that Atolls & Guyots was a two-leg program. He asked how the integration of the Leg 143 and Leg 144 was going? Haggerty answered that the *Preliminary Results* volume for both legs was being produced separately. However, some manuscripts will be jointly authored by scientists who were each on different legs, Leg 143 and Leg 144. The participants of these legs were continuing to look for ways to produce integrated results as data analysis continues for each leg.

Austin concluded by asking Lewis to make up for the earlier PCOM oversight and to comment on the contributions of Worthington as DMP Chair. Austin wanted the record to reflect that Worthington would be missed and should be thanked by PCOM on behalf of the ODP community. Worthington expressed his appreciation for the opportunity to work with the ODP community.

2. Leg 145

A. Summary of Results (Appendix 17)

David Rea, Co-Chief Scientist, prefaced his presentation by commending TAMU's Leg 145 Operations Superintendent Ron Grout. Rea briefly described the discovery, at sea, that the Read XCB failed to recover core. The cruise was able to go on to become a success when they followed Ron Grout's suggestions, allowing them to get long, undisturbed APC cores with good recovery down to the middle Miocene.

Scientific results of Leg 145 were highlighted by the observation of several significant changes 2.6 Ma ago in the N. Pacific, which included: 1) a sudden increase in dropstones at 2.6 Ma, 2) an increase in the terrigenous sediment input at 2.6 Ma, 3) a deep water change marked by the onset of abyssal currents at 2.6 Ma, and 4) an enormous increase in volcanism at 2.6 Ma, inferred from thick ash layers that suggest an order of magnitude increase in Pacific volcanism.

B. New News from the Neogene

Leg 145 results indicated that, in the Neogene, the CCD in the NW Pacific changed relative to the rest of the world; it shoaled rather than deepened and created an enormous chemical gradient in this area of the Pacific.

The discovery of earliest Pliocene dropstones (4.3 - 4.5 Ma) provided clear evidence of glaciers at sea level in the N. Pacific region.

C. Paleogene Results

Leg 145 double-cored the Paleogene section at 883 and found the mid and late Eocene was a time of downslope reworking in the N. Pacific. No reefal material was encountered in the reworked sediments (which indicated the Detroit seamount was never at sea level). A large middle Eocene volcanic event was documented in the ash layer stratigraphy.

D. Basement Objectives

Leg 145 double-cored the seamount edifice at 883 and 884 and cored basement lava flows and pillows at Patton-Murry seamount. Rea gave a site-by-site description of the preliminary results from each basement site (881 - 885/886 & 887).

Rea further described the steps that lead to the successful deep APC coring. Rea felt that this technique hadn't reached the APC depth limit for the types of sediments cored on this leg. He noted that the additional time for the increased washover was not detrimental to the operations.

E. Sedimentation Rates (see overheads)

F. Special Events of the North Pacific

The Meiji Drift was discussed, some of its deposits were drilled on the leg and their possible relevance to the regional paleoceanography was presented.

G. Other Highlights

Rea concluded by mentioning several other highlights of this very successful leg, specifically the recovery of Pliocene wood at 884. The leg would lead to a fundamental revision of high latitude biostratigraphy, this was made possible by the exceptional core recovery on the cruise; the 4321 m of recovered puts Leg 145 in the top five legs for sediment recovery.

8. Leg 146

A. Main Objective (Appendix 18)

Bob Carson, Co-Chief Scientist, reported that the Leg 146 cruise was very successful, all the objectives were achieved. Overall, half the time was spent coring and the other half was spent doing downhole measurements.

The primary objective of the leg was to determine more about the processes of fluid flow in an active accretionary prism. The secondary objective was to try to find out what happens to fluids in an accretionary environment and to understand why BSRs were so common in this environment.

B. Sites

Four sites were drilled, 888 was a reference hole in the Cascadia basin, 889 was drilled in a zone of diffuse flow, 891 & 2 were drilled in fault zones where active venting was indicated.

1) 888:

This was a reference hole to determine a porosity - depth curve for balancing the water budget for sediments moving into the accretionary prism.

2) 889

This hole was drilled on top of the accretionary prism. Results indicated the pressure in the hole was hydrostatic but that the lateral stress was three times the vertical stress. No evidence of concentrated fluid movement was found and a disseminated flow of fluid out of the sediments was hypothesized. The hole was CORKed.

3) 891

This hole was drilled off Oregon and penetrated the frontal thrust fault, which appeared to be an active aquifer with fluids moving along it. Unfortunately, no successful temperature measurements could be made at this site.

4) 892

The last hole was drilled in the Pliocene section, within deposits further up on the wedge slope. At this location an out-of-sequence thrust comes to surface and vents into a biohermal mound. Gas bubbles were observed in fluids from the vents. A prominent BSR was warped up toward the surface by the temperature anomaly related to fluid expulsion. Preliminary results have shown that fluids were migrating up from great depths and were thermogenic-hydrocarbon-bearing. Establishing a thermal gradient was possible due to the relatively good heat flow measurements that were possible.

As for the question of what was the BSR, this hole was the only one that gave any data to determine the answer. Velocity profiles constructed at this site indicate that the BSRs do not mean massive hydrates. Instead, it was concluded that they were caused by the presence of free gas beneath a hydrate layer. Evidence to support this was the negative polarity switch found in the seismic reflections of the BSR.

Packer tests were successful at 892 and permeability was determined across the fault zone. The hole was CORKed after the packer tests.

On another note, the high concentrations of H_2S encountered in drilling at this site indicated that the H_2S must be present in the gas hydrate. There was no evidence of sulfide in the thermogenic gases. The source of the sulfide was probably the seawater and was being incorporated directly into the hydrate. Samples of the hydrate were collected and results were pending.

By recovering the data from CORKs in the future, it should be possible to determine not only the permeabilities but the pressures the fluid flows were driven by. The only real shortfall of the leg was in not being able to change the CORK on the hole 857D and the CORK was unfortunately smashed while attempting to recover it in marginal weather conditions.

To conclude, Carson stressed that the cruise was a great scientific and operational success. Much was learned for future investigations in the accretionary prism environment.

Item 977, Part 5 Addenda: Update to the SSP Report

Mutter asked for the floor to clarify the issue of the SSP data bank manager position at LDGO. He wanted PCOM to know that until Brenner returns, or was replaced, LDGO was committed to filling the position with the equivalent of a full time person. He went on to say that it may not be possible to staff it with only one person on this interim basis, but there would always be enough people assigned to the job part-time to add up to a full time person. Greg Mountain and his assistant would take it up for now and LDGO was committed to keeping a full time staffing of the position.

End of Day 1; session ended at 6:15 PM ....

Thursday, December 3, 1992	8:00 AM

Item 979: 1993-1994 Planning

1. Thematic Panel Site Recommendations

In a change from past PCOM practice of having the PCOM watchdogs report on proposals before the scheduling of the FY94 program, Lewis asked the thematic panel Chairmen to make a presentation of their panel's top two or three ranked proposals from the FY94 Prospectus.

A. TECP (Appendices 19.0 - 19.1)

Moores reviewed the TECP thematic priorities for PCOM and identified the highly-ranked proposals that address these themes and were ready for drilling in FY94.

TECP ranked all of the proposals in the FY94 Prospectus, two were very highly ranked as first (Alboran Sea) and second (Mediterranean Ridges) respectively. There was a four-way tie for third) between MARK, Equatorial Atlantic Transform, and the NARM - Volcanic and Non-Volcanic proposals. Moores presented the Alboran Sea proposal as TECP's most highly-ranked and ready-to-drill candidate for FY94. Based on site survey review by SSP, TECP concluded that Mediterranean Ridges was not ready at this time and could not be recommended for FY94 drilling.

1) Alboran Sea (Appendices 19.2 - 19.13)

Moores reviewed the evolution of the Alboran Sea proposal into a drillable proposal. The FY94 Prospectus version of the proposal was combination of two earlier proposals combined through an international cooperative effort between the proponents. The proposal was succinct and very well focused on high-priority TECP thematic objectives. The Alboran Sea proposal would attempt to use the drillship to determine what the causes and controls on extension occurring within an overall collisional tectonic regime. In the Alboran Sea region it should be possible to determine if the extension that occurred there was a result of a collapsed collisional welt or if there was mantle involvement in the extension. Moores emphasized that TECP supported this proposal because it addressed a problem that had global implications and cited the Himalayan and Caribbean as regions with similar tectonic problems.

Moores outlined the scientific objectives of the Alboran Sea proposal in detail. He then went on and summarized the drilling objectives of the four proposed holes, including the water depths and depth of penetration.

Von Rad questioned the importance of hole AL-1 since it would, all by itself, encompass an entire leg of drilling. Moores explained that the target of this hole was to penetrate layer 6, the proposed synrift sequence, and was essential to the scientific objectives of the proposal. Larsen advocated that the hole should go deep into the synrift and preferably to basement to be informational. Moores agreed that this was the only site with a chance of penetrating basement. Taylor wanted to know if TECP realized that, as proposed, this was multileg program when they ranked it. Moores explained that TECP ranked both the science and drillability of the proposal; the key to the success of the program was drilling the syn-rift sediments and that meant the first two holes, AL-1 and Al-2 were top priority. TECP discussed the two leg possibility and decided the whole program could be compressed into two legs.

2) Mediterranean Ridges (Appendices 19.14 - 19.23)

Moores presented the scientific objectives of the Mediterranean Ridges proposal. Due to the high TECP interest in these objectives, TECP ranked this proposal very highly at its fall meeting and felt that it was drillable (with modification) in FY94. Subsequently, SSP modified that decision with its site survey data review in Nov.. Due to the fact that it was not ready, Moores did not discuss it any further but wanted PCOM to know that the science was highly ranked and that the proposal should be considered in FY95.

Austin was convinced that the high TECP ranking was helping proponents to get additional site surveys funded. Moores praised the proponents for their work to revise the proposal and develop it within a more global tectonic context, this definitely made it more attractive to ODP.

3) Equatorial Atlantic Transform (Appendices 19.24 - 19.35)

Moores reviewed the scientific objectives of the Equatorial Atlantic Transform proposal, TECP was very interested in this proposal because it involved the best documented and most accessible transform margin in the Atlantic. The proposal in the FY94 Prospectus was the product of collaboration between proponents from several earlier proposals that TECP had reviewed and had requested be condensed into a single proposal for drilling. The drilling strategy, including tectonic objectives, water depth, sediment thicknesses and basement penetration for all six holes were summarized.

4) MARK (Appendices 19.36 - 19.41)

Moores gave an overview of the MARK proposal. TECP agreed with LITHP that MARK remains the most well-documented MOR site. The MARK proposal had a very clearly defined drilling test to discriminate between two tectonic models, the drilling objectives were clearly designed to test the scientific hypotheses.

5) NARM Non-Volcanic II (Appendices 19.42 - 19.51)

TECP supported the objectives of both the NARM Non-Volcanic transects, both along the symmetric and the asymmetric rifted margins. Moores discussed the scientific objectives for this proposal and explained TECP's interest in the prospect of developing transoceanic balanced sections from this project.

The drilling options that TECP supported for part II of NARM Non-Volcanic drilling were:

a) complete three IAP priority sites and GAL 1,
b) complete three IAP sites and start NB4
c) go straight to NB4

TECP, by majority, favored the first option but Moores was concerned about the declining constituency for the NARM proposal within the panel. This was, in part, why NARM dropped in the TECP ranking this past year. Moores acknowledged that there had been significant improvement in other proposals in competition with NARM but he felt that PCOM's message about NARM Non-Volcanic I over the past year had also contributed to its slipping in the ranking. Austin wanted clarification about the PCOM message to TECP. Moores explained that if the objectives of part I couldn't be completed on the first leg, TECP was not sure PCOM would be able to strongly support the second leg.

Taylor brought up the question of were the sites really on conjugate sides of the passive margins? He questioned whether or not the IAP and NB sites were actually in conjugate positions. Moores replied that the DPG proposed that they were and that if the cross-sections were correct, then the sites appear to be on conjugate sides across the margin. Moores opinion was that they were as close as one could get. Discussion followed between Moores, Mutter, Taylor, Austin (who identified himself as a lead proponent on this proposal) and Larsen (who identified himself as chairman of the NARM DPG) about the scale of rift segmentation and the potential of successfully achieving the NARM objectives.

Austin concluded the discussion by asserting that the real issue was the "shelf life" of a DPG. He contended that PCOM needed to address the issue of corporate memory loss on panels leading to the declining rankings of DPG programs. If not, he felt it would lead to a short, one to two year, life span for the DPG-driven proposals. Lewis cautioned that DPG's tend to develop a life of their own and take on a greater importance in PCOM's view than they should. Austin agreed that a DPG should only be used to develop highly-ranked proposals. Larsen was also of the opinion that the NARM DPG was a victim of a loss of corporate memory because it did incorporate a large number of highly-ranked proposals and now, after a year, the NARM was losing in the rankings.

Taylor again brought up the subject of the conjugate margin drilling approach being proposed by the NARM Non-Volcanic transects. He reminded PCOM that they had discussed this issue at the Aug. meeting and concluded that the eastern Atlantic sites were located on different sides of a major transform. An extensive discussion by Taylor, Moores, Austin, Larsen and Mutter followed concerning flow lines and the tectonic reconstruction of the pre-drift and syn-rift opening of the North Atlantic region. The debated question being, were these transects on the same rift segments?

The discussion then opened up to a more general discussion of the TECP rankings for FY94 drilling. Asahiko Taira was interested in the reasons why TECP did not rank Barbados more highly since the goals and type of tectonic setting that were being investigated were within the

TECP mandates? Moores explained that the original panel consensus was that there was too much technological uncertainty in the proposal. The addition of other high quality proposals and the desire to wait for a year after the Cascadia drilling before scheduling a similar type of proposal were also factors the panel had considered.

Arculus was concerned about time estimates for AR-1 (Alboran Sea), he wondered if the total drill time the proponents cite (20 days) was from TAMU or, if not, how did they come up with them? Moores did not know where the drilling time estimates had come from. PCOM discussed the importance of the accuracy of drilling times to the success of completing the objectives in a single leg.

Fox expressed his philosophical objections to the situation that PCOM had created in the Alboran Sea case. In his view, the thematic goals that have been set for understanding processes within complex structural environments, like the Alboran Sea, need to be addressed with a multileg program. However, the review panels mandated a shortening of the Alboran program and the result was a compacted program that was forced into unrealistic estimates of drilling times in order to have any hope of beginning to find answers to these complex problems in a single leg. PCOM should be more willing to accept single proposals with a phased, multileg drilling strategy. Fox felt that these complex structural environments were on the edge of interpretability and that the strategy imposed on the development of the Alboran program was flawed.

Taylor asked why TECP had voted Alboran Sea its number-one proposal knowing that it was really two legs of drilling? Moores reiterated that TECP had ranked the science and had not scrutinized the drilling times, TECP wanted to rank science not "legs". Moores acknowledged that TECP had scrutinized the estimated drilling times at the panel meetings and that he would try to pay more attention to this in the future. At this point, Lewis asked Francis to get TAMU drilling time estimates for the Alboran sites for the afternoon discussion. In future Prospectus books, Lewis would have the JOIDES Office include independently-derived drilling times - done by the Science Operator - for all the proposals that are chosen to be in the Prospectus.

B. SGPP (Appendix 20.0)

McKenzie reviewed the SGPP spring Global Rankings and the fall rankings of the FY94 Prospectus. The SGPP overwhelmingly supported the Amazon Fan proposal as their number-one choice, the N. Barbados Ridge was ranked second.

1) Amazon Fan (Appendices 20.1 - 20.7)

McKenzie reviewed the scientific objectives of the Amazon Fan proposal. The Amazon Fan is a mud-dominated deep-sea fan that was characterized by sinuous channels in the upper, middle, and lower fan domains. She explained why the Amazon Fan was the best place to understand the evolution of the levee-channel systems in a deep-sea fan environment. In addition, the Amazon Fan offers the opportunity to investigate the relationship of fan sedimentation patterns to equatorial Atlantic glacial/inter-glacial cycles and other cycles of climate, sea level and Andean uplift. SGPP found the drilling strategy and drill site locations to be excellent and felt that the proponents had done a very good job at getting the proposal to a mature stage., it was ready to be scheduled in FY94.

Duncan wondered if there were any potential safety issues? McKenzie knew of only one, a specific debris flow unit that was targeted could have potential safety problems. Kidd noted that SSP had been concerned and requested that proponents collect extra data for safety assessment, one of those debris flow sites had been dropped so it was not a major issue any longer. McKenzie explained that the proponents had prepared for safety review and prioritized their sites, they have flexibility in their drilling to minimize the impact on their objectives and drilling strategy.

A brief discussion went on concerning the proponent's strategy to solve the stratigraphic problems of redeposition and age dating of the fan strata. This was followed by extensive discussion on the problem of separating the history of Andean uplift from the glacial history from the stratigraphy, lithology, paleontology and geochemistry of the Andean fan deposits.

PCOM wanted to know what OHP's opinion was of the paleoclimatic objectives of this proposal. Delaney indicated that OHP thought the primary, sedimentologic aims of the proposal were excellent and that the paleoclimatic goals were secondary. Therefore, OHP's thematic objectives were not directly addressed by the proposal, but that did not make it a bad proposal or take anything away from it. Bill Curry (who identified himself as a proponent for Ceara Rise) added that two days of site survey for the Amazon fan were recently completed with Roger Flood. The survey had tied seismic records in the Amazon Fan area with the Ceara Rise transect. If the drilling in the Amazon Fan deep sites were successful the two areas could be tied stratigraphically; collaboration was ongoing with the two proposals.

Coffee Break 10:08 ....

2) North Barbados (Appendices 20.8 - 20.13)

The North Barbados proposal was presented as a plan to revisit the area that was drilled on Leg 110. McKenzie explained the scientific objectives of the proposal, which would focus the previous regional work to incorporate fluid studies. McKenzie discussed the specific drilling targets for the three holes that would penetrate the décollement zone and the two additional holes that were to be sited on different parts of the accretionary prism. She also explained how the CORKing of the holes that penetrate the décollement would allow the flow history of fluids along the décollement to be monitored for a period of two years.

Fox questioned if it was necessary to oscillate between Cascadia and Barbados doing these types of drilling programs? He asked why do both; were they fundamentally different enough to justify splitting resources on studying the same thing? Taira explained that it was, that deep seated fluids containing thermogenic methane was moving along the décollement in Barbados where it (décollement) could be drilled, unlike Cascadia.

Moores reiterated that the proposal was not ranked higher than number five by TECP because of reservations about the technological feasibility, not the scientific objectives. Pyle asked how much of the success of this proposal was dependent on the CORK sensors? Keir Becker was sure that the CORK proposed in the proposal incorporated thermistor strings that exist now. Pyle still questioned if these would work for years in a borehole. Lewis thought that the primary worry was that the pressure in the drill hole could pop the CORK out. He cited a letter from Greg Moore indicating that this would not be a problem and Lewis concluded that the proponents were aware of these technological questions and had addressed them thoroughly. Francis agreed and suggested instead that the limiting factor in the success of the CORKing was the quality of the cementing within a cased reentry hole.

Duncan was interested in SGPP's feeling about the results of Cascadia and how they might be incorporated in the Barbados drilling program. McKenzie was not sure there would be many changes made in the Barbados program as a consequence of the Cascadia program result; Barbados was a specific study of fluid flow along the décollement. Lewis agreed, Cascadia only penetrated thrust faults within the accretionary wedge and did not even approach the décollement. Taylor pointed out that one of the proponents, Moore (Casey) was on Cascadia and therefore, the results of Cascadia were implicitly incorporated into the Barbados proposal.

Austin reminded PCOM about the additional financial commitment that came along with the CORKing program. Francis cited a cost of approximately $50,000 for each CORK. Becker clarified that the cost of sensor strings would also be added, in addition to the CORKs, however, the additional money for the CORKing program comes partly from Canada and NSF (pending).

3) Mediterranean Sapropels (Appendix 20.14)

McKenzie gave an overview of the scientific objectives, drilling targets and sampling strategy of the Mediterranean Sapropels proposal, ranked third by SGPP. She explained that the original proposal had primarily geochemical objectives. SGPP encouraged this proposal to be expanded into a more geological proposal. However, the present proposal had added the geology at the expense of some of the geochemical objectives that SGPP was originally attracted to. At SGPP's direction, the proposal was being revised again with additional international input and SGPP expected that it would move up in the rankings next year.

Austin was not sure that the drill ship was needed to do this proposal, he asked if a piston coring program would work to begin the study? McKenzie replied that there were piston cores that have been studied and were found to be inconclusive; there were many different models that need to be tested and a complete Plio-Pleistocene section was required to get sufficient resolution.

Mutter wondered what the argument was for such a broad geographic sampling strategy in the Mediterranean basin? McKenzie answered that it was to be a "transect" approach, the complex segmentation and topography of the Mediterranean made it necessary to study several locations across the eastern and western Mediterranean.

C. OHP (Appendices 21.0 - 21.1)

The 1992 spring Global Rankings of OHP were reviewed by Delaney, Ceara Rise ranked first and the NAAG-II second.

In the fall OHP rankings of FY94 Prospectus proposals Ceara Rise again ranked number-one, Mediterranean Sapropels ranked second. Delaney wanted PCOM to know that the ranking of the Mediterranean Sapropels proposal was controversial within OHP and it was considered to have deficiencies since OHP wanted to encourage proponents to develop it into a more effective OHP proposal. OHP did not like the choice of this proposal for the FY94 Prospectus and its presence there caused controversy. The remaining proposals in the Prospectus were considered of secondary interest to OHP objective.

1) Discussion of the OHP Review of Mediterranean Sapropels (#2 Ranking) (Appendices 21.2 - 21.6)

Delaney reviewed the history and scientific objectives of the Mediterranean Sapropels proposal and outlined the drilling strategy that the proponents had developed. OHP's opinion was that the proposal had good science objectives and good proponents but was not yet a mature drilling program, also noting the site survey deficiencies determined by SSP.

Kidd clarified why SSP recommended inclusion of the Mediterranean Sapropels proposal into the prospectus. SSP had originally felt that there was data in existence to complete the required site survey package and advised proponents on how to acquire it. Unfortunately, Kidd explained, the proponents had consistently ignored SSP suggestions. Proponents made attempts to begin assembling the data but did not come close to completing it by Nov.. SSP believed that the proposal should be much more mature by next year, it just hadn't come along as fast as planned.

2) Ceara Rise (Appendices 21.7 - 21.15)

Delaney stressed that the Ceara Rise was the number-one ranked OHP proposal and it addressed important OHP thematic objectives. The proposal was originally solicited by OHP as part of the Neogene depth transect strategy plan. Delaney described the OHP-type of transect drilling strategy designed by the proponents for the Ceara Rise. OHP supported the proposal as a full leg of drilling and was not interested in developing it into a basement proposal, as had been suggested in some earlier rounds of review and by PCOM. NSF had funded a *Ewing* site survey cruise for Aug. - Sept. 1992.

Austin wanted clarification of the differences between the Leg 138 and Leg 145 transect drilling strategy and the proposed Ceara Rise strategy. Delaney indicated that the main reason for the different drilling strategies was the difference in water masses and oceanographic circulation history between the equatorial Atlantic and the Pacific.

Larsen questioned why OHP did not rank NARM more highly, given that it would also be drilling in an oceanic gateway? Delaney agreed that NARM includes some sites in the north Atlantic gateway area but the site selections for NARM were determined by different thematic priorities, particularly for holes to basement.

D. LITHP (Appendices 22.0 - 22.1)

Humphris went over the results of LITHP's spring Global Ranking for 1992. The proposal to return to 504B ranked first, followed by Hess Deep, MARK, TAG and 735B.

In the 1992 fall LITHP rankings of FY94 Prospectus proposals the top two proposals were MARK and TAG, both of primary thematic interest to LITHP. The third proposal in the rankings was the NARM Volcanic II proposal, LITHP recommended that if sites 1 and 2 were completed on the first leg, then drilling should commence on the Voring margin; otherwise, the 1 and 2 sites should be finished and the 3 and 4 sites drilled with the remaining time. When the possibility of a DCS test came up for the FY94 schedule, LITHP strongly supported the Vema site (VE-3) for the DCS engineering test.

1) Vema Site VE-3 (Appendices 22.2 - 22.5)

Humphris began by presenting LITHP's recommended site for conducting a DCS engineering test, LITHP considered it a much less hostile test for the DCS than the EPR. Humphris went on to describe the location and scientific reasons for the drilling at the proposed site. LITHP felt it would be a good test site because the hole would be sited on a transverse ridge of the Vema Fracture Zone that was capped by limestone. The objective would be to drill through the limestone and into the igneous basement. Data from this drilling would be used to constrain the vertical tectonic history of the ridge and the nature of the oceanic crust at the Vema transverse ridge.

Francis was concerned that the 600 m water depth was too shallow for DCS operations and wanted to know if there were any deeper water sites at Vema. Austin pointed out the bathymetric relief in the area and asserted that there would be a wide range of water depths available in the area. Francis wanted to make sure that PCOM selected a site that would better optimize the engineering operations for DCS testing, the recommended range of water depth was 1500 - 2000 m.

Discussion continued on about the need to combine the needed of the engineering tests with the desire to get something of scientific value from the drilling. Sparks reiterated the TEDCOM recommendation that the site be near land for access to expertise ashore if needed. Dan Reudelhuber added that another concern for the engineers was the weather factor, they want to avoid areas of poor weather conditions and wave-generated heave.

Francis presented an alternative site for the DCS test at DSDP hole 392. Austin brought up the fact that site had tremendous current problems caused by the Gulf Stream and would not be a good place for drilling this type of site. Francis conceded that the currents would be a problem and perhaps a better site could be found.

Lunch Break 12:30 - 1:15 ....

2) MARK Drilling Program (Appendices 22.6 - 22. 13)

MARK was ranked the number-one drilling proposal by LITHP in its fall rankings. Humphris explained how MARK fit into the LITHP goals of obtaining long, continuous sections of lower crust and upper mantle from both slow and fast spreading ridges. She described the geographic and tectonic setting of the two drill sites in the MARK area. LITHP was strongly in support of this proposal because the MARK drilling strategy should provide a test of the two end-member models that have been proposed for the MARK area (high magma budget vs. low magma budget) and addressed high thematic priorities of LITHP.

Sager asked if LITHP anticipated any technical problems with drilling? Humphris was sure that there would not be any and cited hole 735B which was very successful; in addition, sites 670 drilled 95 m of peridotite without a guidebase, peridotite was also drilled on Leg 103 (Galicia)

Larsen wanted further explanation of how drilling would distinguish between the proposed end-member models? Humphris presented two alternative stratigraphies that would be predicted by each model.

3) TAG (Appendices 22.14 - 22. 20)

Humphris identified herself as a proponent on the TAG proposal and then presented the scientific objectives and drilling strategy for the TAG drilling program. TAG addressed high LITHP priorities for studies of hydrothermal circulation and fluid flow at MORs. Humphris went on to defend why LITHP anticipated that drilling this type of deposit would be technically feasible, proposing that the age of the deposit made recrystallization likely so that the mound would be drillable with existing equipment.

Humphris also wanted to clarify LITHP's position on the issue of pre-drilling instrumentation of the hydrothermal system, an issue that arose as a result of John Delaney's presentation on RIDGE and InterRIDGE programs to PCOM in Aug.. She stressed that LITHP strongly supported the instrumentation of the TAG drill holes, but did not want to see drilling delayed. LITHP hoped that interested groups could be informed as soon as possible if TAG was scheduled so that active experiments could be planned to utilize the drilling. LITHP was aware that RIDGE and InterRIDGE was interested in setting up a monitoring program for TAG.

Arculus questioned how much time RIDGE and InterRIDGE would need to instrument the TAG site before ODP perturbs the system? Humphris felt that some relatively simple things could be done at present, however the RIDGE and InterRIDGE programs would not want to delay drilling. Fox went on to explain that instrumenting TAG was not an easy hydrological experiment, the entire mound was too large for monitoring. He felt that if TAG were scheduled it would provide energy and emphasis for the initiation of activities that were feasible at this time.

Mutter wanted to know more specifically what Fox's estimate was of what would be done if PCOM scheduled TAG? Fox replied that this had been discussed at the RIDGE steering committee and this was where Delaney moderated his position regarding drilling hydrothermal mounds. This, Fox went on to explain, was because it was not clear could be done do to monitor mounds beyond simple experiments in the plume with flowmeters in the vents, etc., RIDGE couldn't be more specific as to what could be done in this situation. Fox emphasized that RIDGE did not want to delay opportunities to learn about the stratigraphy of these deposits and recognized that a balance had to be struck between timeliness and being ready to do "everything" (i.e.. flux experiments). If scheduled, RIDGE had been tasked to develop possibilities for experiments that could be put in place prior to drilling.

Taira reported that JAMSTEC and WHOI would dive on the TAG mound in 1994 as part of the InterRIDGE program. Kidd commented that site survey data clearly existed, although SSP was dismayed over the proponent's tardy responses. He noted that there would be three American cruises, a British cruise and the joint JAMSTEC/WHOI InterRIDGE cruise going to the area in the near future. Humphris added that *Alvin* would be completing three diving programs in the TAG/Snakepit area, she felt there were possibilities that TAG-related activities could be added on to those cruises.

2. DCS Engineering Leg Objectives

Dan Reudelhuber began by thanking the panels and PCOM for their support of DCS.

A. DCS - Present Status (Appendix 23.0)

1) Summary

Reudelhuber announced that the final report for the DCS controller redesign was due to come out on Dec. 2, 1992; he then went on to summarize the present status of the DCS system. Reudelhuber described the Leg 142 failure of the DCS system and explained that the cause had been determined to be a bent cylinder. On the positive side, a new control scheme/controller for the DCS heave compensation system had been designed and Reudelhuber asserted that it would yield much improved compensation. Reudelhuber reported that the DCS feed cylinders had been rebuilt and the DCS rig was in Midland, Texas at PARTECH's facility where the repair, modification, and improvements were proceeding on schedule.

2) DCS Retractable Bit (Appendix 23.1)

Reudelhuber noted that work was proceeding with DCS retractable bit technology, which would save bit trip time and maximize time available for coring when implemented. Two parties (Longyear, Christensen) had built two different designs of prototypes that work. Longyear used separate running and retrieval tools to handle bit change (separate, additional wireline runs) while the Christensen design incorporated collapsible bits in the core barrel design. TAMU had decided that it would pursue the Christensen design as the primary design for use in ODP drilling.

B. Schedule of Near-Term DCS Development (Appendix 23.2)

Reudelhuber outlined the timetable for development of the DCS in the next year. The first step was to review the final reports on the control system redesign and to choose one party to do the follow-up work on the system. The specifications/proposal package for the new software and hardware for the new controller would then be written. The modifications and repairs to the DCS rig would continue throughout Jan. and the DCS land testing was scheduled to begin during the first quarter of 1993. The land testing would consist of 45 -60 days of drilling, through several thousand meters of core in chalk and chert sequences. Testing of the Christensen prototype of the DCS retractable bits would begin in May 1993, work would also continue with the Russians for retractable bit technology development.

Austin asked if the land test would use a primary heave compensation simulation and if TAMU felt they understood this system well enough for the simulation? Reudelhuber replied that they now had a better understanding of the wave forms during ship's operation and could simulate them in the test. Based on the experiments run on the ship during Leg 146, TAMU learned that the heave compensation was not as efficient a system as they had thought and that they would need to improve its performance. TAMU was still collecting data on the primary heave compensation system but had enough to simulate the ship's residual motion.

Pyle wanted to clarify if the adoption of the retractable bit technology would be done while the land test was being done and asked whether doing this prior to successfully testing the DCS was wise? Reudelhuber explained that it made no mechanical difference to use the retractable bits. Pyle was skeptical of this and wanted to see one new technology developed at a time.

Reudelhuber assured him that if the bits didn't work the old bits would be available and that the retractable bit would be tested before going to sea.

Von Rad was interested in how TAMU would avoid another bent cylinder problem? Reudelhuber did not know exactly how the bending had occurred but TAMU had concluded that it was bent somewhere in transit from Mississippi to Houston. TAMU had constructed large shipping crates for the cylinders for future transport and when on the DCS system additional protection would be added.

1) Sea Testing Wish-List

Reudelhuber briefly listed the criteria that TAMU engineers would like to be included in the science planning for the site selection for the DCS sea test:

a) the test be scheduled no earlier than Leg 154
b) water depths be in the range of 1500-2500 m; 1500 - 2000 m was preferred
c) a location with good logistic support and within a day's sail of a port
d) at least 100 m of sediment, preferably limestone, overlying the igneous basement target

A group discussion followed concerning several possible sites off the coast of Florida, these sites were favored because of the closeness to ports of call. The merits of the Vema site were discussed in relation to the TAMU engineering requirements. It was concluded that the most important thing in site selection was the need to optimize the chances for engineering success for the DCS system.

Additional discussion addressed the problem of timing for the land and sea tests, there was general agreement that PCOM did not want the sea test to go on if the land test was not successful. This raised the possibility of a delay in the sea tests. Reudelhuber repeated that site selection should be based on science, with the engineering requirements used to site the specific hole.

Taylor felt that Vema could be made to fit the bill for science and engineering, its biggest shortfall was that it was three days from port and he wondered why this was too far? Sparks recounted that on Leg 142 a programmer was needed who was not on board; because of the distance from a port, TAMU couldn't get them on board to fix a controller problem.

The discussion continued about the advantages of using Vema for testing in types of lithologies that DCS was being developed for.

Coffee Break 3:00 PM ....

8. Leg 150

A. Review of Leg 150 Safety Issues (Appendices 24.0 - 24.6)

Francis explained TAMU's position on the Leg 150 safety review and why the shallow water sites were turned down. He began by showing examples of gas blowouts in shallow water and explaining why the *JOIDES Resolution* was vulnerable to the dangers of shallow gas. Francis discussed the oil industry standards for avoiding shallow gas pockets, the most important standard being the use of high resolution seismic data. Francis then illustrated the lack of the seismic resolution necessary to detect gas pockets in the Leg 150 site survey data.

In March 1992, PPSP recommended that the Leg 150 proponents get more high resolution seismic data to do an adequate safety review. In Oct., PPSP found that the data package for Leg 150 had very poor quality high resolution seismic lines. Unfortunately, the proponents were not able to get data that would allow PPSP to approve shallow water sites, due to the possibility of shallow gas. The sites MAT - 10, 11, 12 were approved with no problem, the sites MAT - 8A & 9 were approved as twins of COST - B-2. Francis considered this a dubious approach. Furthermore, MAT-9 and the COST well were 3 km apart. PPSP refused to consider the other Leg 150 sites due to the shallow water. The TAMU Safety Panel met with Frances after the October PPSP meeting and they were unanimously against the shallow water sites. Furthermore, TAMU engineers were nervous. So Francis decided that TAMU would deny these sites.

Mutter was concerned about timing of the PPSP decision coming so close to the scheduled date of the cruise. Francis attributed it to the short lead time between when a proposal gets scheduled and when it comes before PPSP. A discussion followed concerning when the proponents knew that there would be serious safety approval problems and if there was time for them to prepare for the review. Also at issue was whether or not there ever was a chance for the approval given the large number of PPSP members who have stated that they would not even consider approving holes sited in the shallow water.

Francis finished by outlining TAMU's conclusions on the Leg 150 safety problems:

a) The shallow water sites on the New Jersey transect were not demonstrated to be safe for drilling.

b) Hazard surveys were needed to address the shallow gas problem, interpretation of these surveys by the proponents and/or Co-Chief Scientists may not be appropriate.

c) An examination of the procedures and criteria for assessing the safety of shallow water sites needed to be undertaken before we schedule any more shallow water legs.

d) A dynamically positioned ship like *JOIDES Resolution* was safer than a jack-up rig or anchored drillship. Therefore, money was not needed for additional platforms but for adequate hazard surveys.

e) ODP could drill for scientific objectives with much less detailed seismic information than was available to industry, but our safety standards cannot be any lower than those of industry.

Taylor asked, if adequate surveys were available, would PPSP and TAMU approve drilling in 40 m of water? Francis and Ball both replied yes, they personally would be willing to consider that. Ball qualified that by saying there was a significant minority of the PPSP who would not. Austin confirmed this based on his attendance at the Oct. PPSP. some of the members of PPSP said they would never consider drilling in those water depths. Lewis disagreed and felt that in the Leg 150 case their conclusion was data dependent. Austin's opinion was that there would be some who would vote against it no matter what the data quality was. Mutter concluded that if that was true, then there was always a minority who would never go along with shelf drilling.

Taira observed that even with detailed surveys, industry still had shallow gas blowouts, he felt that this was why some people would never be in favor of an unprotected ship drilling in shallow water. Francis argued that this was also why the evaluation of risk for shallow gas should be done by qualified people, Mountain and Miller (Leg 150) were not familiar with the problem. Ball disagreed and asserted that PPSP was qualified to make that determination had sufficient data been presented.

A discussion of the drilling techniques and standards used by industry to drill in areas with potential risks for shallow gas concluded with the understanding that ODP cannot afford any mistakes; this required a high standard of safety review. Moran cautioned about using cut-off water depths for defining drilling safety. She related that Canada had been able to get Canadian safety panels to approve drill holes in very shallow water, using drilling techniques similar to ODP's. Austin wanted to know what type of requirements had to be satisfied. Moran explained high resolution seismic data with closely spaced lines and high resolution sidescan sonar; there were guidelines available to follow for approving drilling in potentially hazardous areas.

Lewis drew the discussion to a close and concluded that nobody (TAMU or PPSP) had closed the door on shallow water drilling and that the opportunity for approval of such programs still existed if the critical data requirements could be met.

B. Discussion of Options for Leg 150

1) OHP Alternatives for Leg 150 Time (Appendices 25.0 - 25.4)

Delaney summarized the changes made in the revised Leg 150 proposal and presented OHP's opinion on them. The first proposed change was to deepen MAT 11 to the depth that it was originally proposed to go. The other changes were to add new sites MAT-13 on the slope and MAT-14 on the rise.

OHP's opinion was that the revised proposal was both thematically coherent and scientifically exciting. Delaney reminded PCOM that this proposal was the prototype sea level research effort and there had been much involvement from the general community to get this project drilled.

The disadvantages of the revised proposal were that it resulted in a clear shift in the scientific emphasis away from sea level; also, the revised proposal did not address the question of how it would be integrated with the associated shore-based sea level studies. Delaney pointed out that procedurally, the revised version had not been formally reviewed by the entire thematic panel structure; nevertheless, if it had been included in the original FY94 Prospectus package it would have received favorable OHP review. The new holes still needed to undergo SSP and PPSP review and OHP was concerned that there was not enough time left for their approval.

Delaney then presented other OHP-endorsed alternatives to the NJ-MAT revision.

a) NAAG - DPG sites: Iceland-Faroe Ridge (southern Gateway) sites NIFR-1 and SIFR-1, both were part of NAAG - II, the second leg was ranked number two in the OHP global ranking.

b) High resolution late Neogene sites, reoccupation of DSDP 116, Bermuda Rise site 404.

OHP recommended that the revised New Jersey MAT sites was the best choice for Leg 150.

A general discussion followed concerning the use of the *JOIDES Resolution* as well as the possibility of other platforms for drilling in the shallow shelves. Of particular concern was the question of whether or not the science was so fundamentally compromised by ODP's not being able to drill in the shelves that it should not be pursued at all?

Arculus asked if the sea level amplitude portion of the program was lost by the decision not to drill the shelf sites, would the remaining investigation of the timing of sea level changes and its impact on stratal geometries be ranked highly? McKenzie stressed that all the drill sites would be critical, SGPP knew *JOIDES Resolution* couldn't do all of the drilling but a leg was needed for coring the deep sites; unfortunately, ODP would just be able to do less than hoped. Delaney agreed and added that OHP felt that the deep water sites were needed as an end member and that the New Jersey margin was considered to be a prime location for sea level studies.

2) SGPP Alternatives for Leg 150 Time

McKenzie summarized SGPP's response to the revised New Jersey MAT sites. Overall, the panel was positive about the added sites. MAT-13 site added dating of reflectors for tying seismic data to shelf stratigraphy. MAT-14 added investigation of the sedimentary response to sea level changes; this was a part of the sea level mandate that was not originally incorporated in the study. SGPP felt that eventually there would be a tie with shallow holes and surface exposures and it was worthwhile for ODP to go ahead with drilling at this time.

Fox pointed out that, in the proposal itself, the proponents said that they did not consider slope drilling by itself enough to constitute a sea level program. So, Fox asked, did ODP need to get the shelf holes to complete the science or, would it be better to wait a year —during that time the proponents could work on obtaining the information to see if it would ever be possible to drill these sites. Fox cautioned that ODP might drill these holes and find out later that the shallow holes could never be drilled.

Austin felt PCOM should make a philosophical commitment to sea level drilling, perhaps with a motion. Mutter added that this New Jersey program was not just the ODP drilling, land drilling was funded for New Jersey and that funding was, in part, based on the ODP commitment to the offshore holes. Taira asserted that the revised New Jersey transect would only be a semi-transect, but fundamental information could still be gained from these sites and he supported the proposal. Taylor agreed and emphasized that the SLWG had put this program in the global context, making this a spotlight issue for ODP in the world community. He stressed that sea level studies required integrating land, shelf and slope data, Leg 150 would be the best "first step" available.

Lewis called for a straw vote to see if there was consensus for the approved Leg 150 slope sites. The vote was unanimous in support of this part of Leg 150. Lewis then posed the question of what PCOM should schedule for the remaining time on the Leg 150 schedule and asked the remaining thematic panels to present options to fill out the time after the slope sites were drilled.

3) LITHP Alternatives for Leg 150 Time

Humphris presented the LITHP preferences for what to do with time remaining if no additional New Jersey MAT holes were added to Leg 150. LITHP's first choice would be to add time to Leg 148, the time would be valuable to increasing the chance of achieving the objectives in 504B on this leg. The second choice was to CORK hole 395A, this proposal was highly ranked by LITHP at their fall meeting and could be completed in 4-5 days on the transit from Lisbon to the New Jersey margin.

McKenzie reported that SGPP found the CORKing proposal to be deficient and lacking in justification when it was reviewed. Francis explained that TAMU was against adding time to the 504B leg because it would impact all of the other legs.

4) TECP Alternatives for Leg 150 Time

Moores reported that TECP was in favor of using any additional time in Leg 150 to finish the IAP transect. TECP supported this option in order to finish the first NARM Non-Volcanic leg so that the NARM Non-Volcanic drilling would be on track. Francis objected to this because of SEDCO crew rotation schedules, it would not be possible to accommodate an operational schedule like this. Austin was in favor of IAP drilling because scientific staffing could be preserved and stressed that the Co-Chiefs had already indicated that they could live with a longer leg, it was the SEDCO and the TAMU crew that would be a problem.

5) Summary of Choices for Voting

Lewis summarized the options on the table for the time remaining after drilling of the approved sites on Leg 150:

a) More time at Iberia: i.e. the Whitmarsh proposal to APC margin holes 4, 2, 3C.
b) More time at Iberia: finish the transect holes, 4, 2, 3C.
c) CORK 395A.
d) Add time to Leg 148.
e) New Mountain/Miller sites (348 - Add2).
f) NAAG sites: IFR 1, SIFR-1; Iceland Faeroe sites.

Lewis explained that the options should be judged on their scientific merit and safety would be considered after the science priority was established. The new sites proposed for the New Jersey MAT carried by majority (14 in favor, 1 abstention, 1 absent).

PCOM then discussed the necessity for a backup if these new holes did not pass the safety review. OHP favored the approach of having the proponents go to PPSP with alternate sites to provide backups that would preserve the spirit of what was voted on at this meeting. There was general consensus that this was the best approach.

Austin proposed that PCOM use the minutes, by passing a motion, that would send a strong message to the community that ODP was supporting sea level studies and shelf drilling. Lewis cautioned that it could be misleading to send a strong message if ODP's safety panels were going to say no to shelf drilling on the basis of safety. Larsen was strongly in favor of Austin's suggestion, he wanted PCOM to acknowledge the fact that shelf drilling was critical to these studies. Sager felt that PCOM could emphasize the importance of this issue by forming a working group to address the problems of shallow water drilling. Austin was mandated to prepare an appropriate motion for PCOM's consideration.

Kidd warned PCOM that this type of safety/scheduling problem would arise again, possibly next year, because there still was not enough time allotted between scheduling of legs and safety panel review. Mutter also was not satisfied that PCOM had solved the problem such that the Leg 150 situation would not happen again. Lewis advocated that PCOM identify possible sites for the 1995 schedule and put them in line for a safety preview.

Mutter agreed in principle but pointed out that the larger problem of shallow water drilling still needed to be addressed and wanted more discussion, and ultimately a decision, about whether or not PCOM should use TAMU's suggestion and convene a working group to examine the problems and possibilities for improving the ODP situation. He felt that if ODP would never be able to drill in less than 90 m of water PCOM needed to know, this fact had great budgetary impact. Lewis suggested that the PPSP, PCOM and SSP Chairs plan to form such a group and draft a mandate for this group to be presented later in the meeting. In addition, Lewis wanted PCOM to come up with a list of proposals that were likely to be scheduled next year and get them to the PPSP for preview. Kidd thought that it was a good idea so that SSP could become involved with PPSP and work on maturing these proposals in time for this preview. Taylor saw this as a long range planning activity and preferred to see it done in the spring meeting as part of the global ranking where it would be more appropriate.

Session ended for dinner and would reconvene for an evening session.

Evening session *7:00*

4. Program Scheduling for FY94

A. Summarize Status of FY94 Prospectus Proposals

Lewis began the evening session with a straw vote to summarize PCOM's position on the FY94 Prospectus proposals and if they would be placed on the FY94 schedule. The top-ranked proposal of each thematic panel and the DCS test was voted on first.

1) Ceara Rise: majority in favor

2) Amazon Fan: majority in favor

3) DCS test - Vema: majority in favor if it was ready

4) Alboran Sea: consensus that this proposal needed to be discussed

5) MARK: majority in favor

Lewis felt that four sites that passed by majority should constitute most of the FY94 schedule, the remaining time slots in the schedule would come from the second-ranked programs and called for a straw vote on those.

6) Barbados majority in favor

7) TAG majority in favor

8) Mediterranean Ridges majority against, not ready

9) Equatorial, Atlantic majority in favor

10) NARM II Non-Volcanic majority in favor

11) NARM II Volcanic majority in favor

Lewis summarized that these sites, along with Alboran Sea, would need to be discussed to determine which make the final FY94 schedule.

B. Alboran Sea Discussion

A discussion session about the drilling objectives of the Alboran Sea proposal followed. Of particular concern were the TAMU time estimates:

AL-1	49 days	R/E site 3500 MBSF
AL-2	13/16 days	FFF/Cased R/E
AL-3	15 + 2 = 17 days	
AL-4	23 days	

PCOM felt that, based on these estimates, the Alboran Sea drilling would require two legs, particularly since the AL-1 hole would use up an entire leg of drilling. This hole was seen as crucial to the Alboran Sea program because the whole history of subsidence and rifting was found in AL-1. Options for accommodating the Alboran Sea drilling program were discussed with the emphasis being placed on what the scientific objectives and priorities would require in terms of drilling times for various hole combinations. Concerns for safety were also brought up due to the fact these holes would be located in a known hydrocarbon province with evaporites.

Discussion concluded by trying to decide on how to advise proponents to proceed. It was recognized that the proponents had previously combined two proposals but PCOM wanted TECP to help proponents develop this proposal further by incorporating more realistic drilling times and addressing safety issues. PCOM reached a consensus to put off the Alboran Sea proposal for another year.

C. Equatorial Atlantic Transform Discussion

Austin wanted PCOM to recognize that last year this proposal had been in much the same position as the Alboran Sea proposal was this year, he felt that the proponents had taken PCOM's suggestions and revamped their proposal to do what PCOM asked. Fox was more critical and felt that the proponents were still vague as to how this drilling program would achieve their scientific objectives. Mutter agreed that the proposal posed good scientific problems but was not developed in a way that answers to these problems could be found by drilling.

PCOM discussion explored the scientific objectives of the drilling program and the interpretations of the site survey work that had been incorporated into the proposal. There was a feeling of concern expressed by several members of PCOM that this program had plateaued and still needed to evolve into a mature ODP drilling proposal. How to accomplish this was debated. PCOM suggested that TECP should become more involved with the proponents to improve the proposal, which was of high thematic interest to both TECP and PCOM.

D. TAG Discussion

Austin expressed his opinion that TAG should wait to see if the collaboration efforts could work and instrumentation of the site could be accomplished. Mutter wanted to know more about the Japanese project and whether or not monitoring efforts could be accomplished by late in FY94 and TAG could be successfully integrated with the monitoring if it was scheduled late in the year.

Discussion followed concerning the possibilities of other projects occurring in the TAG area in the upcoming year and the opportunities to cooperate with RIDGE and InterRIDGE. Goldberg added that waiting until later in the year would be better for the logging tools, by then the high temperature tools should be on line.

E. Barbados Discussion

Objectives of the Barbados drilling program were reviewed. Discussion that followed concerned potential safety problems associated with drilling high amplitude zones. Ball and Francis indicated that safety problems could be minimized and cited the 3-D seismic grid that was part of the site survey package.

F. NARM Non-Volcanic II Discussion

PCOM began by asking what the definition of the NARM Non-Volcanic II proposal was, specifically which holes and transects. Moores reiterated TECP's strong support for the conjugate margin drilling scenario, regardless of how many legs it takes. PCOM then discussed how the completion of the Iberia transect affects the second leg of the NARM Non-Volcanic program. Combinations for finishing Iberia and moving over to the Newfoundland margin were debated. Moores explained that if the Iberian transect was not completed on Leg 149, then TECP recommended that the NARM Non-Volcanic II be the completion of the Iberia transect, then moving on to Galicia. If the Iberian drilling was finished on Leg 149, then TECP wanted the NARM Non-Volcanic II to be composed of the Newfoundland Margin sites.

Discussion then returned to the issue of the tectonic significance of the conjugate margin drilling strategy and how ODP drilling would impact our understanding of the north Atlantic conjugate margin pairs. PCOM then addressed what was the proper way to schedule a multileg NARM program. Consensus was for waiting until the results of the first leg NARM Non-Volcanic leg were available before scheduling the second. Discussion then moved back to the necessity to complete Leg 149 before scheduling a NARM Non-Volcanic Leg II. In the interim, PCOM mandated TECP to address the deep drilling problem and to flag the potential safety problems on the respective margins.

The issue of the deep holes required by the NARM Non-Volcanic and Alboran Sea proposals was brought up as a side issue for PCOM to consider for future scheduling. Mutter asked for a motion to mandate TECP to make a commitment to drill a deep hole and prioritize the proposals that include such deep targets in order to provide PCOM with guidance for undertaking this type of hole.

It was also PCOM's perception that proponents, specifically in the Alboran Sea proposal, may not have been aware of deep drilling problems. PCOM continued discussion on the issue of ODP moving into drilling deep holes. Specifically, what were the impressions of proponents about realistic drilling depths and what the operator felt was appropriate information to provide proponents on depths and drilling time estimates for unusually deep holes. This brought up the subject of the responsibility of proponents to provide reasonable drilling time estimates in their proposals. PCOM favored having proponents consult directly with TAMU for this type of information.

G. NARM Volcanic II Discussion

Lewis began by asking if the NARM Volcanic II should be treated the same as the Non-Volcanic II? Duncan disagreed and felt that the drilling objectives were much more straight forward. With the logistical difficulties of scheduling two NARM legs in FY95, Duncan felt that the NARM Volcanic II should proceed in FY94.

A detailed discussion of the NARM Volcanic margin drilling strategy followed, consideration was given to the multileg approach and what the best approach to timing and order of holes should be. Larsen (identified himself as a proponent) disagreed with PCOM's assessment of the similarity between the Volcanic and Non-Volcanic drilling programs, he felt that the holes drilled on the NARM Volcanic II leg would not be changed as a result of the first leg. On a question from Fox, Larsen made it clear that detailed siting and drilling penetration on the second leg would draw on data from the first leg, but that no major changes of planned sites or swapping of sites from one margin to another margin were likely to occur.

H. Content of FY94 Schedule Summary

Lewis summarized the preceding discussions by listing the six proposals that PCOM, by consensus, favored for inclusion in the FY94 schedule (no order implied):

1) MARK
2) DCS - Vema
3) Amazon Fan
4) Ceara Rise
5) TAG
6) backup if DCS fails — Barbados

Francis brought up the fact PCOM could be losing a high-latitude weather window in favor of equatorial science. Discussion of the merits of science scheduling vs. the need for summer weather windows to drill high-latitude sites ensued.

Lewis called for a straw vote on the consensus to include these six proposal in the 1994 schedule (no order implied), eleven were in favor, two were opposed and two abstained as proponents.

5. FY95 Priorities

A) 95 Proposal Preview for PPSP

Lewis then went on to ask for suggestions of proposals that should be previewed by PPSP for potential safety problems, even though they had been passed over for FY94 scheduling. The following were discussed:

a) NAAG
b) NARM both volcanic and non-volcanic
c) Alboran
d) Mediterranean Ridges
e) Mediterranean Sapropels

Delaney objected and wanted PCOM to wait until the Spring Global rankings to make a proper proposal listing for FY95 previews. Discussion followed on if, how and when PCOM should become involved with flagging unscheduled proposals for safety previews. Discussion ended with agreement that the final schedule for FY94 would be voted on in the morning, in accordance with the agenda.

6. Shallow Water Drilling Working Group

At this time Austin reported that he had completed his task of drafting a motion and read his resolution expressing PCOM's support for sea level studies and the establishment of a working group to address the problems ODP faces in drilling on shallow shelves.

Motion - PCOM recognizes the thematic importance of the study of the history of relative sea level fluctuations (including amplitude, timing and stratigraphic response), and the central role that passive margin drilling transects plays in addressing that objective.

In order to document safe approaches for ODP drilling across continental shelves in support of the aforementioned sea level and other important passive/active margin objectives, PCOM establishes a Working Group, to consist of the PCOM, PPSP and SSP Chairs, representatives designated by the Science Operator, and necessary additional expertise. This Working Group will determine equipment, dimensions and costs of hazards surveys required by government and/or ODP regulations to rule out likelihood of hydrocarbon risks to target depths at sites on shallow shelves. This Working Group will report to PCOM at its April 1993 meeting.

Austin proposed, Larsen seconded, vote: 15 in favor, 1 absent.

End of Day 2; session ended at 9:00 PM..

Friday, December 4, 1992	8:00 AM

Item 980: Finalizing the 1993-1994 Schedule

1. Leg 150

After calling the meeting back in session, Lewis requested that PCOM vote on the Leg 150 program. Discussion followed on the wording of the motion in order to best preserve the scheduling of the Leg 150.

Motion - PCOM recommends that Leg 150 consists of sites MAT 10, 11, 12, and sites 11 (deepened), 13 and 14 as described in proposal 348 AddB. PCOM also suggests the proponents identify alternate sites for MAP 13 & 14 which would have similar thematic objectives and which could replace these sites in case of safety problems. The length of Leg 150 will be as previously scheduled.;

Taira proposed, Taylor seconded, vote: 15 in favor, 1 abstention.

2. Scheduling for 1993-1994

Taylor began by attempting to draft a consensus statement summarizing the conclusions from the previous day's discussions. PCOM discussion worked toward solidifying a science program plan for 1994 that would include a DCS engineering leg with Eastern Equatorial Atlantic proposal as a possible backup to the DCS test.

Lewis again requested that PCOM make a motion to recommend proposals that, although not included in the FY94 schedule, should undergo a preliminary safety review for the FY95 schedule. Delaney restated her objection as a thematic panel Chair and reminded PCOM that the Prospectus proposals were a specific group of proposals in the system and the spring global rankings must be considered when identifying highly-ranked proposals that have a high possibility of being scheduled in the near future. Austin acknowledged Delaney's concern and felt that PCOM needed to recognize that it cannot use words such as "tentatively scheduled" when discussing this type of safety preview process. He reminded PCOM that the four year plan included the entire Atlantic and not just the north Atlantic (FY94 Prospectus), there were likely to be many other proposals that PCOM would consider in the next few years that would be benefit by having safety preview. PCOM discussed the wording of a motion that would allow PCOM to get proposals into the safety review process without implying any favor or preference in next year's scheduling.

In reference to the final list of proposals that were being considered for the FY94 schedule, Duncan asked if PCOM wanted to send the message to DPGs that these programs must wait a year between their multileg programs. The second point he wanted to bring up for discussion was the opportunity to schedule a high latitude program in FY94. He did not want to see PCOM repeat this year's situation of having two high latitude programs scheduled in a single year, requiring late season drilling in potentially adverse weather and ice conditions. Austin agreed with Duncan's first point and saw it as a strong message from PCOM that DPGs have only a one year shelf life. Von Rad was strongly against scheduling two high latitude drilling programs in a year and did not want PCOM to do this again in FY95.

Arculus' opinion was that it was not clear why the NARM Volcanic II shouldn't be included in the FY94 schedule. A discussion of the drilling strategy proposed by the NARM Volcanic II proposal followed. Mutter made the point that PCOM had endorsed the notion of a multiple leg program but not necessarily a leg per year. Hugh Jenkyns was most impressed by the weather argument and felt PCOM's responsibility was not strictly the scientific planning, the weather factors should be given consideration. Taylor related that he had received criticism from Cascadia proponents for the weather window PCOM scheduled Leg 146 into and he felt PCOM should be sensitive to the situation, just as they had when they put Leg 152 in its present slot.

Berger brought up the possibility that the NARM Volcanic I (Leg 152) be moved into a summer 1994 slot. The possibility of rescheduling Leg 152 later in the summer of 1994 was explored as well as the consequences for the scheduling of the second leg of the NARM Volcanic program. The conclusion of the discussion was that Leg 152 should be left in its present time slot.

Arculus asked what PCOM was scheduling for, the FY94 calendar or the calendar year of 1994? Malfait explained that the contract required PCOM to schedule a minimum of one fiscal year but that PCOM could suggest further ahead, a calendar year was allowed. After discussion, there was consensus that, instead of fiscal years or calendar years, PCOM would schedule six legs.

Motion - PCOM recommends that Legs 152 through 158 include:

NARM-DPG	NARM Volcanic I (East Greenland)
388-Add	Ceara Rise
405-Rev	Amazon Fan
369-Rev2	MARK
414-Rev	North Barbados Ridge
361-Rev2	TAG Hydrothermal

There will also be an Engineering Leg to test the DCS if TAMU and TEDCOM so advise. This leg will be at Vema VE3 unless a more suitable test site can be located.

Taylor proposed, Berger seconded, vote: 14 in favor, 2 abstentions as proponents.

3. Moving Leg 152 to the Summer of 1994

Austin returned to the issue of moving the NARM Volcanic I back into the summer of 1994, he felt that this would cause an unnecessary delay in the implementation of the NARM drilling program. Larsen agreed and explained that if NARM Volcanic I stays in place results would be available before the next annual meeting next year and could be used in the scheduling process for leg II . Larsen worried that if the NARM Volcanic I was put off it would delay the next leg II by another year and perhaps beyond the present Atlantic drilling.

4. Deep Drilling Priorities

Taylor was very interested in the high TECP priorities for drilling deep holes (> 2 km BSF) through rift sequences and into the underlying basement sections in four areas: Alboran, Iberian, Galicia and Newfoundland. Given that these sites would be on the technical frontier for ODP drilling capabilities, Taylor wanted PCOM to request that TECP evaluate and prioritize the deep drilling targets. Discussion of this request followed, Taylor explained that he wanted to have thematic panel guidance for PCOM's decision-making process when these deep holes came up for scheduling. Larsen was uncomfortable with the idea of ranking holes outside of their scientific context, all deep holes were part of bigger drilling programs and shouldn't be treated separately like this. There was general agreement on this point and most members of PCOM felt that the accompanying proposals should be considered as the primary criteria for scheduling. Von Rad concluded by making the point that PCOM wanted panels and proponents to know that the scheduling of sites to test ODP's deep drilling capabilities would be an important priority in the future.

5. Flagging Potential Safety Problems for FY95

Lewis brought a draft motion to the table for PCOM's consideration, his intent was to have PCOM recommend sites that should undergo initial safety panel review in 1993. Larsen did not like the idea of PCOM flagging technical problems since it was not a technical panel. Lewis argued that this type of safety preview would only help PCOM in making future planning decisions by giving a greater degree of flexibility to the schedule and was a useful step toward avoiding another Leg-150-type safety problem. PCOM discussed how this type of procedure could be implemented and still be fair to other, highly-ranked proposals already in the system (i.e. Global Rankings) but not currently listed in the FY 94 Prospectus. A general agreement was reached that both SSP and PPSP should screen all of the top nine proposals of each panel in the spring Global Rankings for possible safety problems. Kidd suggested that the SSP Chair and the thematic panels should meet at the spring PCOM meeting to get process moving faster.

Before the break, PCOM assigned a subcommittee to put together a tentative 1993 - 1994 schedule for final discussion and vote.

Coffee Break 10:00-..

6. Finalizing the 1993 - 1994 Schedule

After break, the subcommittee presented a schedule for Legs 152 - 158.

Motion - PCOM accepts the following schedule for Legs 152 - 158:

Final Version - ODP 1993 - 1994 Schedule

Leg	Destination	Cruise Dates
152	East Greenland Margin	October 1 - Nov. 26, 1993
153	MARK	approx. December - January
154	Ceara Rise	approx. February - March
155	Amazon	approx. April - May
156	DCS-VE3	approx. June - July
157	Barbados	approx. August - September
158	TAG	approx. October - November

Mutter proposed, Austin seconded, vote: 14 in favor, 2 abstentions (as proponents).

Taylor urged PCOM to make a statement regarding the science objectives of the DCS leg. He wanted to mandate that the shallowest part of the stratigraphic section be APC'd. The coring would require less that two days and would be critical to the scientific objectives of the Vema proposal. Humphris indicated LITHP and the ODWG were in support of this request. Francis felt that this should be a request that was subject to the success of the DCS tests. PCOM discussed the relative priority between the DCS test objectives and the sciences objectives. There was general agreement that the DCS test took priority and the science should be secondary. Taylor still wanted a guarantee of at least one day for APC science operations on the Vema site. Francis indicated that TAMU would not quibble with one day, it could be worked out on site.

McKenzie observed that the Barbados proposal had been scheduled in the hurricane window for the Caribbean. Discussion on the order of scheduled proposals was reopened, consensus was quickly reached that Barbados drilling must be scheduled outside of the hurricane season. An amended schedule was proposed.

Motion - PCOM accepts the following amended schedule for Legs 152 - 158:

Final Version - ODP FY94 Schedule

Leg	Destination	Cruise Dates
152	NARM East Greenland Margin	October 1 - Nov. 26, 1993
153	MARK	approx. December - January
154	Ceara Rise	approx. February - March
155	Amazon	approx. April - May
156	Barbados	approx. June - July
157	DCS - VE3	approx. August - September
158	TAG	approx. October - November

Mutter proposed, Austin seconded, vote: 14 in favor, 2 abstentions (as proponents).

Item 981: Old Business: Continuing Issues

1. Computer RFP Evaluation Committee

A. History

Lewis, Committee Chair, quickly reviewed the issues involved in the formation of the Computer RFP Evaluation Committee set up by PCOM in Aug. 1992. He reported that the committee met in Washington D.C. on Nov. 11th to revise the RFP and define the procedure for implementing the computer system upgrade.

B. Current Status of the RFP Plan

Lewis reported that Phase A (design phase) of the plan was to put out a request for letters of intent in Dec. that called for ideas dealing with the design of the system (UNIX -based) as well as ways to improve the data input and retrieval for the present ship systems. The letters of intent were requested back by Feb., two months after issue. In Feb., TAMU would select, with advice from the RFP Evaluation Committee, two or three letters. These bidders would be given $50,000 to design a system that would meet the DHWG report requirements. Lewis explained that the design process could include a ship board transit from Panama to Lisbon; Moran offered to go along to advise on user needed that should be incorporated into any designs.

In Phase B of the plan (construction phase), TAMU and the RFP committee would choose one of the bidders, or a combination of them, who satisfied the requirements. A contract would be issued that required implementation of the system within two years or less. Lewis added that Phase C (maintenance) was also part of the plan and would require the developer to continue to upkeep, upgrade and maintain the system. Lancelot explained that the RFP committee wanted see the developer establish a long-term relationship with TAMU so that it could maintain a state-of-the-art system.

Berger wanted to know what the cost of this undertaking would be? Lewis explained that the proposal would specify the cost; however, the science operator estimates that a figure of up to $1 M would be available. Francis clarified that, depending on savings, $350-500,000 would be available this year and that in FY94, depending on the allocation of SOE funds, up to a million dollars could be available. He went on to add that these figures would not be effected by the cost of DCS deployment.

Lewis noted that one modification of this plan had occurred since the Nov. committee meeting. At the PANCH meeting there was strong support for the addition of core-log integration into the RFP, it was originally not included. Francis questioned what core-log integration would really mean for the bidders, he felt core-log integration was a scientific activity and not a systems design feature. Lewis replied that by adding the requirement in the RFP, it would focus the software developers on the objective of integrating wireline logging data into the design, if it was not done in the design stage many of the PANCH felt it would require another RFP to be accomplished.

Pyle requested PCOM feedback for advertisement of the RFP plan, JOI intended to advertise both in the US and abroad in order to attract the best possible bidders. Discussion followed concerning the methods of advertisement as well as the short reply time for the letters of intent. PCOM agreed that, because of the importance of the RFP, an effort should be made to get the requests for letters of intent out to the right people.

Becker objected to the use of such a large amount of money ($50K per study) for the design study phase. He pointed out that this money would also be useful for other projects in the RFP stage (i.e. deep drilling and in *situ pore* fluid sampling) and questioned if this was the best use of the money considering all of the other technology needs before PCOM at that moment.

Lancelot asked PCOM to replace him on the RFP evaluation committee since this would be his last PCOM meeting.

Lewis concluded his report on the RFP Plan and asked that Goldberg present his proposal for the CD-ROM issue since computer and data handling issues were being discussed.

2. CD-ROM Production

Goldberg presented an example of the directory structure used for data organization for Leg 139 data (approx. 225 Mb) with the CD-ROM (Appendix 26.0). In addition to logging data, the CD contained documentation of its contents, information such as the data formats, hole information and public domain software that could be used to manipulate the data. For each hole, the CD contained conventional and third-party tool logging data (including a key to acronyms and processing information) and specialty logs such as the dipmeter (ASCII), FMS images (PBM raster - color) and FMS data (LIS). Evaluation forms were distributed to PCOM in order to get feedback on the CD so that future CD productions would be improved.

Goldberg summarized the present status and uses of CD-ROM technology in ODP (Appendix 26.1). The use of CD-ROMs was evolving quickly, LDGO was cooperating with TAMU to be able to share the remaining space on individual CDs so that other data from a leg could put on the disk. IHP endorsed the implementation of CD-ROMs for data distribution at their Sept. meeting.

Unfortunately, Goldberg reported, funds were only available for CD-ROM production for the Leg 143 Initial Reports volume. LDGO will request $100K from JOI in FY93, two-thirds of this amount would go to cover expenses for production costs and the remaining money would be used to purchase equipment for developing self-sufficiency in production of future CDs. Therefore, Goldberg requested PCOM endorse this item as a priority for spending. He felt that a commitment of funds at this point in time was very important.

Austin was skeptical of the funds being requested for development of self-sufficiency, particularly in light of the upcoming RFP for the logging services contract. Goldberg explained that, in order to reduce costs of production in the future, it would be very beneficial for ODP to purchase the equipment necessary to make master copies of the CD-ROM.

Lancelot commented that IHP had looked into this technology for program data distribution; the present system of distributing logging data on microfiche rendered it virtually unusable so the CD-ROM was preferable. In addition, Lancelot noted, because of their size, the CDs would only be filled to about a third of their capacity so the rest could be used for other cruise data.

PCOM discussed the present data distribution situation for Initial Reports. The fact that there were presently no fiche being distributed with the IR volumes was brought up. There was strong agreement that there would be a serious data gap in distribution unless there was a commitment made to continue for the implementation of CD-ROMs. IHP had also recommended that TAMU put other types of data, that were previously put on microfiche, onto the CD-ROMs. Gibson stressed that the IHP recommendation regarding the CD -ROM production was for the implementation of a joint production that both LDGO and TAMU could use to distribute data.

Discussion followed over where data assembly and CD-ROM production should occur, at LDGO or TAMU? Gibson clarified that the scale of the logging data set sizes that needed to be assembled for mastering onto a CD was such that it was appropriate that LDGO control the CD-ROM production. Goldberg elaborated on the process of data assembly, pre-mastering, duplication and distribution that go into producing a CD-ROM.

Lancelot felt that PCOM could not decide this issue, it was JOI's responsibility to allocate money; PCOM could endorse the movement to use a CD-ROM for data distribution for each leg and them make sure that it was implemented. Pyle agreed but was constrained to fund things that were on the PCOM prioritized funding list, this item was not on that list. He also had not seen any cost estimates from TAMU concerning this issue so could not come to PCOM with a hard figure and point out exactly where it fits within the budget priorities.

3. Deep-Drilling RFP (Appendix 27.0)

Lewis brought up TEDCOM's recommendation to PCOM that the RFQ be issued by TAMU in Jan. (Appendix 27.0). Austin recommend against going ahead with the RFQ at this time and wanted PCOM to hold off until the spring meeting because the BCOM meeting would be over by then; he did not want to issue an RFQ/RFP without knowing what the money status would be next year.Mutter did not see any see logic in delaying this issue further, particularly if it didn't cost anything and felt that PCOM should endorse an RFQ with the intention of revisiting the issue in the spring after TEDCOM evaluation.

Motion - PCOM endorses TEDCOM's recommendation that an RFQ for deep drilling be issued by the Science Operator. The Science Operator and TEDCOM will review the responses and will report to PCOM in April before any financial commitments are made.

Duncan proposed, Mutter seconded, vote 14 for, 1 against, 1 abstention.

4. *In Situ* Pore-Fluid Sampling RFP

Becker requested discussion on the *In Situ* Pore-Fluid Sampling RFP. He expressed dissatisfaction with the way that this RFP was treated in light of the preceding discussion on deep drilling. He questioned the difference between committing money to an RFP for pore-fluid sampling at this time and an RFQ for deep drilling when no money was committed for either of these projects. Lewis indicated that issuing an RFP required commitment of funds, where issuing an RFQ did not. Becker wanted to know if he should recommend that the *In Situ* Pore-Fluid Sampling RFP be rewritten as an RFQ?

Discussion followed on the issue of credibility for ODP and whether PCOM should ask for quotes if they have no ability to commit funds in the future. Pyle commented that the budgetary allocation for these RFPs had not been determined and JOI was not in favor of issuing RFPs or RFQs when budgets had not been identified. Lewis concluded by saying that he recognized Becker's point about the RFP/RFQ issue and would pursue the question and report back at the April meeting.

Action - PCOM Chair will pursue the In Situ Pore-Fluid Sampling RFP and budget issue in order to report to PCOM in April.

5. Core Repository Facilities

Pyle informed PCOM that TAMU had received two separate offers from two German institutions for providing core repository facilities. TAMU had written to the two institutions and told them that JOI's recommendation to EXCOM would be that LDGO continue to provide the repository facilities for ODP. Von Rad asked for clarification about the issue, since at the Aug. meeting it was implied that LDGO would not be able to provide the facilities without significant expense to ODP; there had been a motion to request members and partners provide TAMU with information about potential facilities. Mutter explained that after the Aug. PCOM meeting, LDGO made the commitment to offer the facilities at no cost.

Lewis read the EXCOM motion concerning the matter, and noted that it called for TAMU to advise JOI on the repository location. Francis acknowledged that this had been done; he also thought PCOM should thank the German institutions for their generous offers, the only drawback of their offers was the inherently higher cost of operating another repository. Austin asserted that EXCOM could still mandate a German site in the name of program internationalization. Von Rad wanted to make PCOM aware of the great amount of effort that was put into the German offers and, as a result, there was German partner frustration with this decision.

Item 982: 1993 Meetings

1. PCOM Meetings

A. Spring Meeting

PCOM's spring meeting would be at Lamont-Doherty Geological Observatory, Palisades, New York on April 26 - 28, 1993.

B. Summer Meeting

PCOM's summer meeting would be at the Queensland University of Technology in Brisbane, Australia, Aug. 10 - 12, 1993. The field trip prior to the meeting was scheduled to Lady Elliot Island on the Barrier Reef.

C. Annual Meeting

Becker invited PCOM to schedule the 1993 Annual meeting in Miami. PCOM agreed and decided on the dates of Nov. 30 - Dec. 3, 1993; the PANCH meeting would precede the PCOM meeting on Nov. 29.

2. Future JOIDES/ODP Meetings

PCOM reviewed the JOIDES meeting schedule for 1993.

3. PCOM Membership and Liaison Work in 1994

PCOM then moved ahead in the agenda to address the PCOM membership and liaisons for 1994. Liaison assignments were reviewed (see table). Becker noted that he could go to the DMP meeting but would be out to sea and could not report back to PCOM in April. Katherine Mevel would be the new French PCOM member and was designated as the new LITHP liaison, replacing Malpas. Kiyoshi Suyehiro would be the new Japanese PCOM member and was designated as a liaison to DMP. Kidd would be the new UK PCOM member and would be the SGPP liaison. Berger was designated as PCOM liaison to the fall OHP meeting in Bremen.

	EXCOM	LITHP	OHP	SGPP	TECP	DMP	IHP	PPSP	SMP	SSP	TEDCOM
J. Austin											*
K. Becker						*					
W. Berger				*							
H. Dick										*	
J. Fox									*		
R. Kidd				*						*	
H.C. Larsen					*						
B. Lewis	*							*			
J. Malpas											
C. Mevel		*									
A. Mix			*								
J. Mutter		*									
K. Suyehiro						*					
B. Taylor					*						
U. von Rad				*							
W. Sager							*				

Lunch Break 12:30-1:15 ....

Item 983: Membership Actions

1. Panels and Panel Chairs

A. Russian Membership

Pyle explained the "inactive" status of the Russian membership. As inactive members, the Russians would continue to get the *JOIDES Journal*, be allowed to attend meetings (if they want to come at their own expense) and receive PCOM and EXCOM minutes (but not from any other panels). The Russians would no longer be invited to the meetings or allowed on the drillship.

Bill Collins presented current JOIDES panel membership and explained what changes, if any, required PCOM approval.

B. EXCOM

Recent EXCOM membership changes were noted.

C. TEDCOM

TEDCOM requested Duke Zinkrauf be added to the panel to replace a US member who would be asked to step down due to nonattendance. PCOM encouraged TEDCOM to replace nonresponsive members.

D. LITHP

Brocher's replacement was not approved by PCOM because of the nominees' institutional affiliations, LITHP was mandated to find other suitable nominees for presentation at the April meeting.

Dave Caress (LDGO) was approved to replace McClain.

Sherman Bloomer was approved to be the next Chair of LITHP.

It was noted that John Luden was appointed to be the new Can/Aus representative.

E. OHP

Gregg Blake (UNOCAL) was approved to replace Loutit.

Mark Leckie (U. Mass.) was approved to Bralower.

It was noted that R. Gersorde was appointed to be the new German representative replacing G. Wefer one year from now, starting in 1994; Wefer stays on for the 1993 calendar year.

F. SGPP

Steve Greenlee (EPR) was approved to replace Christie-Blick.

Michael B. Underwood (U. Missouri) was approved to replace Flood.

Robert Garrison (U. California) was approved to replace. Hay.

It was noted that Finn Surlyk would become the ESF representative, McKenzie becomes a member-at-large.

It was also noted that Kay Emis would become the new German representative.

G. TECP

Richard Gordon was approved to replace Atwater.

Greg Moore was approved to replace J. C. Moore.

H. DMP

Karen Van Damme was approved to replace Gieskes.

Sondergeld rotated off DMP, a replacement would be nominated in April.

It was noted that Lysne would be taking over as panel Chair on Jan. 1, 1993.

I. IHP

Brian Huber was approved to replace Sager.

Roy Wilkens was approved to replace Moore.

It was noted that Chris Jenkins was appointed CAN-AUS representative.

J. SMP

A replacement for Richards would be nominated in April.

K. SSP

SSP requested suggestions for nominations for replacing Moore, who would leave SSP for TECP.

It was noted that Roger Scrutton was appointed UK representative.

It was also noted that Shiri Shirvastave was appointed the Can/Aus representative.

Kastens would become the SSP Chair after the Dec. PCOM Meeting.

L. PPSP

No action requested

2. Co-Chief Scientists

The following list of nominations from the panel Chairs and PCOM was submitted to TAMU - the list was presented in alphabetical order with country affiliations (not prioritized):

A. MARK:

M. Cannat France
J. Casey US
J. Karson US
D. Weiss ESF

B. TAG (LITHP)

J. Cann UK
P. Herzig Germany
S. Humphris US
G. Thompson US
M. Tivey US

C. Amazon (SGPP)

R. Flood US
E. Mutti ESF
B. Normark US
D. Piper Can/Aus
E. Ricci-Lucchi ESF
B. Showers US

D. Barbados (SGPP)

R. Hyndman Can/Aus
J. Mienert Germany
G. Moore US
R. Morin US
Y. Ogawa Japan
T. Shipley US
P. Vroljek US

E. Ceara Rise (OHP)

J. Backman ESF
B. Curry US
B. Ruddiman US
N. Shackleton UK

F. Engineering Leg

E. Bonnati ESF
K. Kastens US

3. PCOM Procedures

Von Rad voiced his criticism of the Agenda Book format and asked that it be improved for better readability. Von Rad also asked to discuss the issue of using PCOM watchdogs for the science planning, he was critical of the fact that watchdogs were not activated at the meeting. He felt that PCOM was only presented with the views of the thematic panel Chairs, who were obviously enthusiastic about their top-ranked proposals. Von Rad wanted to see more PCOM involvement in the presentation of proposals for the schedule. Larsen agreed with the point, the panel Chairs were not critical of the programs they were presenting and, as a result, PCOM did not get a balanced view of all of the pros and cons of each proposal.

Mutter preferred the panel Chair presentations, he added that the watchdogs were available to lead the discussion and should have been prepared to provide criticisms for the panel Chairs to address. Lewis explained why he modified the format; his intention was for the recommendations of the thematic panels to come right to PCOM and wanted to avoid PCOM redoing their review work.

PCOM continued to discuss the role of the PCOM watchdogs and the merits of having the panel Chairs present their panel's highly-ranked proposals. No clear consensus was reached as to what the best method for presenting the proposals would be and the issue was tabled.

Motion - PCOM endorses all personnel changes in panel membership, panel Chairs and PCOM liaisons presented at the December PCOM Meeting.

Sager proposed, Jenkyns seconded, vote: 14 in favor, 2 absent.

Coffee Break 3:00 ....

Item 984: Joint Meeting with the Advisory Structure Review Committee (ASRC)

1. Introduction

Hans Dürbaum began the joint session by reading the Terms of Reference document for the ASRC. He indicated that the time period that the ASRC was to focus on for the program was 1993 - 1998, with some limited contributions to the future beyond 1998.

2. History

Dürbaum introduced the membership and backgrounds of the ASRC, there were eight members with the pending addition of a JOIDES Office Liaison. He explained that this was the first meeting of the ASRC since it was formed by EXCOM, the ASRC attended this PCOM meeting and individual members had attended other, different JOIDES panel meetings.

3. Report Timeframe

Dürbaum gave the details of the timeframe in which the ASRC would be completing its task. By mid-Feb. they wanted a draft of their proposals for EXCOM. Dürbaum noted that the ASRC would not be reporting to EXCOM in Jan., they needed more time to complete their review.

March 1 was the target date for the ASRC proposals to be distributed to PCOM, PANCH, TAMU and JOI. Dürbaum wanted to make it clear that the ASRC would like comments and evaluations of their findings, these reviews would be due before the end of March.

March 29 - 30 would be the next ASRC meeting, the meeting would be at TAMU to provide for operator input and evaluation. In mid-May, the final ASRC report would be distributed to EXCOM for discussion at their June meeting.

After the June EXCOM meeting, EXCOM members would discuss the report with PCOM members to develop a plan to implement the ASRC recommendations in a timely fashion. In this way, Dürbaum felt that there would not be a need to form additional committees to enact possible changes.

4. Activities at the PCOM Meeting

Dürbaum explained what the ASRC purposes were at this meeting. The ASRC had attended the PANCH meeting and observed most of the PCOM meeting. The ASRC goal was to use their observations and discussions with PCOM and the PANCH to make suggestions for constructive changes in the ODP advisory structure.

5. Questions and Discussion

Dürbaum opened up the meeting to questions and discussion. Larsen asked him to describe some of the criticisms that led to the origination of the ASRC. Dürbaum explained that the general criticism was that PCOM should have more time for doing long term planning and that a different administrative committee should take care of the more day-to-day operational planning matters. To illustrate the point, Dürbaum cited the example that came up earlier in the meeting when LITHP asked for help in preparation of White Paper as well as guidance at the thematic level.

Lancelot added that this process of review started at the EXCOM level, specifically the French wanted to address the program's difficulty in conceiving the science within the program; the panels and PCOM do not do science, only groups that form outside of the program did science. He then cited the example of the COSODs which were used to assemble the long range plan. Lancelot went on to say that the French want something more "in house" to quickly develop thematic objectives, a body whose job it would be to conceive and implement the science into the program. He asserted that the panels were thematically-oriented but the specific drilling programs were developed outside of the JOIDES structure through workshops etc., which were not part of ODP. Lancelot felt that France wanted to put another committee on top of the planning structure to drive the science, from the top down. However, Lancelot favored the opposite system of science driven up from the panels into the system.

Austin asked how this type of system would be implemented without shutting off outside proposals? Austin thought that in order to create this kind of focus ODP would risk shutting out potential science when there were other ways to deal with proposal quality issues, such as having anonymous mail review, and PCOM was already interested in these types of things.

Lewis questioned when the potential changes would be implemented? Dürbaum responded that EXCOM would discuss the ASRC report with the PCOM Chair at the June meeting and changes should go into effect as soon as possible, depending on the scale of the budgetary impact. Dürbaum elaborated that if the ASRC proposal impacts the panels such that there were major changes in funding it would need to be identified as early in the budget cycle as possible.

Lewis offered to bring up the draft version of the ASRC report in the April PCOM meeting so that PCOM's feedback could go into the final draft prepared for EXCOM. Dürbaum agreed that PCOM comments would be incorporated, he also solicited individual PCOM member responses be sent to him directly by mid-May.

Mutter brought up the question of EXCOM's concern over the lack of cognizance of other large geoscience initiatives, he wondered if this issue was in the ASRC mandate? Dürbaum acknowledged that the ASRC mandate did include examining the liaisons with outside groups. He noted that the PANCH had made it clear to the ASRC that there were many panel members with joint memberships in outside groups. However, Dürbaum went on to say, had been given the impression that there was a liaison problem. Mutter took issue with this point and asked who perceived there was a problem, especially since the answer heard from most panels and groups in ODP was that there was not a liaison problem? Dürbaum conceded that the impression of the liaison situation was probably mistaken, particularly after hearing the message from the ODP community.

Item 983 - Membership *continued*

4. Working Groups

A. Offset Drilling Working Group and the Sea Level Working Group

Lewis began by recounting that all of the panels had recommended that these working groups be disbanded; he acknowledged OHP's reservation about the SLWG report. Sager commented that the general perception of a working group was that it was short-lived; his concern for both of these groups was that if the groups did not live long enough to watch over the development of the themes, who would keep the interest in the objectives alive and follow through with them to the drilling stage? Austin suggested PCOM endorse the working group reports in spirit and mandate that implementing the substance of their recommendations be transferred to the appropriate thematic panels. PCOM agreed that this should be done by the panels.

Motion - PCOM thanks and disbands both of the Sea Level and Offset Drilling Working Groups and mandates that implementing the substance of their recommendations be transferred to the thematic panels.;

Duncan proposed, Austin seconded, vote: 15 in favor, 1 absent.

Item 985: New Business

1. Von Herzen Proposal to use ODP holes

Lewis introduced this item, which had come to his attention through a letter from Von Herzen (Agenda Book p. 453). Lewis posed the question of how PCOM should deal with proposals that, if funded by NSF, require use of ODP drill holes, ship time and technical resources.

Becker brought up the possible effect deploying the proposed experiment would have on APC core recovery. Moran felt that this should have little effect on the pullout and recovery. Becker's concern was that it would impact on pullout because of gripping developed by the wait-time required for the heat flow measurement. Curry asked if it would be possible to wash around the APC. Francis answered yes, that it was always possible to do so around the APC.

Austin brought up the fact that only the SE Greenland (Leg 152) and New Jersey (Leg 150) proposals were potentially impacted and that PCOM should first discuss the Von Herzen proposal with the affected programs. If the Greenland and New Jersey proponents felt they could work with the Von Herzen project, then Austin would be in favor of supporting the work; if the project would impede science on ODP legs then he would not be in favor of supporting it. Lewis asked the PCOM how they felt the issue of the time impact during operations should be handled? Austin felt that dealing with the problems associated with the time required to complete the non-ODP experiments would be up to Co-chiefs on board, unless PCOM mandates a specific directive to them.

Duncan asked for more information on how the experiment was run on board. Becker briefly explained the measurement procedure and noted that the experiment was intended to be run in shallow water sites only. He added that the Von Herzen proposal hypothesized it was possible to use these heat flow measurements to derive paleotemperatures; they were looking for a climatic temperature signal.

Austin wanted PCOM to hear from the Co-chiefs of the impacted legs before making a recommendation. Lewis questioned the need to contact Co-chiefs. A group discussion about the necessity and intent of PCOM action on this issue at this time followed.

Taylor stressed to PCOM that the Von Herzen proposal was experimenting with collection of a new type of data that could become a routine collection on the drillship. The scope of the Von Herzen proposal potentially impacts DMP, SMP, SGPP and OHP programs. But it was a highly interesting thematic thing to do and PCOM may want to get panel input on this as well. Austin felt that PCOM could do that by asking panel Chairs to address it in their spring meetings and to get back to PCOM for the April PCOM meeting. A brief group discussion followed debating the potential impact and possible benefits to ODP objectives.

PCOM concluded the discussion by delegating Lewis to contact the Co-chiefs of the Leg 150 and 152 to find out what they thought and to report back at the April PCOM meeting.

Action - PCOM Chair to contact the Co-Chiefs of Leg 150 and Leg 152 to discuss the Von Herzen proposal with them. A report will be made at the April PCOM meeting.

Moran suggested that PCOM consider the additional impact of implementing a program like Von Herzen's; specifically, the involvement of technicians on board to support the experiment. A significant amount of technical support time would be taken away from the ODP science on board. Austin also worried that these types of non-ODP experiments could start to be invasive. He felt that the situation would, sooner or later, require a PCOM mandate about their implementation. Curry pointed out that for the Von Herzen proposal, none of the proponents would be on board and would therefore, need others to implement the experiment. Becker questioned what would happen if other scientists on board a particular cruise, who may be asked to assist with data acquisition, want to have priority for analyzing the heat flow data; do they get first choice?

2. Liaison with non-ODP Science Groups

A. InterRIDGE and RIDGE

PCOM acknowledged the letter from John Delaney (RIDGE) clarifying his position on ODP drilling in hydrothermal areas prior to instrumentation.

B. MARGINS Update (Appendices 26.0 - 26.3)

Mutter presented a brief review of the MARGIN Research Initiative in order to give PCOM a heads-up to the possibilities of becoming involved in the planning stages of science related to this program. Two workshops, the primary MARGINs activity to date, were described. MARGIN had taken a thematic approach, similar to ODP, and there would be upcoming opportunities for ODP to become involved in project development at a grass-roots level. Austin, Mutter and Taylor belonged to the steering committee and many other ODP members were involved;.

Mutter explained that the MARGIN program was interested in the initiation, evolution and destruction of continental margins. He outlined the major classes of phenomena that presented particularly enigmatic problems: a) fault stresses, b) lithosphere strength and c) vertical strain.

Taylor added that the upcoming MARGIN planning meetings would like to develop international participation at the grass roots level and ODP could be a part of that.

Item 986: Action Items:

1. SSP Recommendations

A. Proposal Review

Kidd stated SSP's position that, if the review process must remain as it was (1 year), then PCOM must flag proposals with potential safety problems in April. He urged that PCOM institute a policy of inviting proponents of flagged proposals to present data at the Aug. SSP meeting.

B. Planning

SSP also recommended that thematic panel Chairs and the SSP panel Chair report directly to PCOM at the spring meeting for purposes of ranking and identifying potential site survey problems. Kidd added that it may also be desirable to include the PPSP Chair at that time.

A discussion between PCOM and the thematic panel Chairs followed and the panel Chairs agreed to come to the PCOM meeting if necessary. The necessity of this arrangement, as well as the added expense, were debated. It was concluded that the issue of thematic panel Chair attendance was not really about safety planning but long range science planning.

As far as safety was concerned, there was a general sentiment among PCOM members that PCOM should not have to specify what the PPSP should preview in April. More discussion followed, debating what PCOM's role should be in determining which proposals undergo a safety pre-review. PCOM's desire was that the process be semi-automatic and not dependent on PCOM mandates. It was concluded that this would require the chairs of SSP, PCOM, PPSP and thematic panels work with the site survey data bank, in conjunction with the proponents, to get the necessary information. There was PCOM support for having the thematic panels flag proposals with potential safety problems in the review cycle and warn proponents to get data to address the problems early. This would get the initial warning to the proponents and could key PPSP to begin a pre-review cycle. Delaney noted that the thematic panels do not necessarily have the necessary expertise for this job to be handed over to them; there were panels which specialized in this. She did not want to see highly ranked science derailed.

Austin brought back up the issue of thematic panel Chairs coming to PCOM in April. He wanted PCOM to know that he was going to ask BCOM to increase financial support for panel Chairs to compensate them for the 2.5 months of work that they do for ODP and was against adding any more travel and work commitment to their already overburdened load. PCOM discussed with the panel Chairs how they felt that communication was going. The conclusion was that there already was good communication with panel minutes and the system worked well enough that panel Chair participation in the April meeting was not necessary.

2. Expenses for FY95

Taylor brought up expenses in order to get at least a partial listing of the potential expense items for FY95. Austin was concerned about how long ODP could realistically hang on the LRP if what JOI and NSF had said about funding was true; present and future budgets were simply unrealistic for implementing the plans. Taylor suggested the PCOM Chair schedule this as an Agenda item for the April PCOM meeting. Lewis agreed to look into working up a report for the long range planning of the major budgetary items PCOM was going to facing the next few years, with particular attention to implementing a phased budgeting approach for of expensive items in the face of a diminishing budget.

Action - PCOM Chair to prepare a report for the long range planning of the major budgetary items PCOM is going to be facing the next few years, with particular attention to implementing a phased budgeting approach for expensive items in the face of a diminishing budget.

3. Logging RFP Review

Lewis brought up the issue of PCOM input to the Wireline Logging RFP review process, he noted that JOI had included Becker as a reviewer. PCOM was in favor of JOI's including Becker on the review committee.

4. Service Panel Recommendations

Lewis took issue with the present practice of service panels making suggestions and/or recommendations to TAMU directly. He cited the example of TEDCOM meeting with TAMU and the TEDCOM recommendation that TAMU execute an RFQ, which TAMU agreed to and did. Lewis asserted that this was not the proper procedure for implementation of service panel recommendations, he wanted to make it clear that the correct procedure was for recommendations to go through PCOM and then on to JOI who in turn instruct TAMU on what to do; panels should not go directly to TAMU. Lewis felt that one way to correct this situation would be to have service panel recommendations be approved by PCOM on e-mail and then passed to JOI.

A discussion followed concerning examples of past SMP recommendations that were not implemented. The consensus was that there had been serious problems in getting service panel recommendations implemented. Lewis felt that by following the correct procedure this situation could be improved. The discussion then moved on to what the preferred method for implementing service panel recommendations through PCOM should be. Lewis proposed to take the recommendations made by the panels and take them to PCOM via e-mail for action.

The use of e-mail was discussed for implementing the procedure. There was concern about what types of problems PCOM needed to become involved in solving, many of the service panel recommendations were advice and suggestions concerning small, operational items that PCOM was not eager to become involved with. Gibson pointed out that service panel recommendations often slip through the cracks because they do not involve significant budget issues that come up at the BCOM level of planning; such routine panel concerns did not get their budgetary priority addressed in the planning process.

PCOM and service panel Chairs discussed the recent history and problems with the implementation of panel recommendations at length. Pyle suggested that this issue would be better addressed at the spring meeting and added that JOI could be better able to police problems if they were presented with the specific information about non-performance.

Discussion concluded with a plan to have PCOM liaisons report on panel suggestions and recommendations at the April meeting. There was general PCOM agreement to not change the present system of panel recommendations and continue to let the PCOM panel liaison system do the work.

5. Navigation

Taylor requested discussion about getting a PCOM consensus to reinstate navigation as a priority for equipment funding, having been mistakenly taken off the list last year. Austin replied that Lewis and he would take the message to BCOM, if PCOM was in favor. A polling of PCOM found the majority in favor.

Consensus - PCOM consensus was for a message to be taken to BCOM that real-time navigation goes back to the top of the equipment list.

6. LITHP White Paper

Lewis returned to the request from LITHP for financial support for convening a workshop to rewrite the LITHP White Paper. PCOM discussed if this was to be a mini-COSOD. The funding of the workshop expenses with money from the JOIDES structure was also debated, with the possibility for USSAC funds being discussed. There was agreement that commingled ODP money should not be used for this project. However, it was recognized that the short timetable would be a problem for the solicitation of funds from other sources.

Lancelot felt that this issue highlighted where the JOIDES panels were deficient, whenever there was a conceptual science problem within our system the panels were not able to address it, they need a workshop or some other outside mechanism to do this. He emphasized that every time ODP goes outside for advice it bypassed its own planning structure.

Pyle felt that the workshop was a good idea, but that PCOM must be prepared for all other panels to make similar requests; PCOM would have to decide if it could fund these workshops and place it on the prioritized list of items for the limited available funds.

PCOM discussed what LITHP implied by this request. Taylor's opinion was that LITHP was trying to incorporate ideas from the broadest community possible, ODP should be sensitive to the needed of the greater science community. PCOM agreed that options for outside funding might be more appropriate in this case. It was critical that PCOM not deny the request for outside participation, money was a secondary issue. Lewis pointed out that money for the program science already comes from outside the ODP structure and that there was no money within ODP itself for science, so there was always the need to get outside money for science.

Duncan made the suggestion that LITHP take the lead and publish the draft of their White Paper in *EOS*, he thought that there would be no need to have a mini-COSOD if input from a public forum could succeed as well. Pyle supported the idea of making the panels entrepreneurs in order to get funding from different agencies.

Although the idea was encouraged, the discussion concluded with a general PCOM reluctance to support the request based on the budgetary issue.

7. Third-Party Tools & DMP

The issue of whether or not PCOM should give DMP authority to approve a third-party tool was brought up for action. The specific problem, explained in detail by the DMP Chair in his report, involved a tool that would be tested just prior to Leg 148. The test schedule would make it impossible to get PCOM approval in time for the leg. PCOM approved the request, by consensus, to give DMP authority to approve the tool for Leg 148 as an exceptional case, it was not to be a continuing policy.

Consensus - PCOM consensus that PCOM give DMP authority to approve a third-party tool for the special case of Leg 148.

8. DMP Panel Member

The nomination of a person from the logging service industry (non-Schlumberger) was left to the to discretion of the DMP Chair.

9. CD-ROM

Lewis brought up the LDGO request for endorsement of the CD-ROM proposal that LDGO had submitted to JOI. Gibson reiterated the IHP recommendation for the long-term adoption of CD-ROM for data distribution. Taylor was concerned that, based on the previous presentations and discussions, PCOM did not have the entire budgetary picture from LDGO, TAMU or JOI and should not proceed to take action for a short term fix.

PCOM was concerned about the present inability of the program to publish all the leg data, specifically with the non-production of fiche. There was general agreement that the budget picture needed to be clarified in order to move ahead with CD-ROM. PCOM was still in support of its previous motion (Aug. PCOM minutes) to move toward CD-ROM data distribution.

10. PCOM Retirements

Austin wanted PCOM to end the meeting on a high note by thanking the retiring PCOM members, Lancelot, Taira, Duncan and Watkins for their service on PCOM.

Meeting adjourned

]End of Day 3; meeting adjourned at 5:00 PM..

Appendix List of Overheads and Handouts Referenced in the Minutes

Appendix List of Overheads and Handouts Referenced in the Minutes

I. STATUS OF RENEWAL ACTIVITIES

* IN AUGUST, NATIONAL SCIENCE BOARD (NSF) UNANIMOUSLY APPROVED RENEWAL OF ODP THROUGH 2003
    * APPROVED FUNDING THROUGH 1998.
* DEPARTMENT OF STATE HAS APPROVED RENEWAL MOUs - AND GRANTED NSF AUTHORITY TO NEGOTIATE AND SIGN.
    * ENDORSE COOPERATION IN OCEAN DRILLING ACTIVITIES THROUGH 2003
    * INITIAL FINANCIAL COMMITMENT THROUGH 1998
* 5 OF PRESENT ACTIVE MEMBERS COMMITTED TO RENEWAL TO 2003 WITH INITIAL FUNDING COMMITMENT THROUGH 1998.
* DISCUSSIONS ARE CONTINUING WITH FRANCE.
* FIRST RENEWAL MOU WILL BE SIGNED WITH UNITED KINGDOM ON DECEMBER 7.
* HOPE TO SIGN REMAINING MOU'S IN EARLY 1993

Appendix 1.1

II. 1993 BUDGETS

* INTERNAL NSF BUDGET IS STILL UNCERTAIN.

* TOTAL NSF - ODP FUNDING PROJECTED TO BE LEVEL WITH 1992

* JOI OPERATIONS CONTRACT APPROVED AT $43.2 M

$25.4 M IN US FUNDS
$17.8 M IN INTERNATIONAL FUNDS

III. 1994 BUDGETS

* INTERNATIONAL SUBSCRIPTION WILL INCREASE TO $2.95 M PER YEAR

* JOI WILL BE GIVEN 1994 TARGET IN EARLY JANUARY

COMPLICATIONS - NUMBER OF PARTNERS ?
- NSF BUDGET ?

IV. AS OF OCTOBER 1, RUSSIA (FSU) HAS BECOME INACTIVE IN THE ODP

PCOM - Bermuda
December 1992

- ADVISORY STRUCTURE
  - first meeting November 30
  - report to EXCOM, June 1993

- RFP FOR JOIDES OFFICE
  - 3 bids received
  - best and final offers on cost due December 11
  - decision expected before Christmas

- RFP FOR LOGGING
  - RFP mailed out
  - bids due January 15, 1993
  - potential reviewers contacted: Worthington, Lysne, Becker, Draxler, Wilkens, Sondergeld
  - PCOM suggestions?
  - decision expected mid-February; close to BCOM

- CORE REPOSITORIES
  - TAMU has recommended least-cost procedure
  - continue TAMU and LDGO through 93 - 98
  - JOI agrees and has forwarded to EXCOM members

Appendix 2.1

- evaluation committee met at JOI on November 11
- approved procedure TAMU will present

- MEGAPROJECTS OF OECD
  - Astronomy, Drilling and Global Change
  - Drilling "pre-meeting" in Brest: continental and ocean drilling
  - Continental drilling a la ODP
    - common facility - KTB rig
    - dry COSOD - Potsdam (August 30 - September 1, 1993)

- PUBLIC RELATIONS
  - short version of ODP video completed
  - consultant on museum exhibits; ASTC meeting (Ontario)
  - Report to EXCOM in January

- Budget for FY94

\$43.2M + \$1.5M =	\$44.7M Target
Year ago projection:	\$46.8M
LRP projection:	\$48.6M

Results Symposia

The Role of Antarctica in Global Climactic Change: A Conference Report on Past and Future Antarctic Drilling

By James P. Kennett and John A Barron
White paper available from JOI
A two-volume collection of papers from this meeting will be published by AGU. Volume 1 will be available at the fall AGU Meeting. Volume 2 will be available shortly thereafter.

Upwelling Systems: Evolution Since the Early Miocene

Published by the Geological Society
Edited by C.P. Summerhayes, W.L. Prell, and K.C. Emeis
Geological Society Publication No. 64

The Indian Ocean: A Synthesis of Results from the Ocean Drilling Program

Geophysical Monograph #70, Published by AGU
Edited by R. Duncan, D. Rea, R. Kidd, U. Von Rad, and J. Weissel
Available at the fall AGU Meeting

Drilling Results in Western Pacific Active Margins and Marginal Basins

January 17-21, 1993 Monterey, CA
Convened by Brian Taylor

Appendix 2.3

1993-94 Distinguished Lecturer Series

Sherman Bloomer, *Boston University*
Early Arc Volcanism and the Ophiolite Problem: Evidence from Ocean Drilling in Western Pacific Arcs and Fore-arcs.

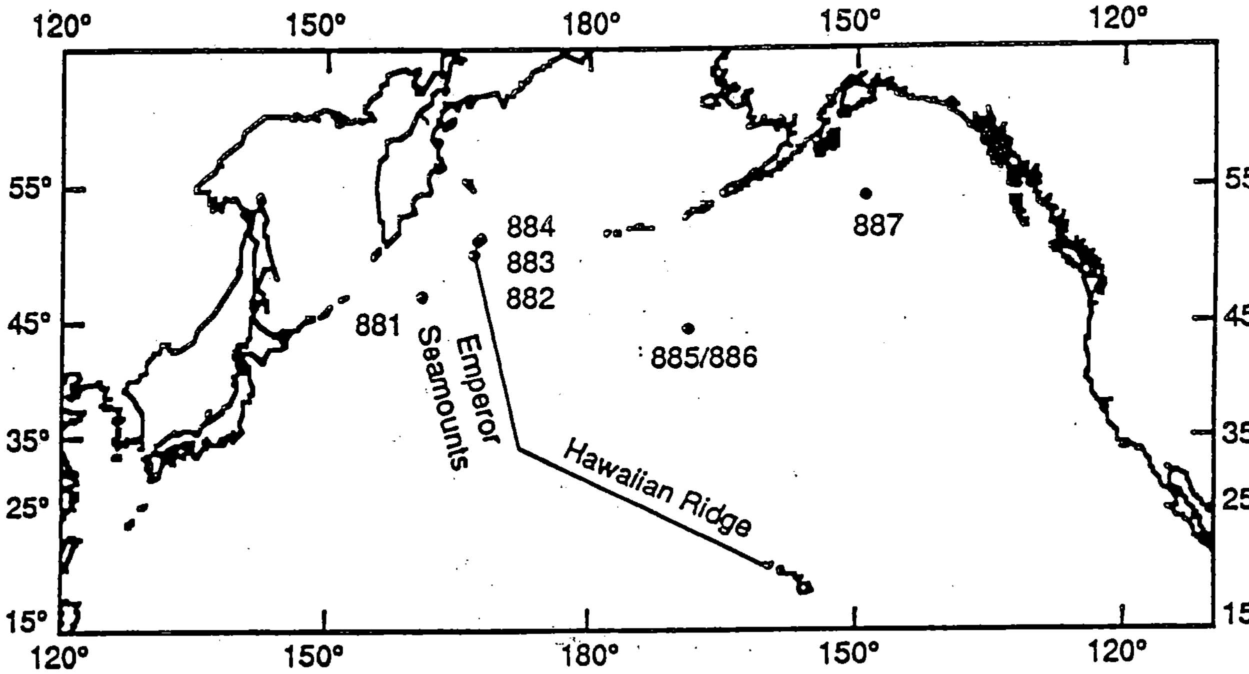
Kathryn Gillis, *Woods Hole Oceanographic Institution*
Hydrothermal Systems at Mid-Ocean Ridges: A View of the Crustal Component by Deep Sea Drilling.

Roger Larson, *University of Rhode Island*
The Mid-Cretaceous Superplume Episode and its Geological Consequences.

David Rea, *University of Michigan*
Terrigenous Sediment Delivery to the Deep Sea - A Record of Mountain Uplift, Climate Change, or Sea Level?

Brian Taylor, *University of Hawaii*
The Evolution of Volcanic Systems in Island Arcs and Back-arc Basins.

James Zachos, *University of California, Santa Cruz*
The Early Cenozoic Transition from a Greenhouse to an Icehouse World: A Deep Sea Perspective.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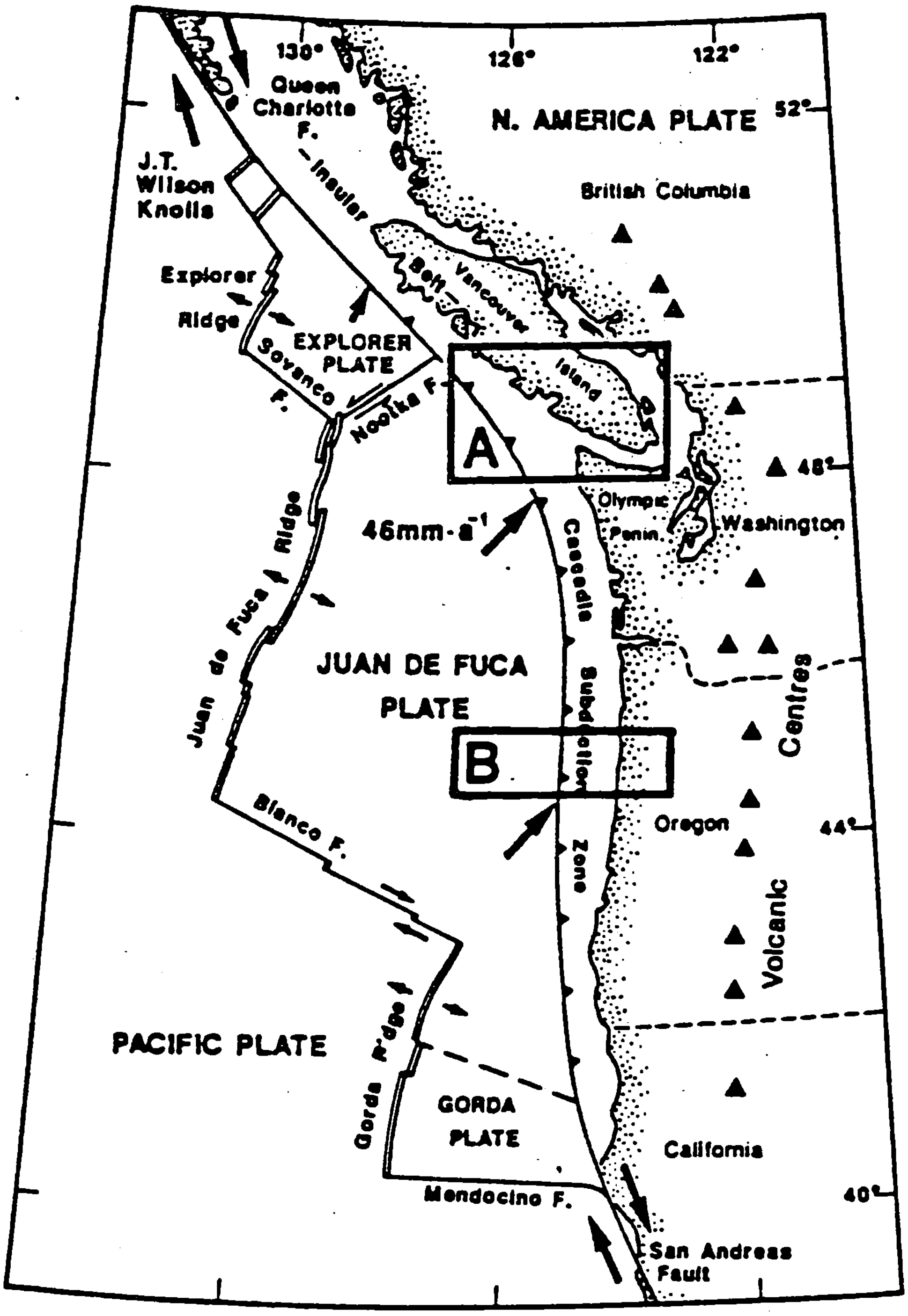
Emperor Seamounts
Hawaiian Ridge

Appendix 3.1



Map of Cascadia margin, showing the two areas of proposed drilling activity near Vancouver Island (A) and Oregon (B).

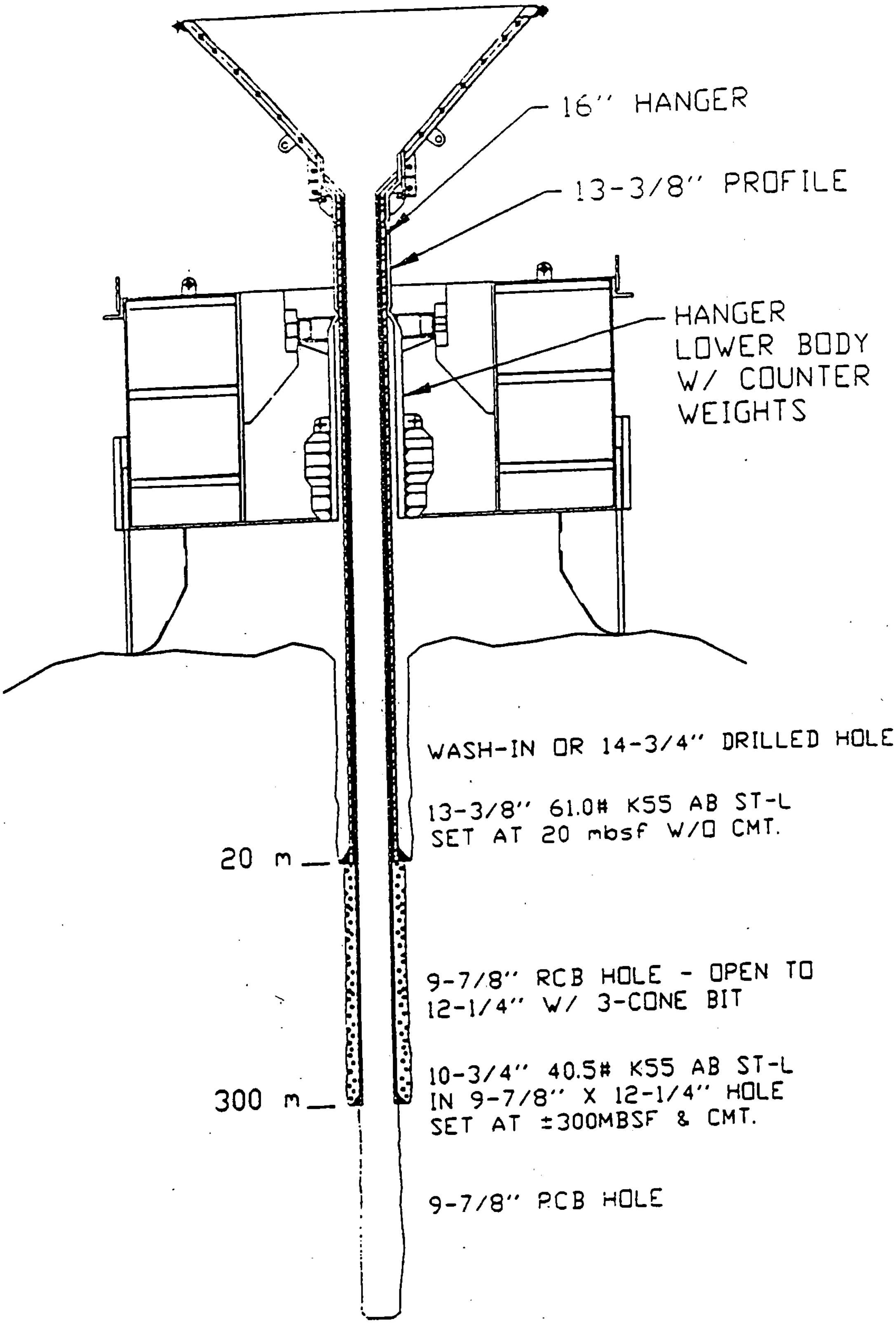


FIGURE 9

DRIL-QUIP DUAL (SPECIAL)
LEG 147 - OPTION 1

LEG 147	CO-CHIEF SCIENTISTS:	KATHRYN GILLIS (WHOI) CATHERINE MEVEL (FRANCE)
HESS DEEP	ODP STAFF SCIENTIST:	JAMIE ALLAN
	ODP OPERATIONS SUPT:	GENE POLLARD
	ODP LAB OFFICER:	BURNEY HAMLIN

PRE-CRUISE MEETING JUNE 1992, PROSPECTUS PUBLISHED AUGUST 1992

LEG 148	CO-CHIEF SCIENTISTS:	JEFFREY ALT (UNIVERSITY OF MICHIGAN) HAJIMU KINOSHITA (JAPAN)
HOLE 504B	ODP STAFF SCIENTIST:	LAURA STOKKING
	ODP OPERATIONS SUPT:	BARRY HARDING
	ODP LAB OFFICER:	BILL MILLS

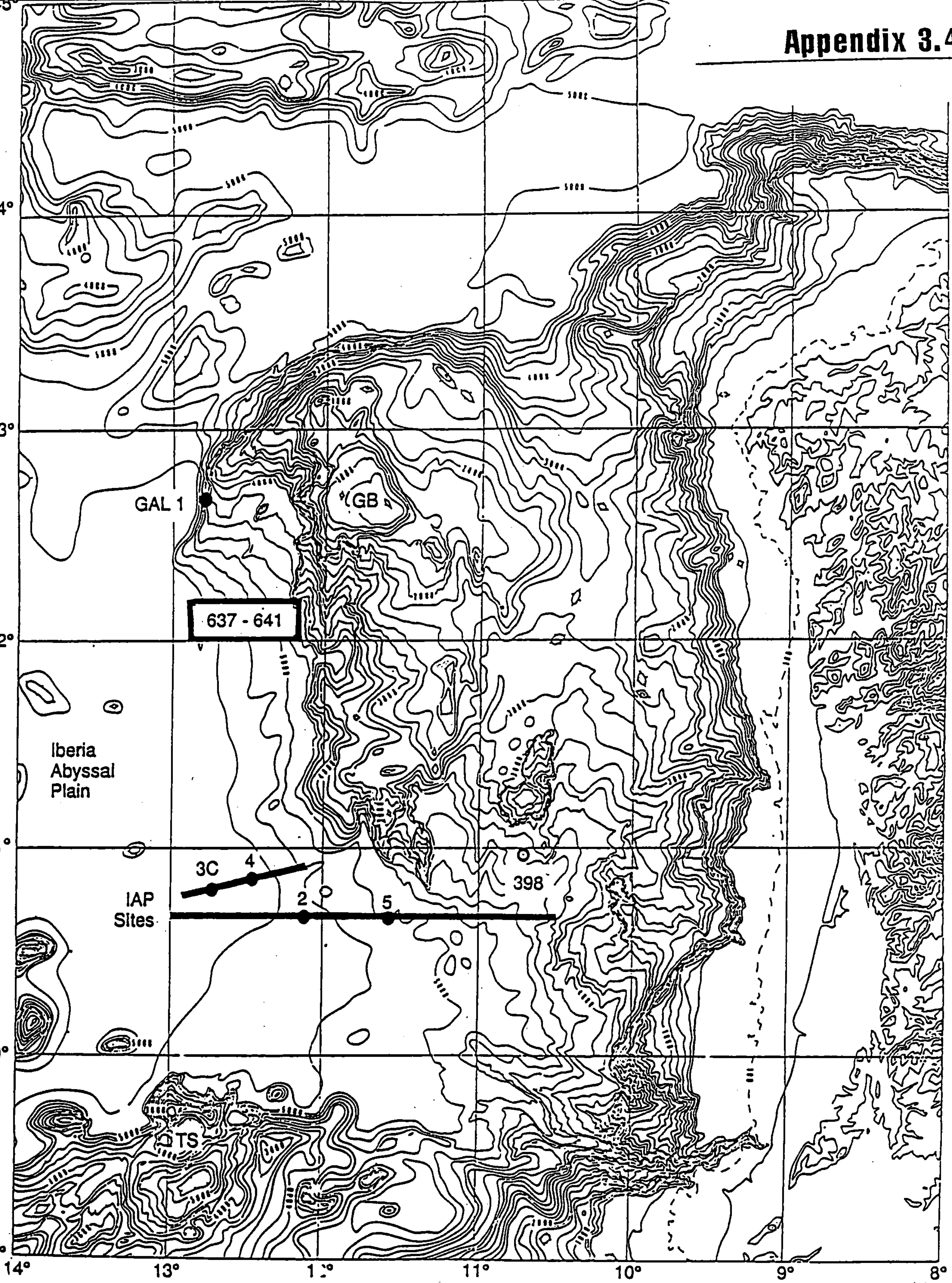
PRE-CRUISE MEETING SEPTEMBER 1992, PROSPECTUS PUBLISHED OCTOBER 1992

LEG 149	CO-CHIEF SCIENTISTS:	DALE SAWYER (RICE) BOB WHITMARSH (UK)
IBERIAN ABYSSAL PLAIN	ODP STAFF SCIENTIST:	ANDY FISHER
	ODP OPERATIONS SUPT:	GENE POLLARD
	ODP LAB OFFICER:	BRAD JULSON

PRE-CRUISE MEETING OCTOBER 1992, PROSPECTUS DUE NOVEMBER 1992

Appendix 3.3

Appendix 3.4



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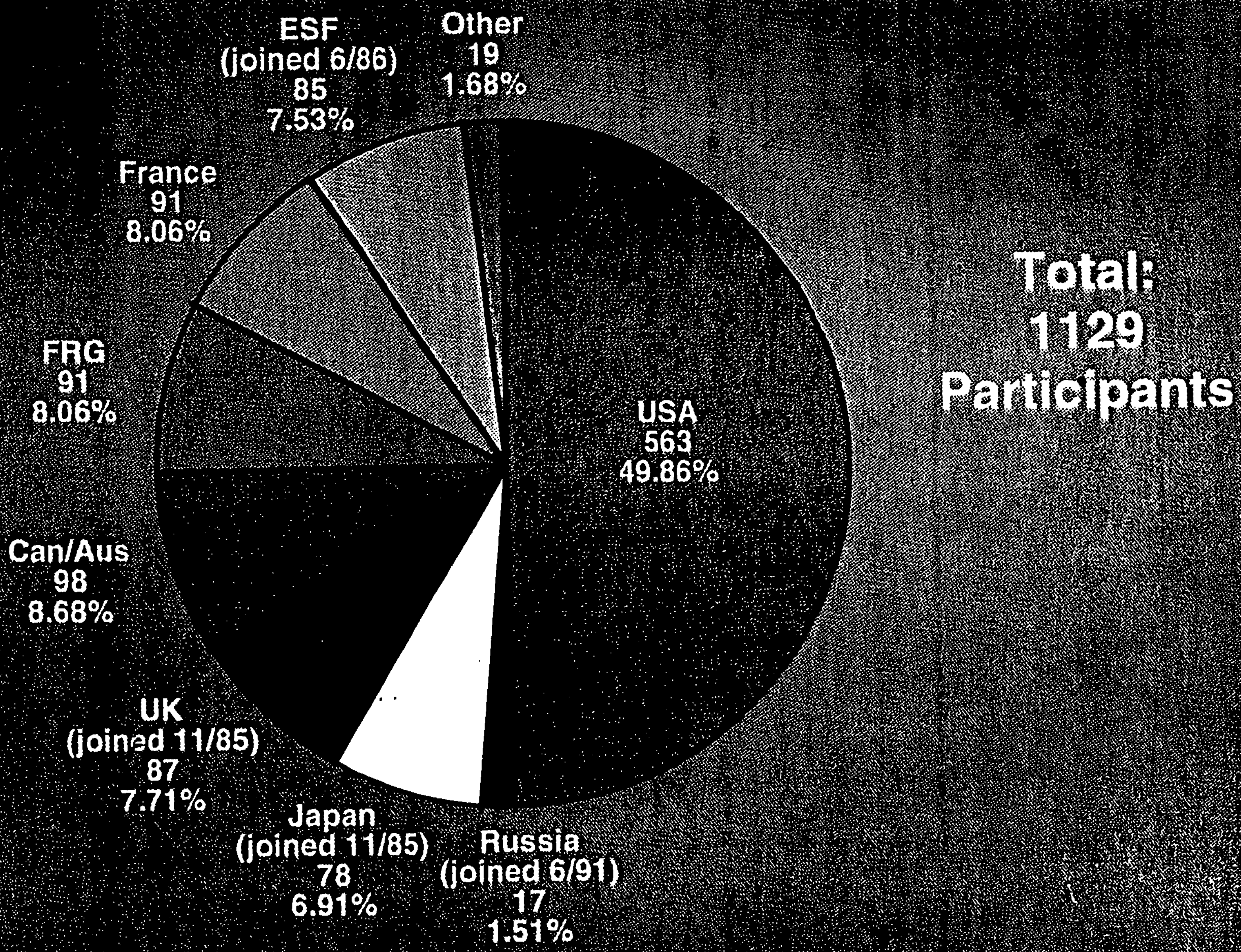
LEG 150	CO-CHIEF SCIENTISTS:	
	ODP STAFF SCIENTIST:	PETER BLUM
	ODP OPERATIONS SUPT:	GLEN FOSS
	ODP LAB OFFICER:	BURNEY HAMLIN
LEG 151	CO-CHIEF SCIENTISTS:	EYSTEIN JANSEN (NORWAY) JÖRN THIEDE (GERMANY)
ATLANTIC ARCTIC GATEWAYS	ODP STAFF SCIENTIST:	JOHN FIRTH
	ODP OPERATIONS SUPT:	DAVE HUEY
	ODP LAB OFFICER:	BILL MILLS
LEG 152	CO-CHIEF SCIENTISTS:	HANS-CHRISTIAN LARSEN (DENMARK) ANDREW SAUNDERS (UK)
EAST GREENLAND MARGIN	ODP STAFF SCIENTIST:	TO BE NAMED
	ODP OPERATIONS SUPT:	RON GROUT
	ODP LAB OFFICER:	BRAD JULSON

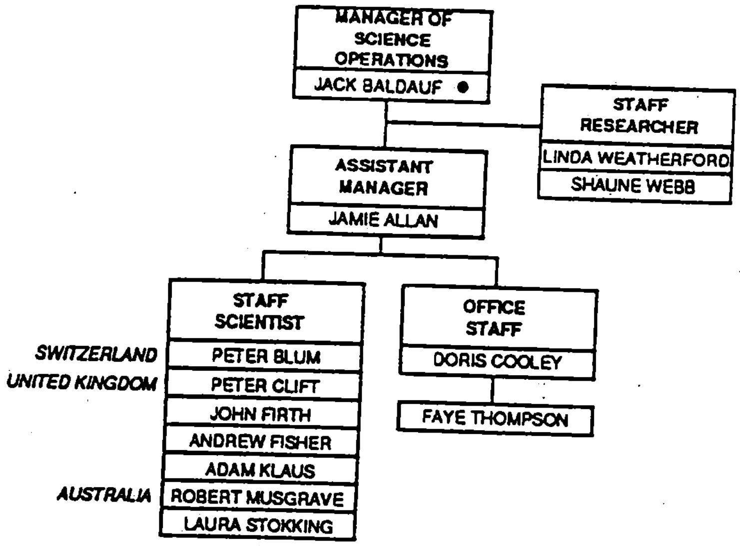
Appendix 3.5

Shipboard Participant Tally
Legs 101–146



Appendix 3.6

Appendix 3.7

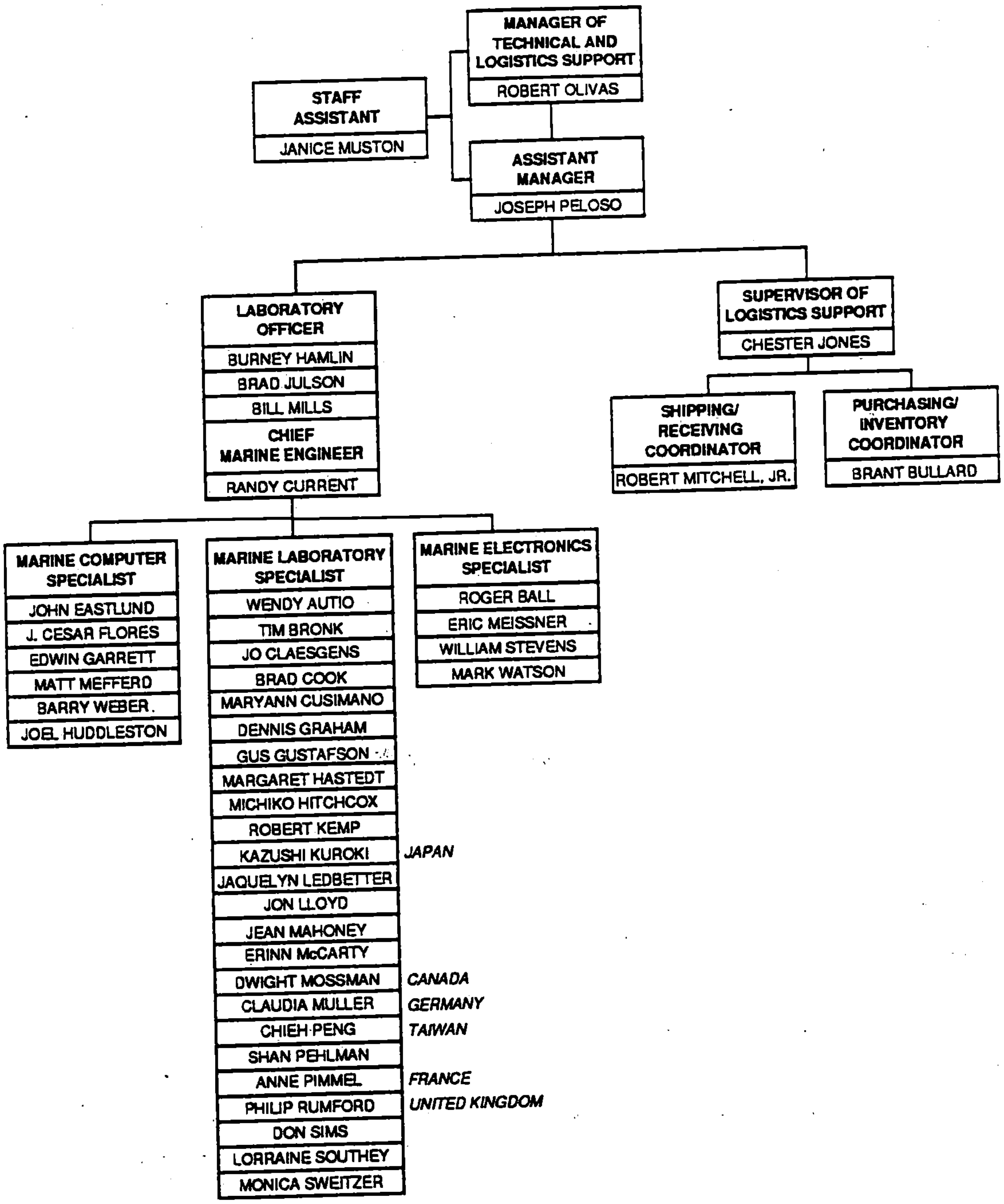


Task: **1805 Science Operations**
Subtasks: **Science Support**
Functions: Implements operational science plan under direction of JOIDES; arranges shipboard scientific staffing; upgrades ODP shipboard and shorebased laboratories as necessary; coordinates pre-and post-cruise meetings; edits scientific results of cruises;

● Salary is paid 50% by TAMU and 50% by ODP

November 1992

Appendix 3.8



Task: 1804 Technical and Logistics Support
Subtasks: Technical support, logistics support
Functions: Support services to shipboard and shore-based facilities, inventory, maintenance and records; oversees subcontractor's logistics activities; coordinates shipboard technicians.

ENT STATUS REF...

EQUIPMENT	STATUS
1. Core-Log Integration	
a. Unix-based Workstation	2 Sun SPARC 10/30's- Developing
b. Natural Gamma	In Progress- Leg 149
c. MST Upgrade	On Hold
d. Resistivity	Systems Under Evaluation on Leg 146
e. Sediment X-Ray	Installed Leg 146
2. XRF Electronics Upgrade	Leg 149 Completion
3. Real-Time Navigation/ Seismic Workstation	Under Evaluation
4. Auto Titration (Chem Lab)	Purchased from Brinkman Instruments- Install on Ship Spring 1993
5. Replacement of Chem LAN	Leg 149
6. New Dionex (Chem Lab)	Leg 149
7. Bar Code System	Writing Code- Testing
8. Color Measurement Instrument	2 Operational Minolta CM2002 32-band Spectral Analyzer/Spectrophotometers
9. Seismic Towing System	Booms under design, level winds installed, cable puller-Leg 148
A. 3 Zeiss Microscopes	2 Stereo SV-11, 4-400X (Leg 147) 1 Axioplan, 12.5-1000X (Leg 147)
B. Kappabridge	Magnetic Anisotropy- Leg 147
C. Ship PC Upgrades	486's, Macs- Leg 147
D. Universal VCR PAL, SECAM, NTSC VHS	Leg 147

Completed Distribution Dates of ODP Volumes - Fiscal Year 1992

	Initial Reports Volume	Date to Printer	Date Distributed	Months Post-Cruise	*Scientific Results* Volume	Date to Printer	Date Distributed	Months Post-Cruise
OCTOBER								
NOVEMBER					121	8-20-91	11-30-91	41
DECEMBER								
JANUARY	136/137	12-10-91	1-27-92	10/8				
FEBRUARY					122	12-19-91	2-28-92	42
MARCH	134	12-19-91	3-7-92	15				
APRIL					120	2-3-92	4-29-92	48
MAY	135	3-6-92	5-29-92	15				
JUNE								
JULY					125	4-29-92	7-29-92	39
AUGUST	139	6-25-92	8-28-92	10	123 126	4-1-92 6-5-92	8-17-92 8-4-92	45 38
SEPTEMBER	138 140	6-23-92 7-23-92	9-29-92 9-29-92	14 10	127/128	7-14-92	9-30-92	37/35

October 16, 1992

Appendix 3.10

Proposed Distribution Dates of ODP Volumes Fiscal Year 1993

	Initial Reports Volumes	Post-cruise meeting	Date to printer	Date distributed	Months post-cruise	*Scientific Results* Volumes	Review process completed	Date to printer	Date distributed	Months post-cruise
October										
November										
December	141	6-5-92	10-26-92	12-92	11	129	4-2-92	9-17-92	12-92	35
January										
February										
March	142	none	1-93	3-93	12					
April						130	10-30-92	2-93	4-93	37
May	143	10-30-92	3-93	5-93	12	131	11-15-92	3-93	5-93	35
June										
July	144	11-19-92	5-93	7-93	12					
August						133	12-15-92	6-93	8-93	34
September	145 146	2-8-93	7-93 7-93	9-93 9-93	12 10	134 132	1-1-93 January*	7-93 7-93	9-93 9-93	33 37

Initial Reports volumes are scheduled based on the IHP target date of 12 months post-cruise, unless a post-cruise meeting is set. *Scientific Results* volumes are scheduled based on the shipboard party's target date for submission of material.

Blue indicates actual date of event.
*No formal date set at this time.

28 October, 1992

Appendix 3.11

FY92-3 Wireline Logging Operations

Leg 144

- 6 holes logged (std tools w/ SES)

Leg 145

- 4 holes logged (std tools)
- French mag/suscept successful

Leg 146

- 5 holes logged (std tools)
- VSP/OSE successful

Leg 147

- std tools in single hole
- BHTV, VSP
- tool heat-testing

Leg 148

- std tools in single hole
- High-T tools: T-tool (Fr), Mag (Ger), BHTV
- VSP, packer/flowmeter
- CSU/winch replacement
- MAXIS installation

Appendix 4.1

New tools/downhole systems:

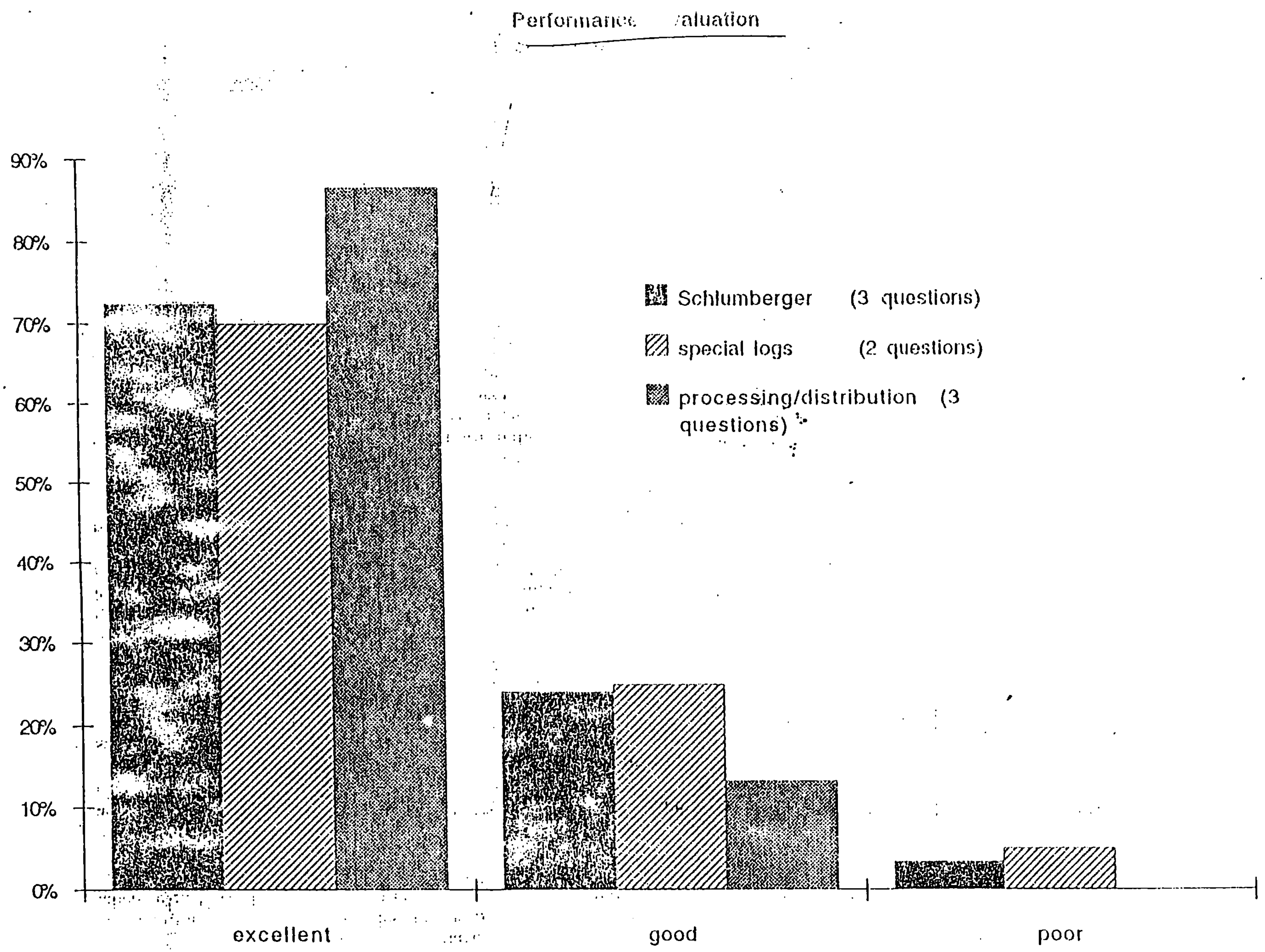
- High-T cable & T-tool -- autoclave test in Dec. Scheduled for Leg 148 (tool only).
- High-T resistivity -- 4-6 mo. manufacturing delay No Leg 148 test
- Dir. shear sonic -- Oct tests successful Modifications for land test in Dec. No Leg 148 test

Other developments:

Logging CD-ROM endorsed by IHP in Sept.
Premasters of Leg 139 prototype available from L-DGO for testing. Reply requested.
Funding available only for production of first CD-ROM (143 IR volume).

Survey/review of L-DGO operations (Legs 130-140 co-chiefs) compiled.

Personnel
Staffing LDGO loggers set through Leg 149
Chief scientist hire March-April or later



11/30/92

Appendix 4.2

NCH MEETING '92

PROPOSAL REVIEW PROCESS

Problems Identified:

- proponents did not know what was required for shallow water drilling
- proponents are not getting the data to the databank
- no lead proponent identified from DPG legs
- credibility gap (e.g., Santa Barbara & Leg 147)

Recommendations:

¥ PPSP must define data and data quality required for shallow water drilling safety assessment

¥ proponents of legs with identified safety problems must attend the Aug SSP meeting

- maintain same watchdog system in SSP , but should be assisted by thematic panel chairs
- DPG's must assign a lead proponent

Appendix 5.0

NCH MEETING '92

LESS-THAN-A-LEG (LETHAL) PROPOSALS
Recommendations

- no change from last year's recommendations: same review process as "normal" drilling proposals
- must maintain the ability to react to hot new topics, but a minimum lead time is necessary for drilling objectives similar to the Santa Barbara Basin example (must be into PPSP during their March meeting in the FY before drilling)
- SMP/IHP must define routine procedures for processing cores collected on add-on drilling sites

NCH MEETING '92

ODP SCIENTIFIC OUTPUT
Recommendation

Scientific results should be presented in the form of thematic summary volumes. PANCH agrees that these summary volumes should be a collection of results papers for specific thematic topics that have been investigated by ODP. These results papers should be prepared and presented at symposia which are organized through the existing thematic panels. One symposium per year should be organized and the summary volume published via the most appropriate (to the topic) non-profit making society.

Appendix 5.2

DIAMOND CORING SYSTEM

- DCS Commitment from thematic panels is still the same (LITHP, OHP, TECP rank it higher than SGPP)

- SGPP and SMP concerned that DCS has delayed other developments

¥ Agree with TEDCOM "plan"

¥ If the next sea trial does not recover core, development should stop

ODP Computing System

PANCH considers the shipboard computer system as central to all ODP activities. The timeframe for financial sommitment to upgrading the system suggests that substantial funds will be required in the second half of the next fiscal year.

PANCH recommends that replacement proceed as expeditiously as possible, and that steps are taken now to prepare for the financial outlay necessary as the replacement proceeds.

PANCH recommends that CORE-LOG DATA INTEGRATION be included in the computing RFP (7 for; 1 against; 1 abstain)

Appendix 5.4

CORE REPOSITORIES

- SGPP & TECP view internationalization as a positive move, but caution about having too many
- OHP majority view was maintain status quo, minority view saw some political and scientific benefit from European repository
- LITHP view to maintain geographic coherence and keep number of repositories to a minimum

¥ SMP viewed the issue as IHP's and other panels did not discuss

PANCH concensus follows IHP's recommendation:

Utilize LDGO repository for all Atlantic cores through 1996. Refrigeration is a small incremental cost and should be continued.

WORKING GROUPS

- Thank and disband Sea Level and Offset Drilling

¥ Caribbean DPG?

PANCH does not recommend a DPG at this time. Concensus is to encourage the proponents to develop improved, coordinated drilling proposals using other mechanisms (e.g. workshop following the Mediterranean example). Moores/Lewis drafted a letter to the proponents.

Appendix 5.6

DEEP DRILLING RFQ

- PANCH support proceeding with sending out the request for quotation. However, we caution PCOM that this has not been ranked against other special developments

LONG RANGE PLANNING

- PANCH agree that the ship's track should be thematically driven. Since this is still a new approach, this mechanism should be communicated to the broader user community in outside newsletters.
- To assist PCOM in long range plans, thematic panels will include a review of long term science objectives at each meeting in terms of the remaining four years and post 1998.

INTERACTION WITH GLOBAL SCIENCE PROGRAMS

PANCH agree that the interaction with other programs is very good on two fronts: (1) there are many panel members that are also representatives of other programs and (2) the panels are making a special effort to include reports from these other groups in the meetings. The following is a partial list of panel member representation in other programs:

- RIDGE
- FDSN
- ILP
- NAD
- IGBP

Appendix 5.8

SERVICE PANEL RECOMMENDATIONS TO TAMU

- Service PANCH prefer more direct link to TAMU on panel recommendations that do not have major budget implications

¥ Reccommend improvement over the existing system where there is rapid assessment of recommendations by PCOM:

options:

(1) allow non-budgetary recommendations to be directed to the operator directly and all budgetary actions go through PCOM meetings

(2) query PCOM members by internet for recommendation approval

HOUSEKEEPING

- Secretarial support to US members is extremely useful - encourage other member countries to assist their panel chairpersons with this support (1 month)

- The increase to $2500 per year is just what is costs now

- Recommend that thematic panel chairs and SSP panel chair report to directly to PCOM at the spring meeting for (1) ranking process and (2) identify any site survey problems

Appendix 5.10

TECTONICS PANEL REPORT TO PCOM

DECEMBER 1992

1. Meetings--U.S. Las Vegas

   Europe-Grenada, Spain

1. Continued practice of using meetings to view on-land equivalents of drilling targets:

   A. Pull-apart structures along Colorado River Corridor

   B. Betic Cordillera

2. Spanish ocean drilling community appreciated attention.

3. **Structure data sheet.** Applaud progress in devising it, look forward to its routine employment.

4. **Pressure Core Sampler**_Many problems on leg 14\

   Good fluid samples, difficult to maintain pressure, no full-press. measurements.

   NEED ENGINEERING COMMITTMENT: Reduce complexity,

   Enhance reliability.

   Adequate training of technicians

5. Linkage with other projects:

   Strengthen ties with continental drilling community, particularly with new technology.

   "Continental COSOD" being born, August-Sept. 93, good chance for linkup with continental drilling community

Appendix 6.1

6. High-temperature borehole instrument testing

   Do not waive testing requirements.

   Numerous on-land possibilities; Hole 504B too valuable to lose

7. Core repository:

   Strong feeling in favor of internationalization

   Minimize # of sites possibly consolidate U.S. sites?

8. Offset Drilling WG report

   Good summary of issues

   Hope will attract good new proposals

   Reservations: Inheritance of idea of "global average" oceanic crust

   Needs careful documentation of 3-D local setting.

   Adequate consideration of

   a. Tectonics of exposure

   b. Tectonics of lithosphere formation

9. Sea Level WG

   Comprehensive

   Room for melding sea-level and continental margin drilling

   Needs:

   More integral relation between epirogenic and eustatic fluctuations and mantle dynamics

   "Eustasy and epirogeny can no longer be viewed as mutually exclusive hypotheses...both arise with nearly equivalent amplitudes, but with complex phase offsets, by the same system of global convection" (Michael Gurnis, 1992)

10. Quality of proposals-up significantly.

11. Membership:

Replace Tanya Atwater: Richard Gordon, Richard Pindell, Paul Mann

Replace J. Casey Moore: Greg Moore, Steve Lewis, Mark Cloos

Appendix 6.3

WATCHDOG REPORTS

1. Translational margins--continued interest

Several proposals (323 Rev 2-Alboran, 346 Rev 3-Eq. Atlant., 376 Vema F. Z. most mature)

Other-W. I, O, Red Sea, California margin

Translational active margins, e.g. W. Aleutians, Indonesia, No. South America.

Problem of strain partitioning and its reflection in structures,

2. Plate History-magnetic

Little activity.

Proposal on crustal aging could be in area of magnetic interest

Unresolved questions: Early rifting histories
Final closure histories
Plate motions-Pacific
Cretaceous Quiet zone histories

3. Mid Ocean Ridges

20 Active MOR-TF proposals

3 types that need proposals:

"Generic"--Hess Deep II, Sed Ridges II,

OFDG Short List targets

Red Sea Drilling

Great improvement in proposal quality.

"Keep on trucking"

4. Marginal Basins and Backarc basins

   Presently quiet

   Still little understood--models: active stretching

   Passive upwelling

   active upwelling

   New stirrings-Brian Taylor

5. Convergent margins

   Never shortage of proposals

   Hydrologic-tectonic budget

   Erosion vs. accretion

   Temporal and spatial heterogeneous forearc

   Early development of arcs-Zenisu Ridge, SE. I. Ocean

   Good on-land, marine collaboration possibilities

6. Collisional margins

   7 active proposals

   Much revision in light of comments--good

   New one soon, n. of Australia

7. Rifted Margins--Much Activity

   NARM-TECP supports conjugate approach, need to ensure that transects get completed in good time.

   17 active proposals

   2 new ones anticipated--W. Woodlark Basin, Red Sea

8. Stress and Mid-plate deformation

   Paradoxical requirement--Rocks must be (1) lithified, but (2) not too strong to withstand applied stress

   Max. horizontal stress is principal focus

   Easiest to attain in compressive regions,

Appendix 6.5

Hardest in extension--therefore need deeper holes

Questions--PCB status

CORK

FMS in high-resistivity rocks with low-resistivity fluids

Hi temperature tools.

SGPP THEMATIC OBJECTIV

SEA LEVEL:	Record & Causes of Eustatic Change
SEDIMENTS:	Material Cycling & Sediment Distribution Processes
FLUIDS:	Circulation through the Crust & Geochemical Balances
METALLOGENESIS:	Control by Tectonics & Host Material
PALEOCEAN:	Fluctuations in Chemistry & Geochemical Budgets

Appendix 7.1

Appendix 7.1

Appendix 7.2

PROPOSAL REV

	Spring	Fall
Number	13	25
Category 4 or 5	8	15
Sea Level	1	1
Sediments	1	2
Fluids	3	5
Metallogenesis	1	1
Paleocean	2	4
Gas Hydrates	—	2

 Appendix 7.3

Sedimentary & Geochemical Processes Panel (SGPP)

Current Members, Their Affiliations and Specialties

1.) Alt, J.C. (USA) - crustal alteration, hydrothermalism, S isotopes
2.) Boulègue, J. (France) - hydrothermalism, sedimentary sulfide deposits, water/rock interaction, fluid geochemistry
3.) Bahr, J. (USA) - hydrogeology, fluid flow
4.) Christie-Blick, N. (USA) - sequence stratigraphy, sealevel history & ocean history, sedimentology
5.) Elderfield, H. (member at large) - hydrothermalism, marine geochemistry, fluids, diagenesis
6.) Farrimond, P. (UK) - organic (molecular) geochemistry, very early diagenesis
7.) Flood, R.D. (USA) - sedimentology, deep sea sedimentary process, sealevel & ocean history
8.) Hay, W.W. (USA) - modeling & mass balance, sediments, ocean history, marine geologist
9.) Hiscott, R.N. (Can/Aus) - physical sedimentology, general geology
10.) Lisitsyn, A.P. (USSR) - marine geochemistry
11.) McKenzie, J.A. (ESF) - chemical sedimentology, geochemistry, ocean history, diagenesis
12.) Mienert, J. (Germany) - physical properties, seismic stratigraphy, acoustics, sedimentary processes
13.) Paull, C. (USA) - inorganic geochemistry, gas hydrates, fluids on sea floor, carbonate diagenesis
14.) Sayles, F.L. (USA) - inorganic geochemistry, fluids, water/rock interactions
15.) Soh, W. (Japan) - sedimentology, deep sea sedimentary process, accretionary prisms
16.) Swart, P.K. (USA)- sedimentary geochemistry, carbonate diagenesis, ocean history

SGPP Themes

1.) Sealevel: Record and causes of eustatic change
Christie-Blick, Flood, Mienert
2.) Sediments: Material cycling and sediment distribution processes
Flood, Hay, Hiscott, Mienert, Soh
3.) Fluids: Circulation through the crust and geochemical balances
Boulègue, Bahr, Paull, Sayles, Swart
4.) Metallogenesis: Control by tectonics and host material
Alt, Boulègue, Elderfield, Sayles
5.) Paleochemistry: Fluctuations in chemistry & geochemical budgets
McKenzie, Farrimond, Elderfield, Lisitsyn, Emeis

(revision 11.27.92)

REPLACEMENT OF US SGPP MEMI

MEMBER	SGPP NOMINATION
Nicholas Christie-Blick Lamont, Columbia Uni.	(1) Stephen Greenlee Exxon Prod. Res (2) Fredrick Sarg Mobil Explor. Tech.
Roger Flood SUNY Stoney Brook	1) Hans Nelson USGS-Menlo Park 2) Suzanne O'Connell Wesleyan University 3) Michael Underwood Uni. of Missouri
William Hay Univ. Colorado (GEOMAR)	1) Robert Garrison UC Santa Cruz 2) Craig Glenn SOEST, Uni. Hawaii 3) Lee Kump Penn State University

Appendix 8.0

JOHN BARRON

[BASOV/DMITRIEV (FSU)]

TIMOTHY BRALOWER

JAMES CHANNELL

[PETER DAVIES (CAN/AUS)] ⟶ ROBERT CARTER (CAN/AUS)

TIMOTHY HERBERT

AL HINE

EYSTEIN JANSEN (ESF) ⟶ JAN BACKMAN (ESF)

TOM LOUTIT ⟶ [moved to Australia]

HISATAKE OKADA (JAP)

LISA PRATT

MAUREEN RAYMO

EDITH VINCENT (FRANCE)

PHILLIP WEAVER (UK)

GERALD WEFER (GER)

JAMES ZACHOS [SGPP liaison]

MARGARET DELANEY (chair)

* * rotating off after Fall 1992

[ ] = absent

RESPONSES

CORE REPOSITORIES

refrigeration? yes

move cores? no

additional repositories?

mostly no, some yes

REPOSITORY FACILITIES should include split core sensing capabilities.

LINKS TO OTHER PROGRAMS, VISIBILITY

existing ties ✓

visibility
- ODP Lecture Series (U.S.)
- well-represented at ICP IV, AGU
- Leg 138 EOS article
  Leg 145 Nature submission

Appendix 8.2

SEA-LEVEL WORKING GROUP REPORT

✓ accept report

✓ disband working group

CAUTIONS: "SEA LEVEL PROGRAM"

one leg/year 'promise'

target list of areas, proponents

OHP Watchdogs: CARTER, HINE, RAYMO

NORTH ATLANTIC-ARCTIC GATEWAYS (NAAG-DPG)

NAAG-I Leg 151

anticipate NAAG-II in FY95 prospectus (requested 2-year gap)

Fall 1993 OHP meeting

Leg 151 results, NAAG-II polishing

OHP Watchdogs: WEFER

ISSUES

CORE RECOVERY - DCS

existing, anticipated proposals
land test recommendations

Leg 151 ICEBOAT

maximize scientific opportunity

Leg 145 APC STRATEGY

aggressive drilling strategy ⇒
major scientific accomplishments

PROPOSALS -- STATUS/DEVELOPMENT

LITHOSPHERE ANNUAL REPC

Appendix 9.0

1. SHORT-TERM PLANNING ISSUES

A. Leg 148 - Return to Hole 504B

- ***High Temperature Borehole Instrumentation:***

  LITHP recommends that, if the HTBI meets the guidelines established by DMP for third-party tools by successfully passing a land test, the tool be taken on Leg 148 for use at the discretion of the Co-Chief Scientists. ****

- ***Tool Testing in Hole 504B:***

  LITHP recommends that testing in Hole 504B be limited to those tools that may provide scientifically useful information for that Site, and that have met all the DMP guidelines for third-party tools. ****

- ***Contingencies for Leg 148:***

  LITHP recommends the following contingencies: ****

  i) return to Hess Deep if drilling successful and if time permits

  ii) drill a second hole near Hole 504B to investigate crustal heterogeneity.

  The choice between these to be left to the Co-Chief Scientists.

B. Caribbean Detailed Planning Group

****

C. Proposal Watchdogs

LITHP has set up watchdogs for all proposals of strong thematic interest and for two multi-leg programs: NARM and offset-drilling.

2. LONG-TERM PLANNING ISSUES

I. ENGINEERING ISSUES

A. Diamond Coring System:

LITHP will contine to strongly support continuation of the DCS as the most likely method for drilling formations that are currently beyond the capabilities of the available techniques.

LITHP strongly recommends that VE-3 be considered as the next Engineering Test Site as it provides a shallow, less hostile environment and drilling can address important scientific objectives. ****

B. Deep Drilling

LITHP is encouraged that a deep drilling RFP will be ready for release in December, and strongly supports the efforts of TAMU and TEDCOM to complete this study.

C. Fluid Sampling

LITHP continues to support the development of an *in situ* fluid sampler as outlined in the RFP submitted to PCOM.

II. SCIENTIFIC ISSUES

D. Offset Drilling Working Group Report

LITHP recommends that the Offset Drilling Working Group Report be accepted and the group be disbanded. ****

Through a sub-group, LITHP will actively seek proposals and prioritize them in order to achieve the scientific objectives outlined in the Report.

E. Global Geosciences Initiative

LITHP has good representation of other initiatives among its current members. LITHP will include reports from these other programs as an agenda item at its spring meeting.

F. Post-Drilling Borehole Science

LITHP recommends that the review process for use of open holes be expanded to include the appropriate thematice panels. ****

LITHP also recommends to the JOIDES Office that a short article on this topic be included in an issue of the JOIDES Journal.

Appendix 9.2

3. REVISION OF LITHP WHITE PAPER

Timetable

1992	
October	Draft Table of Contents Writing Assignments for LITHP Members
1993	
February	Draft Sections Due Compilation by LITHP Chair
March	Discussion of Draft at Spring LITHP Meeting
June-July	Open Meeting to Obtain Community Input: "Lithospheric Objectives of ODP"
August	Rewrite White Paper on Basis of Community Input
October	Approval of Final Draft by LITHP
December	Presentation to PCOM for Approval
1994	
January	Distribution to the Community

LITHP requests endorsement of this plan from PCOM, and advice and help from the JOIDES Office in identifying potential funding sources for the Open Meeting proposed in the timetable. It is important that international representation will be possible at this meeting.

****

Appendix 9.3

4. PANEL MEMBERSHIP ISSUES

Nominations

Replacement for Jim McClain:	Dave Caress (LDGO)
Replacement for Tom Brocher:	Jill McCarthy (USGS)
Panel Chair (after Spring Meeting):	Sherm Bloomer

JOIDES SITE SURVEY PANEL REPORT 1992 - BERMUDA DEC 92 - ROB KIDD

SSP ACTIVITY 1992 1

1. COMMEND PCOM's POSITIVE RESPONSE TO SSP's RECOMMENDATIONS

2. INTRODUCTION OF SYSTEM OF DEADLINES RELATED TO THEMATIC PANEL SCHEDULE AT 1991 PANCHM/PCOM ANNUAL MEETING: PROPOSALS - MARCH 1; SURVEY DATA - AUGUST 1

3. SSP AIMED FOR PPSP TO BE GIVEN TIME FOR PRE-REVIEW OF SURVEY DATA ie. PACKAGES COMPLETE FOR FULL YEAR PRIOR TO DRILLING:
   - NOT ENOUGH TIME **- NO BACK-UP IF FAILURE AT PPSP**

4. THREE MEETINGS HELD: APRIL 1ST TO 3RD FULL PANEL, LDGO

   AUGUST 4TH TO 6TH FULL PANEL, LDGO

   NOVEMBER 5TH TO 7TH 'AD HOC' SUB-GROUP, LDGO

5. **IN APRIL** SSP POINTED OUT TO PROPONENTS WHERE SURVEY DEFICIENCIES APPEARED TO EXIST IN THEIR PROPOSAL SUBMISSIONS

6. **IN AUGUST** SSP REVIEWED DATA SUBMITTED TO LDGO FOR THE SURVEY PACKAGE DEADLINE - NONE ABSOLUTELY COMPLETE.

   SSP RECOMMENDED TO PCOM **11 PROPOSALS FOR THE 1994** PROSPECTUS BASED ON ANTICIPATED DATA READINESS - PROSPECTUS INCLUDED VICAP+MAP BUT NOT COSTA RICA.

   SSP RECOMMENDED THAT PCOM SET **NOVEMBER 1 DEADLINE** FOR FINAL SURVEY PACKAGE SUBMISSIONS - PCOM AGREED

   SSP WATCHDOGS SPELLED OUT REMAINING REQUIREMENTS TO PROPONENTS OF PROSPECTUS PROGRAMS

JOIDES SITE SURVEY PANEL REPORT 1992 - BERMUDA DEC'92 - ROB KIDD

SSP ACTIVITY 1992 2

7. IN **NOVEMBER** AN SSP SUBGROUP ASSESSED FINAL SUBMISSIONS:
   6 OF 11 PACKAGES COMPLIED FULLY WITH SSP REQUESTS
   THOSE READY FOR APRIL PPSP REVIEW ON NOV 7 WERE :
   - ALBORAN SEA
   - CEARA RISE
   - AMAZON FAN
   - N. BARBADOS RIDGE
   - E. EQUATORIAL ATLANTIC TRANSFORM
   - NARM- NEWFOUNDLAND BASIN

8. **MARK** CAN BE MADE READY FOR PPSP REVIEW IN APRIL

9. **TAG** MIGHT BE READIED BUT HEAT FLOW DATA STILL TO BE COLLECTED WILL PROBABLY BE CRITICAL FOR PPSP.

10. PART PROPOSALS READY ARE: VEMA (V-3 ONLY)
    VICAP- MAP (MAP ONLY)

11. MEDITERRANEAN PROPONENTS MADE MAJOR EFFORT TO GATHER SUFFICIENT SURVEY DATA FOR A HYBRID MED. SAPROPELS / MED. RIDGE LEG IN 1994. DATA FOR MOST SITES STILL INCOMPLETE IN NOVEMBER. MANY SHIP OPPORTUNITIES TO COMPLETE THESE DATA PACKAGES IN 1993 FOR 1995 CONSIDERATION

12. SSP DEVELOPED IMPROVED GUIDELINES FOR REQUIRED DATA FOR:
    OFFSET DRILLING IN TECTONIC WINDOWS (with Offset Drilling WG)

    NEED TO DEVELOP GUIDELINES FOR
    - BSR DRILLING (with PPSP)
    - SHALLOW WATER DRILLING (with PPSP/ WG?)

13. CHANGES IN PANEL MEMBERSHIP:
    KASTENS FOR KIDD AS CHAIR
    SCRUTTON FOR KIDD (UK rep.)
    LOSE LOUDEN AND PAUTOT

    NEEDS?
    - SUBMERSIBLE EXPERTISE
    - DEEP-TOWED GEOPHYSICS
    - INDUSTRY SHALLOW WATER SITE INVESTIGATIONS

Appendix 10.2

JOIDES SITE SURVEY PANEL REPORT 1992 - BERMUDA -

CAUSES FOR CONCERN

1. LEADTIMES FOR PPSP REVIEW - COMPLETE SITE SURVEY PACKAGE ONLY THE FIRST HURDLE !

-NEED TO ALLOW TIME FOR SITES TO BE REMOVED, RELOCATED OR INSERTED

-NEED TO ALLOW TIME FOR FEEDBACK ON FURTHER SAFETY REQUIREMENTS WHERE DATA IS CONSIDERED INSUFFICIENT

-NEED TO ALLOW TIME FOR CLOSED FILE INDUSTRY DATA TO BE CONSULTED

2. 1992 SYSTEM OF DEADLINES HAS BEEN SUCCESSFUL FOR 6 PROGRAMS BUT THERE ARE STILL SOME MISUNDERSTANDINGS OF THE URGENCY FOR DATA.

3. COMMUNICATIONS WITH PROPONENTS:

- DPG COORDINATION OF PROPOSALS HAS CAUSED WATCHDOG/ PROPONENT COMMUNICATION PROBLEMS
- THEMATIC PANEL-DRIVEN PROPOSALS - LACK OF LEAD

4. SSP NOT PREPARED TO ACCEPT REPRINT APPROACH, EVEN WHERE THERE IS PREVIOUS DRILLING

5. NEW SURVEY GUIDELINES NEEDED FOR SHALLOW WATER DRILLING: THE LEG 150 EXPERIENCE

6. INTERIM MANAGEMENT OF THE SITE SURVEY DATA BANK.

JOIDES SITE SURVEY PANEL REPORT - BERMUDA DEC'92

RECOMMENDATIONS TO PCOM

1. IF PROPOSAL REVIEW PROCEDURE MUST REMAIN OVER ONE YEAR,

- SSP SHOULD FLAG POTENTIAL SAFETY PROBLEM PROPOSALS IN APRIL AND IF RANKED INVITE THOSE PROPONENTS TO PRESENT DATA AT PART OF AUGUST MEETING;

- IN DECEMBER PCOM SHOULD CONSIDER BACK-UPS TO POTENTIAL SAFETY PROBLEM LEGS

2. TO TACKLE COMMUNICATIONS PROBLEMS:

- DPG'S SHOULD BE CHARGED WITH NAMING CONTACT PROPONENTS FOR MERGED COMPONENTS OF THEIR MULTI-LEG PROGRAMS

- THEMATIC PANELS SHOULD NAME LEAD SURVEY DATA PROPONENTS FOR PANEL-DRIVEN PROPOSALS

- THEMATIC PANELS SHOULD FOLLOW UP ON SURVEY NEEDS FOR THEIR RANKED PROPOSALS THAT MAKE THE PROSPECTUS IN AUGUST

3. SSP SHOULD MEET 3 TIMES PER YEAR - AUG. MEETING OVER 3-4 DAYS

4. SSP AND PPSP SHOULD BE INVOLVED IN ANY WG ON SHALLOW WATER DRILLING SURVEYS.

Appendix 11.0

Shipboard Computing Environment

- The work of the ship-board scientist during some legs is being seriously hampered by the inadequacies of the shipboard computing environment. Ad hoc temporary 'repairs' are being made on a leg to leg basis to overcome the short comings (e.g. HARVI & HRTHIN)
- The integration of logging results with core data is also essentially impossible within the confines of the present shipboard computing environment.
- PCOM is urged to accept the recommendations of the DHWG Committee (Toronto, March 1992) and to allocate funds to upgrade the computing environment.

ODP Database Structure

- The presently installed VMS-based S1032 database system is totally inadequate, 'unfriendly' and being rejected by the shipboard community. As a result the rational archiving of shipboard data for post-cruise and subsequent study has almost reached a state of collapse.
- An ever-growing backlog of Database work exists at TAMU/ODP resulting from the inadequacies of the computing/database environment. For example there is NO machine-readable collation of ANY paleontological information for ODP — instead there is a 40 Leg backlog. Routine sedimentary visual-core-description data is NOT being added to any machine readable data-structure. As a result one cannot ask questions like: 'which legs intersected the K/T boundary'
- PCOM may have to urge the Operator to address this issue or run the risk of the historical record of the project being lost.

Appendix 11.2

Publications & CD-ROMS

- PCOM is urged not initiate sweeping changes to the present publications policy. TAMU/ODP is generating publications in a timely and effective manner and the Proceedings volumes appear to be serving the project and the broader scientific community well.
- ODP publications on CD-ROM will surely come. IHP is monitoring the situation and notes the appearance of GSA publications on CD-ROM this year and the increasing use of CD-ROMs by the USGS. The larger Apple and Sun work-stations have a CD-ROM reader as a standard device.
- PCOM must support the publication and distribution of data on CD-ROMs. CDs in the back of volumes are likely to become significant items containing, initially, logging and numerical core data. Images and text can easily be added.

IHP/PCOM/JOI/TAMU-ODP

- Does the present structure of ODP allow the program to respond quickly enough to the rapidly changing IHP/SMP scene?
  - Sept. 1991 - IHP reports ODP computing emergency.
  - Dec. 1991 - PCOM mandates DHWG.
  - March 1992 - DHWG Reports.
  - August 1992 - ODIN Proposal presented to PCOM.
  - Dec. 1992 - PCOM mandates RFP?
  - Summer 1993 - Contracts let, work starts.
  - Summer 1995 - Work finished, new system installed.
- FOUR YEARS is too long.

Appendix 11.4

IHP Membership

- Resigning US Members
  - Dr Ted Moore,
  - Dr William W. Sager,
  - Dr S.W. Wise,
- Proposed new US Members
  - Dr Roy Wilkens, University of Hawaii,
  - Dr Brian T. Huber, Smithsonian Institution,
  - Dr Lynn Watney, Kansas Geological Survey,

1992

Shipboard Laboratory Reviews

Physical Properties Special Meeting

Core-Log Data Integration - Status

Shipboard Computing

Technical Staff

Equipment Needs

Upcoming Legs

Shipboard Laboratory Reviews

Paleomagnetics: software upgrades needed; higher de-mag

Micropaleo: data acquisition software needed

Physical Properties: natural gamma; resistivity; optimize; data acquisition required; GRAPE software upgrade

Sedimentology: colour is here - recommend routine use; new VCD

Petrology: data acquisition software needed

Geochemistry: good progress in upgrades; software

Underway Geophysics: navigation equipment; streamer

Appendix 12.1

Report of Physical Properties Special Meeting

1. Discrete measurement of index properties - okay
2. Resistivity

   discrete measurement system needed now

   group encourages the development of core image system

   looking into an induction method for future whole core analyses
3. GRAPE

   reason for offset on Leg 138 must be determined

   improvements to calibration procedures must be made

   workshop required to standardize MST methods and procedures
4. Velocity

   small improvements required for Hamilton Frame

   measurement under effective stress now feasible
5. Natural Gamma

   agree with TAMU plan for Leg 148 trials

Core-Log Data Integration

Progress

- workstations purchased by ODP/TAMU
- natural gamma underway
- downhole magnetic susceptibility measurements on Leg 145
- core-log data integration specialist

Still Required (Joint SMP/DMP Recommendation)

- ODP/TAMU science staff member must lead development
- software development needed - draw from expertise in the JOIDES community
- core-log data integration specialist requires better definition of tasks

Appendix 12.3

Computing

Three components: data aquisition (80%); database; and data retrieval

Data Aquisition Priorities:

- **Paleontology**
- **Natural Gamma**
- **XRF/XRD**
- **Discrete Physical Properties**
- **Core-Log Data Integration**
- **Paleomagnetics**
- **VCD/Smear Slides/Colour**
- **Petrology**
- **MST**
- **SAM/Corelog**
- **Chemistry**

Technical Staff

Shorebased training has been good - encourage continuation

Two systems managers is working well and proving to be a major improvement

Leg 146 technical staff - excellent!

Appendix 12.5

Equipment Needs

- Navigation
- Natural gamma and MST upgrade
- Hardrock velocimeter
- XRF PC upgrade
- Resistivity equipment for discrete core measurement
- Bar code reader
- Seismic wokstation
- Seismic towing system

Third Party Equipment Priorities

- Colour reflectance (Mix - US)
- Electrical resistivity imaging (Jackson - UK)
- Infrared spectroscopy (Herbert/Amoco - US)
- XRF split core scanner (Herbert/Jansen -US/ND)

Appendix 12.7

JOIDES
DOWNHOLE MEASUREMENTS

Annual Report to PCOM
December 1992

Meetings 1992

- Kailua-Kona, Hawaii (JANUARY)
- Windischeschenbach, FRG (JUNE)
- Victoria, BC, Canada (SEPTEMBER)

Meetings 1993

- College Station, TX (JANUARY)
- La Jolla, CA (MAY)
- Sante Fe, NM [LITHP] (SEPT./OCT.)

Membership Changes 1992-3

Wilkens (SOEST, Hawaii) → Fryer (same)
✱ Crocker (Can/Aus) → Salisch (Can/Aus)
Yamano (Japan) → Kanazawa (Japan)
1993 [Sondergeld (AMOCO) → Von Damm (UNH)
Gieskes (SIO) → A.N. Industrialist (USA)]

Chair Change 1/1/93

Worthington (UK) → Lysne (Sandia)

Panel Composition NOW

UNIVERSITIES	5	(incl 2 JOIDES)
GOVERNMENT INSTS.	6	
OIL INDUSTRY	3	
VACANCY	1	

HLIGHTS - I

Appendix 13.1

1. Booklet on ODP Downhole Measurements

2. Reinforced Guidelines for Third Party Tools - Brochure

3. High-temperature tools
   - temperature
   - resistivity
   - borehole fluid sampler

4. In situ pore fluid sampling WG

5. Integration of core and log data

6. Joint meeting with KTB

7. Lithosphere characterization

THRUSTS - 199?

Appendix 13.2

1. Updated tool development plan
2. High-temperature tools
   - extend capability
   - joint developments
3. Third party tools
   - specifications (Level 2)
   - management (Level 3)
4. In situ pore fluid sampling
5. Interprogramme collaboration (KTB, RIDGE, CSDP)
6. Integration of core and log data
7. Publicity / education opportunities
8. Cross-hole technology (lithosphere characterization)

INT ISSUES

Appendix 13.3

1. "Downhole Measurements in the Ocean Drilling Program - A Scientific Legacy"

   PCOM view on target readership

   (JOIDES community; international partners; logging schools; future shipboard parties; previous shipboard scientists; ODP booth at AGU)

2. PCOM delegate to DMP approval for deployment of third party tools at the development stage

   (Temp. tool for Leg 148)

3. New member of DMP (A.N. Industrialist)

   Can this person be from a well logging service company other than Schlumberger?

Appendix 14.0

TEDCOM REPORT DEC.

- Tedcom action in 1992

- Membership

- Main Topics of Meetings (May '92, Oct. '92):

  * DCS

  * Deep Drilling

  * Russian Technology

- Thoughts on RFPs:

  * DCS Phase III

  * "Zaremba"

  * Deep Drilling

Appendix 14.1

Appendix 14.1

TEDCOM ATTENDANCE 1990 - 1992

	1990		1991	1992	
Meeting No.	8^{th}	9^{th}	10^{th}	11^{th}	12^{th}
G. MARSH				1	1
K. MILLHEIM	1	1	1	-	-
F. SCHUH	1	1	-	-	-
E. SHANKS	1	1	-	1	-
H. SHATTO	1	1	1	1	1
A. SUMMEROUR	P	P	-	-	-
W. SVENDSEN	-	1	-	1	-
H. FUJIMOTO	R	R	R	R	R
C. MARX	1	1	-	-	-
A. SKINNER	1	1	-	1	1
M. TEXIER	1	1	1	-	-
S. THORHALLSSON			1	1	1
A. WILLIAMS	P	P	-	P	1
H. RISCHMULLER	-	1	1	-	-
C. SPARKS	1	1	1	1	1

DIAMOND CORING SYSTEM

PHASE I - 2000 METER

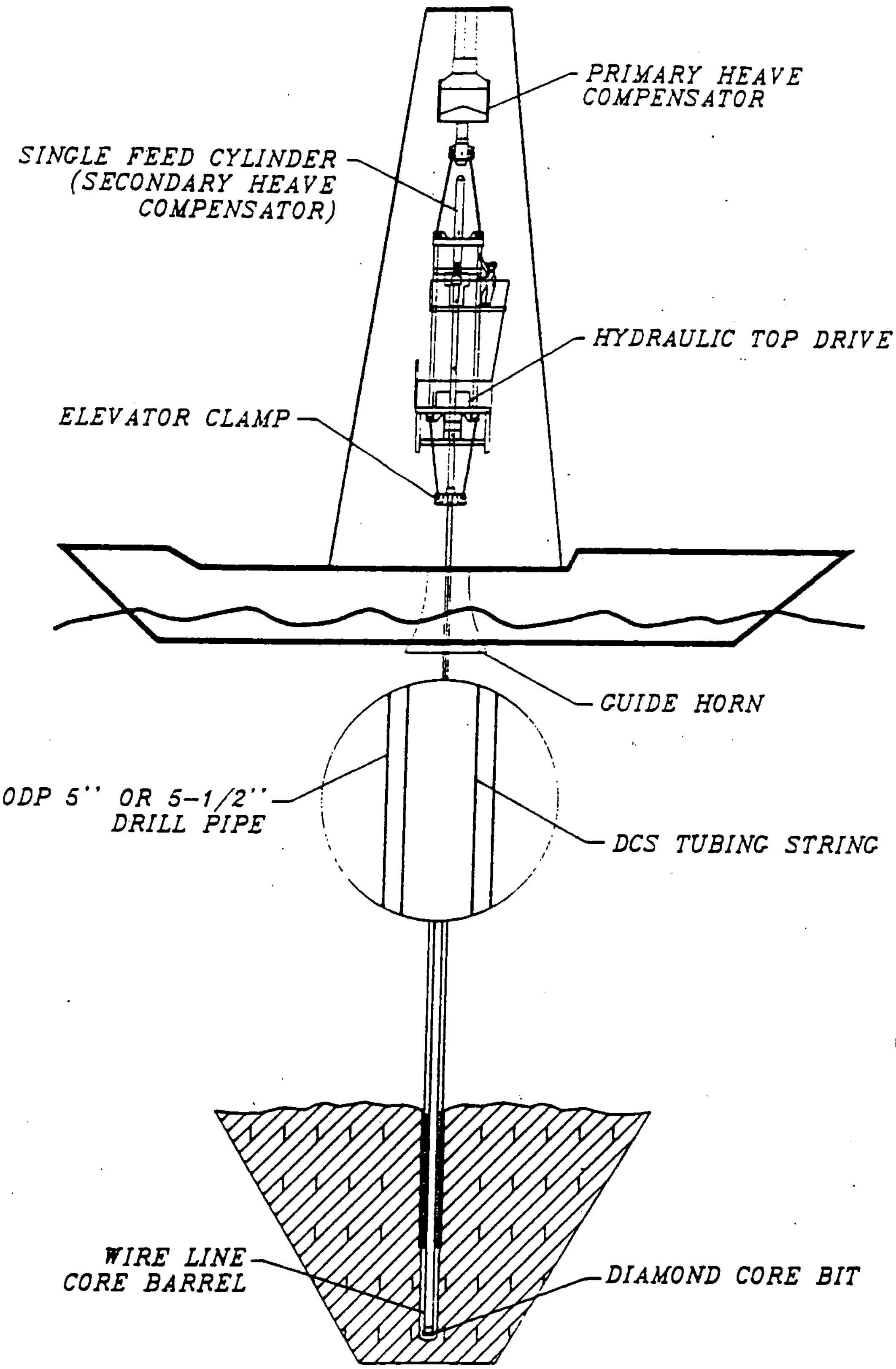
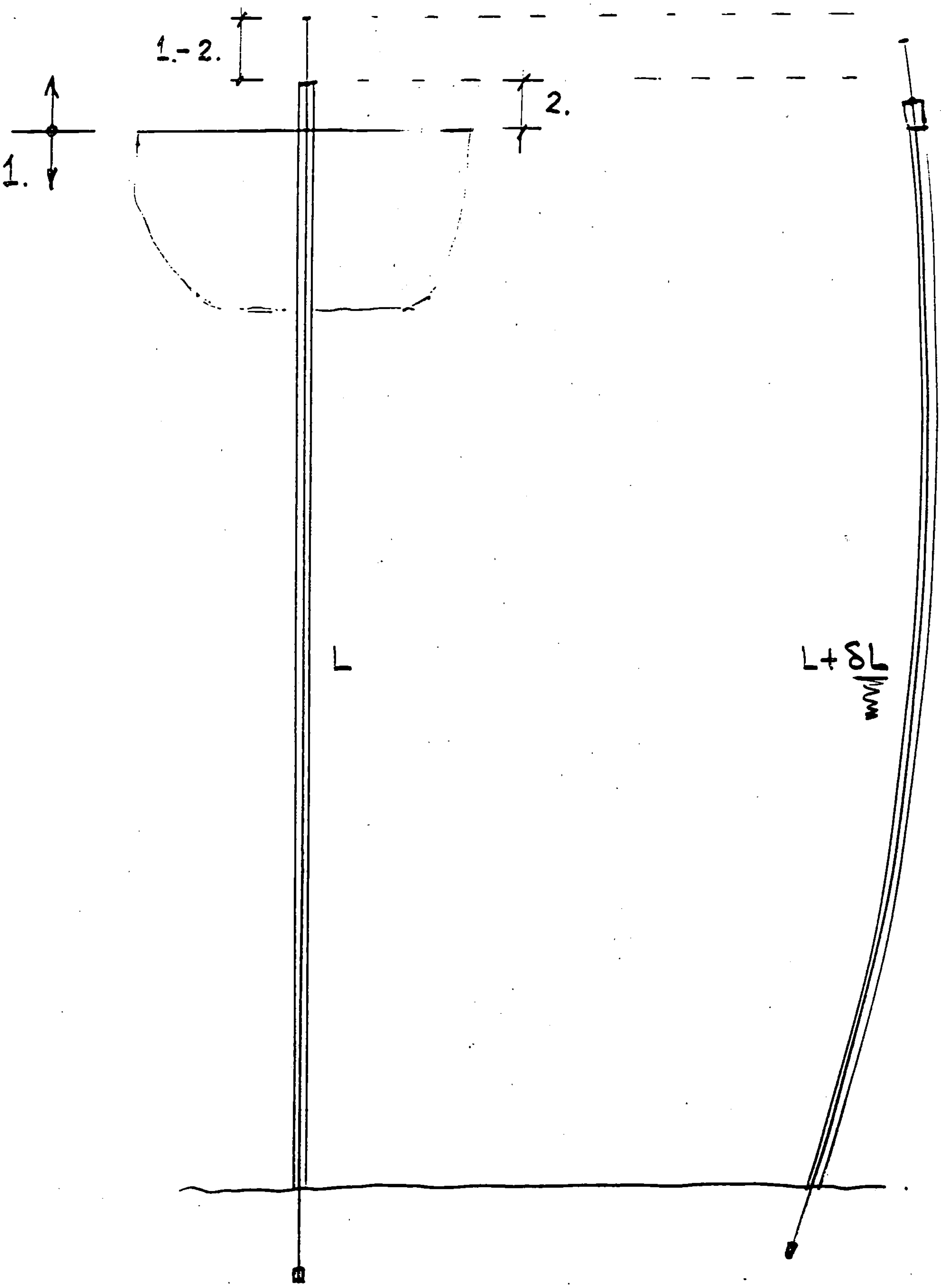


Figure 2

S Control

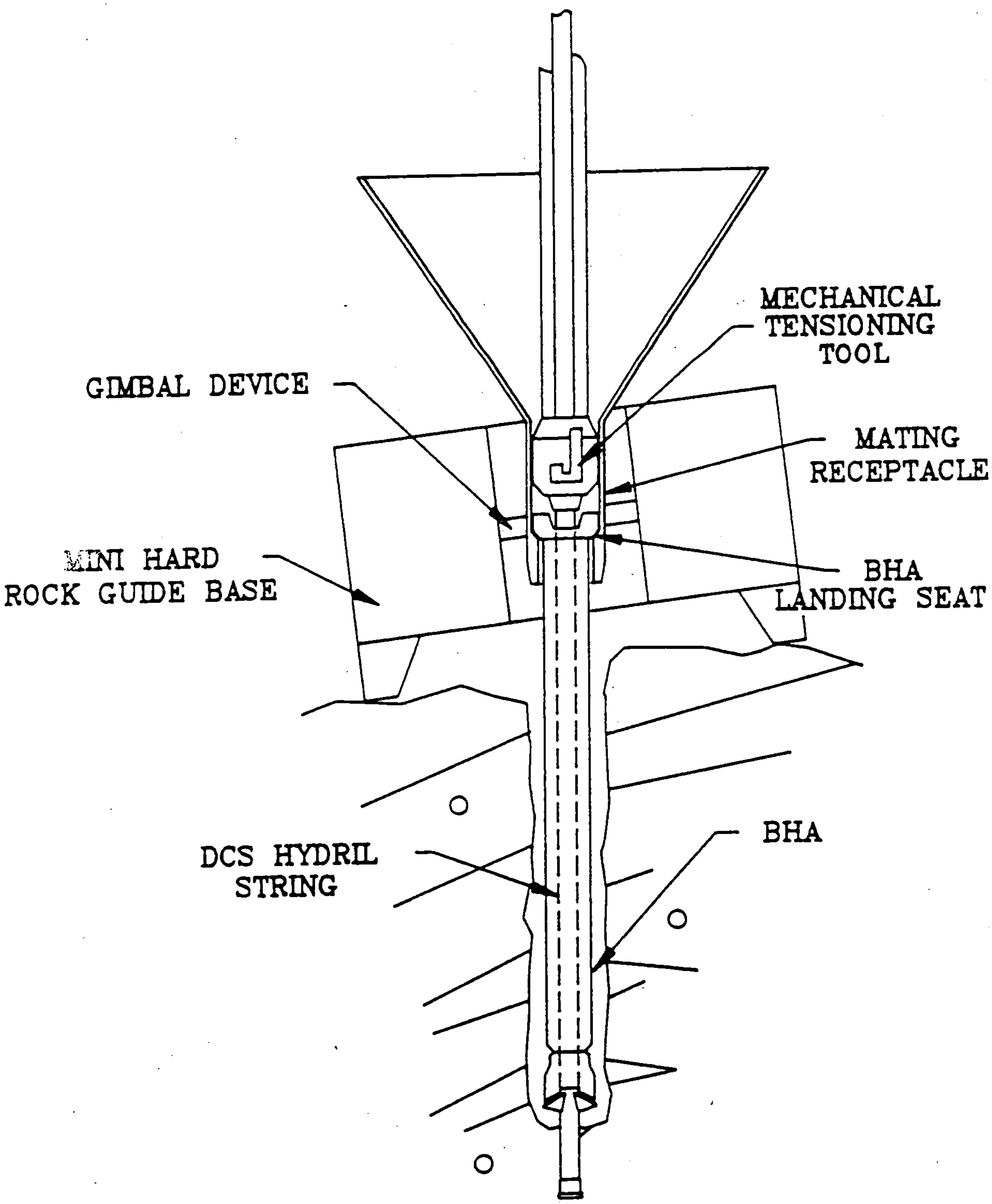
Appendix 14.3



DCS DEVELOPMENT

May '92 TEDCOM Recommended:

- A Detailed DCS Simulation Study be carried out
- Measurements be taken of Main Compensator Characteristics
- Measurements (accel. and stresses) be taken at Top of API String
- DCS be modified to allow easy Manual Intervention
- Extensive Land Testing of DCS before next deployment



WEIGHTED MINI GUIDE BASE FOR BARE ROCK OPERATIONS USING BACKED OFF BHA FOR UPPER HOLE STABILIZATION

Figure A4

LEG 142 - EAST PACIFIC RISE

OPERATIONS RESUME

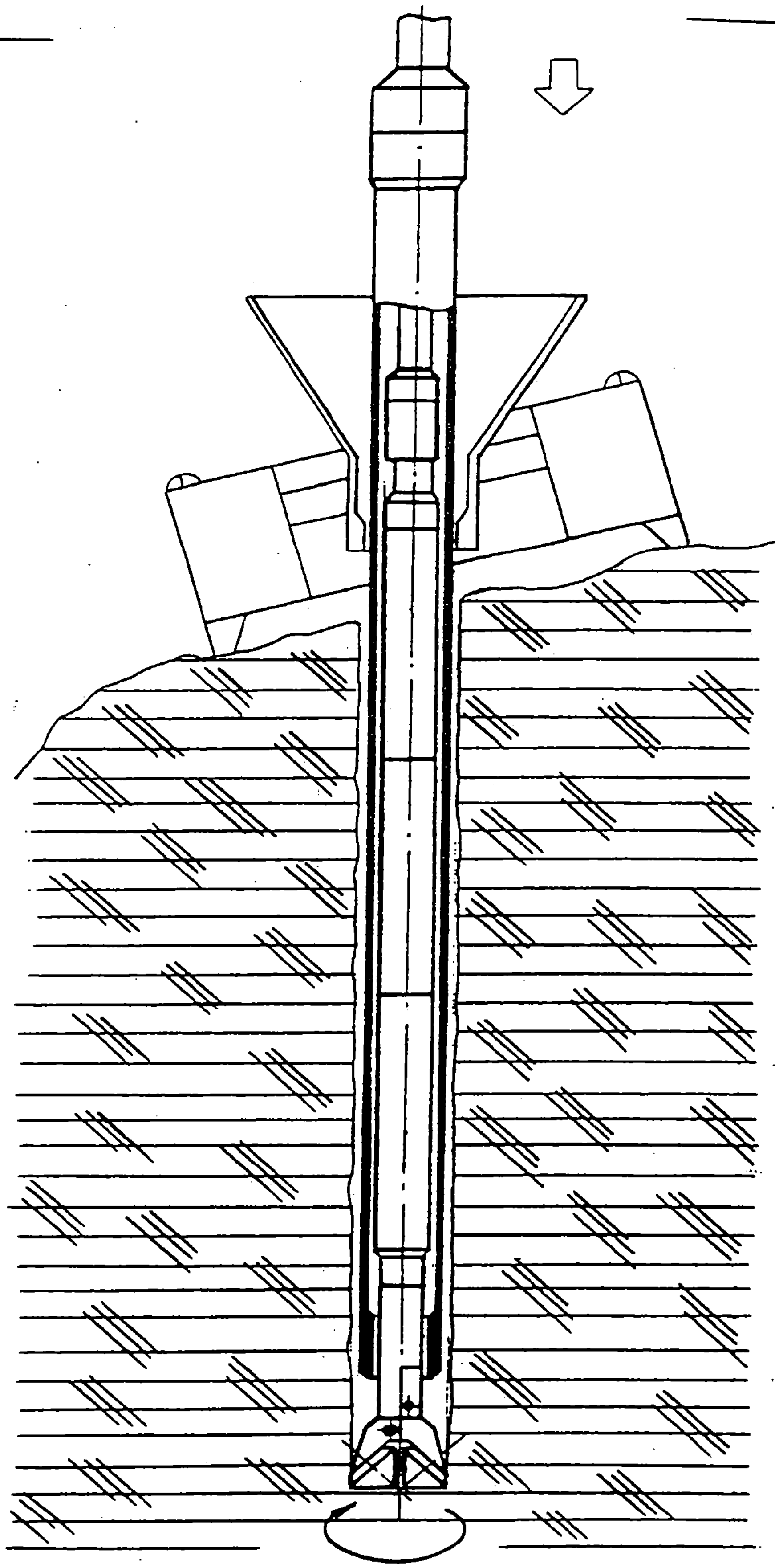
Total Days (January 13, 1992 to March 18, 1992)	66.0
Total Days in Port	6.1
Total Days Under Way	23.4
Total Days On-Site	36.5

Reentry	1.0
Other	0.4
Fishing/Remedial	0.2
Development Engineering	34.9

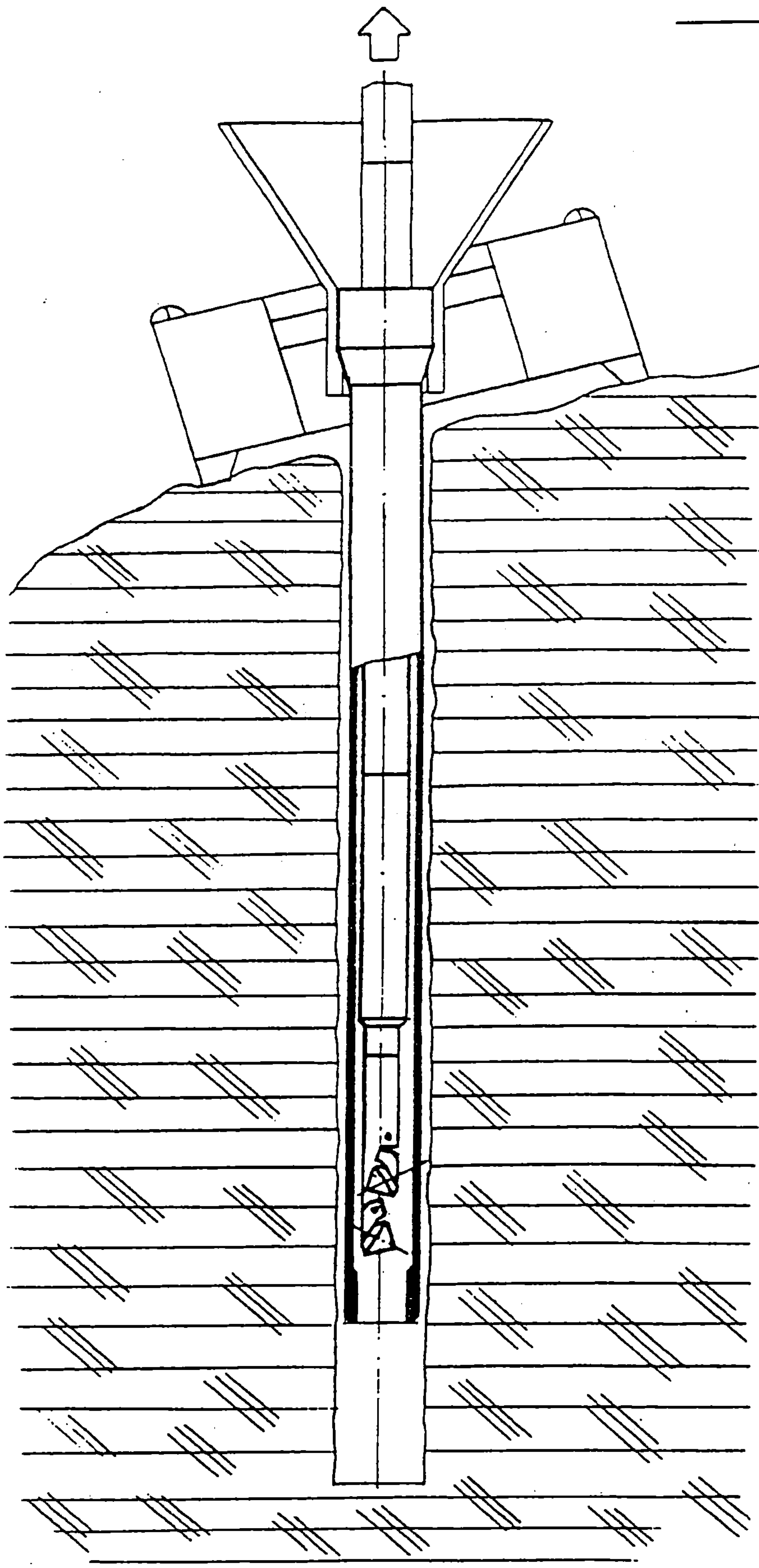
HRB Deployment	3.2
1st Stage Drill-In BHA	10.1
2nd Stage Drill-In BHA	1.5
Bit Guide Deployment/Ctr Bit Rec.	3.7
DCS Tubing Tripping/Rigging	2.6
DCS PLatform Rig-Up/Rig-Down	1.9
Drilling Jts Tripping/Strip-Over	1.1
Platform System Testing	2.5
Tensioning	3.8
DCS Drilling/Coring	3.3
DCB Drilling/Coring	1.2

Total Distance Traveled (nautical miles)	6361
Average Speed (knots)	11.4
Number of Sites	1
Number of Holes	3
Number of Reentries	35
Total Interval Cored (m)	2.0
Total Core Recovery (m)	0.5
Percent Core Recovered	25.0
Total Interval Drilled	27.0
Total Penetration (m)	29.1
Maximum Penetration (m)	15.0
Maximum Water Depth (m from drilling datum)	2582.9
Minimum Water Depth (m from drilling datum)	2581.7

Appendix 14.7



Drill in primary by retractable bit (DIRB-BHA) to the present depth



Backoff primary DIRB-BHA and retrieve string

Appendix 14.9

DCS DEVELOPMENT

October '92 TEDCOM Recommended:

- Simulation Study Report be reviewed by TEDCOM Subcommittee

- Field Tests:

  * Amoco Tunisian Test (without compensation)

  * Land Test with simulated heave and compensation

  * Possible further land tests with API string simulation

- Further Studies of:

  * DCS Bumper Sub

  * DCS residual heave sensor (btm end)

  * retractable <u>mining</u> bits

  * retractable <u>rollercone</u> bits for DI-BHA

- Next Seatest

  * To be planned for 1994

  * "Easy site" be chosen (mild conditions, near coast, good seafloor conditions, easy drilling)

Appendix 14.10

Engineering for Deep Sea Drilling for Scientific Purposes

Final Report

Marine Board

Assembly of Engineering

Appendix 14.11

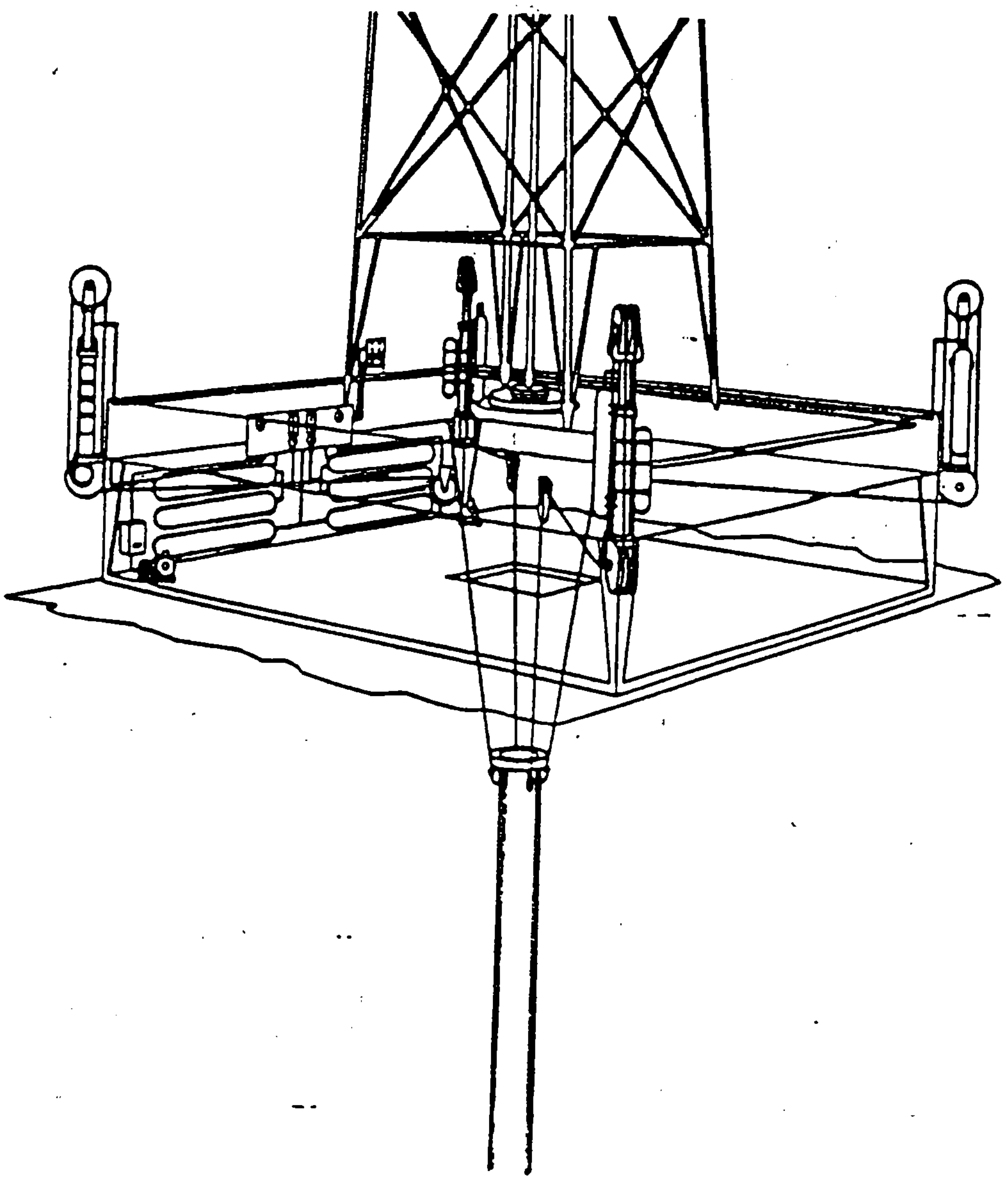


FIG. SCHEMATIC OF A RISER TENSIONING SYSTEM

IX. DEEP DRILLING SITE PROPOSALS

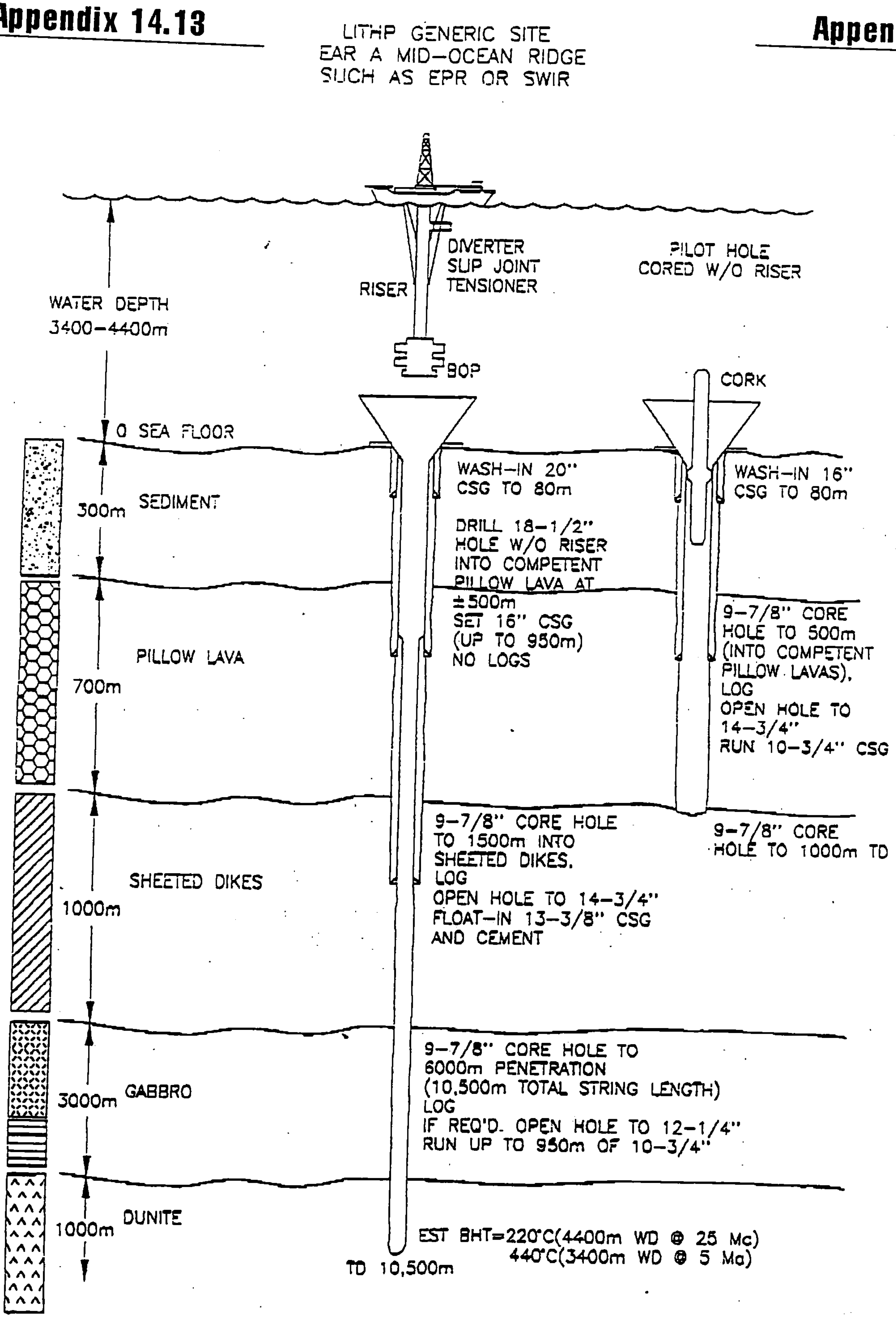
PANEL	SITE	GENERAL AREA & LAT/LONG	GENERAL OBJECTIVE	WATER DEPTH	PENETRATION (METERS)
LITHP	Gen- eric	Near a mid-ocean ridge such as the E.Pacific Rise or S.W. Indian Ridge	Rift processes. Casing to 1000 m thru pillow lavas.	3400-4400	300 Sedmt 700 Pillow 1000 Dikes 3000 Gabbro 1000 Dunite 10,500 Total Depth

At 6000 mbsf, BHT 220°C in 4400 m WD
BHT 440°C in 3400 m WD

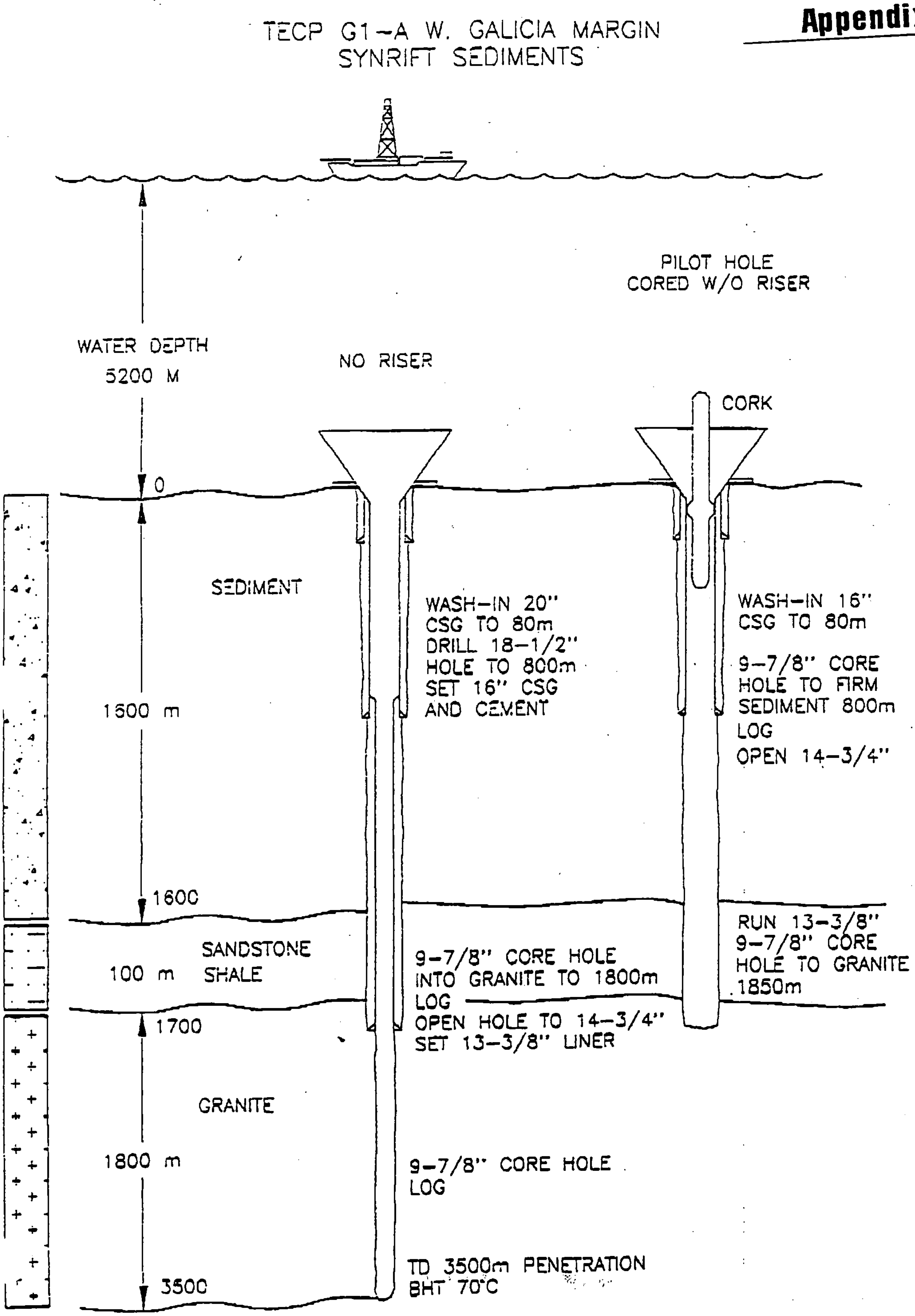
PANEL	SITE	GENERAL AREA & LAT/LONG	GENERAL OBJECTIVE	WATER DEPTH	PENETRATION (METERS)
TECP	G 1-A	**W. Galicia Margin** 42°8.75'N/12°37.4'W 200 mi W of Spain	Synrift sediments, Rift processes. Casing to 1700 m. April to October. Reflector 700 m into Granite	5200	1600 Sedmt 100 SS,Sh 1800 Granite 8,700 m Total Depth

At 3500 mbsf, BHT 70°C

Appendix 14.13



Appendix 14.14



Appendix 14.15

'UDY FOR DEEP SCIENTIFI
IN THE OCEAN

RFP TOPICS:

- SLIM LINE RISER FOR 4000 m WATERDEPTH

- OPTIONAL SEAFLOOR BOP SYSTEM

- EXTENSION OF DRILLSTRING TO 10,500 m

- SPECIFICATIONS FOR ALTERNATE CORING VESSELS

DEEP DRILLING RFP. ANTICIPATED S(

- Review by PCOM	Dec.2-5, '92
- Mail to consultants	January '93
- Responses by	mid-March '93
- Review of proposals by TEDCOM award/decline	March 30-31, '93
- Meetings with Contractor:	
* Review study framework	May '93
* Presentation of study concept	June '93
* Draft final report	August '93
* Presentation to TEDCOM	Sept. 29, '93

PCOM Motion (December '91)

PCOM confirms the necessity of carrying out feasibility studies for deep drilling as soon as possible. PCOM asks ODP-TAMU to draft a RFP, in consultation with the PCOM chair, for the hiring of one or more consultants, to carry out such studies, using candidate sites recommended by thematic panels as a basis. The draft RFP will need to be reviewed by TEDCOM at its next meeting in April 1992.

Motion Natland, second Malpas

Vote: for 16; against 0; abstain 0; absent 1

Appendix 14.17

OCEAN DRILLING PROGRAM
REQUEST FOR PROPOSAL

FEASIBILITY STUDY FOR DEEP SCIENTIFIC CORING IN THE OCEAN

I. SUMMARY

The Ocean Drilling Program (ODP) is soliciting Proposals for a "Feasibility Study for Deep Scientific Coring in the Ocean". The proposals are to be constrained to ODP's coring and casing program for two deep sites specified in Section IX. The specified sites are expected to be normally pressured to TD and to have near-zero chance for encountering hydrocarbons of any kind. A detailed Scope of Work for the "Feasibility Study" is specified in Section IV, and the "Proposal" content is specified in Section VII. The "Proposal" and "Study" should address the specific questions which are briefly summarized below:

1) SLIM LINE RISER FOR 4000 m WATER DEPTH:

A) Recommend preliminary equipment designs and provide cost estimates for two "Slim Line" Risers (9-5/8" OD and 10-3/4" OD Riser) for 4000 m water depth with Riser Support Systems for the drilling vessel Sedco/BP 471.

B) Provide a dynamic mechanical analysis for the risers, required ship board modifications (such as reinstalling the original riser tensioner system or an integral riser slip joint/ tensioner system), and a redundancy and risk analysis for the riser.

C) Evaluate alternatives for reducing the time required to pull a long slim line riser when running larger diameter casing or for emergency disconnects (such as a moon pool hang-off system).

D) Evaluate riser handling and storage capacity on the Sedco/BP 471 to determine remaining casing storage capacity for various water depths.

E) If the Sedco/BP 471 has extensive deficiencies, define its limits and suggest specifications for an alternate vessel.

F) Evaluate drill pipe fatigue assuming the present guide horn must be removed to accommodate the riser.

2) OPTIONAL SEAFLOOR BOP SYSTEM:

A) Recommend preliminary equipment designs and provide cost estimates for a future optional seafloor BOP System compatible with the two Slim Line Riser sizes for the drilling vessel Sedco/BP 471.

ly define the mud line BOP, seaf
lectric cable/DP recharge syst

used.

3) EXTENDING DRILL STRING TO 10,500 M:

A) Evaluate extending the present drill string working depth to 10,500 m specifically for the TECP Generic Site in Section IX.

4) ALTERNATE CORING VESSELS:

A) Recommend specifications and estimate the cost of using an alternate ship-shaped or semi-submersible dynamically positioned drilling vessel for 6-10 month very deep coring assignments (10,500 m string length) with riser operations (in 3400-4400 m water depth) for the LITHP Generic deep site in Section X.

B) Estimate the cost and time required for ship board additions and modifications. Include estimated restoration and demobilization costs.

II. INTRODUCTION

1) ODP.

ODP is a long-term international partnership of scientists, oceanographic institutes and governments dedicated toward unlocking the history, evolution, and structure of the world ocean through the recovery of core samples from the ocean floor. The study of these cores helps determine the history and evolution of the earth and it's climate. The science operator of the Ocean Drilling Program is Texas A&M University (ODP/TAMU). ODP is expected to last into the twenty-first century. The primary drilling platform is officially registered as the SEDCO/BP 471, but it is also referred to by the scientific community as the JOIDES Resolution (J/R). The former oil industry drillship was specially converted for scientific work in 1984 and is on an exclusive long term contract to ODP. Sedco-Forex is the drilling contractor. Detailed and specific information for the vessel and its equipment will be made available from Sedco Forex and/or ODP to conduct the study. Details of the maximum performance to date will be supplied.

2) PROGRAM MANAGEMENT:

The Joint Oceanographic Institutions, Inc. (JOI) manages the program. The Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES) is a worldwide network of universities, oceanographic institutions and government agencies that provides overall scientific advice. The program is funded through the U.S. National Science Foundation (NSF) with significant contributions from 19 member countries. The JOIDES Planning Committee (PCOM) has directed that ODP/TAMU prepare this "Request for Proposal" for a "Feasibility Study for Deep Scientific Coring in the Ocean" to be conducted by one or more consultants to specify a detailed program for two candidate sites recommended by JOIDES thematic panels (in

Section IX). "Deep scientific coring in the ocea any hole requiring more than 50 days on-site ope about 2500 m (8200 ft) penetration in sediments or penetration in basalt.

ODP is the successor to the Deep Sea Drilling Project (DSDP) operated by Scripps Institution of Oceanography from 1968 to 1983 using the drillship Glomar Challenger. In the fifteen-year period, DSDP managed 96 scientific expeditions covering over 375,000 miles (600,000 kilometers) of ocean, and 1,092 holes were cored at 624 sites yielding more than 60 miles (96 kilometers) of deep ocean core. Since 1985, ODP has managed 44 scientific expeditions covering 237,000 kilometers (147,000 miles) of ocean and circumnavigated the globe. More than 635 holes have been cored at 264 sites, and 71 kilometers (44 miles) of deep ocean core have been recovered (60% average recovery).

The samples are collected by continuous wireline coring into the earth's crust. The present penetration record is 2000 meters (6562 feet) below sea floor (in 3475 m water depth). Drilling and coring has been done in water depths that have ranged from 28 to 5980 meters (92 to 19,620 feet).

3) DRILL SHIP:

The SEDCO/BP 471 (J/R) is 143 meters (471 feet) long, 21 meters (70 feet) wide, and displaces 18,934 metric tons (18,636 long tons). The vessel has an ABS Ice Class 1B ice-strengthened hull and is equipped with a dynamic positioning system using 12 fixed thrusters and two main screws capable of keeping the vessel within a radius of two percent of water depth in winds of 23 meters/second (45 knots), significant wave heights of five meters (16 feet), and surface currents of 1.3 meters/second (2.5 knots). The vessel has an operational endurance of 100 days with a fuel capacity of over one million gallons (3785 cubic meters). The SEDCO/BP 471 (J/R) can operate in water depths of 8,200 meters (26,900 feet) and can suspend a static load of 9,150 meters (30,000 feet) of drill pipe. Bottom hole assemblies are normally 9 to 12 each 8-1/4 inch drill collars with a transition stand of lockable bumper-sub jars and 7 inch drill collars and two stands of 5-1/2 inch drill pipe. Hole angle is checked about every 200 meters with core orientation tools and generally remains at 0-5° without stabilizers or directional control. A guidehorn with a 250 foot radius curvature extends below the bottom of the ship to limit drill pipe bending and fatigue as the ship rolls in heavy seas.

The drilling equipment on board ensures that operations can be maintained in harsh environments. The derrick is 62 meters (202 feet) tall, rated for 544,200 kilograms (1,200,000 pounds), and is equipped with a variable speed electric top drive, which is constrained in the derrick by rails. The passive heave compensator is the largest in the world, has a 20 foot stroke and is rated for 362,800 kg (800,000 lbs) when compensating or 545,450 kg (1,200,000 lbs) when locked. Under normal environmental conditions, the heave compensator system can only control weight on bit with a 5-8000 lb fluctuation; therefore, diamond and PDC bit performance suffers as a result. The ship is also fitted with a Varco Iron Roughneck, dual

ınd horizontal pipe racker for
ntimeter (5 and 5-1/2 inch OD)

4) SITE APPROVAL:

A rigorous pre-drilling study and safety review is conducted before drilling approval is granted for a site to avoid areas of potential hydrocarbon accumulation, structure, or significant ecological risk. Cores are monitored continuously for hydrocarbons, and coring is terminated immediately if anomalous migrated hydrocarbons or mature hydrocarbon precursors are detected; therefore, no riser or blowout preventer has been used to date. All BOP, riser, riser tensioner cylinders and wire pulleys, and surface mud handling shaker/treatment equipment has been removed. An emergency kill mud pit with 250 barrels of 12.5 ppg mud is maintained at all times. Sea water is circulated with occasional viscous gel pills to cleanout cuttings, with returns to the sea floor. Hydrostatic pore pressures are typically sea water gradient.

5) POSITIONING & REENTRY:

New core sites are located using Global Positioning Satellite (GPS) fixes and confirmed with 3.5 and 12.0 khz seismic lines. The ship routinely positions with GPS within 25 meters of previous site structures in mid-ocean. A 12 to 18 khz commandable release positioning beacon is dropped on each site for positioning. Reentries are routinely made within 15 minutes using a TV and sonar cage which rides over the drill pipe. No ROV or divers are kept onboard.

6) HOLE CONDITIONS:

Hole conditions in sediments range from inert, soft, carbonate oozes that will withstand 1740 m open hole sections in seawater, to unstable flowing sands, corals and boulders, and swelling clays that require KCl inhibited mud for logging. Basement rocks range from unstable young pillow basalts to rugose, fractured, cemented hard basalts, to soft magmatic rocks with large grains. At water depths greater than about 500 m, the seafloor temperature is about 2 to 4°C (36 to 39°F). In basalts, the heat from 1200-1500°C (2192-2732°F) magmatic events is gradually dissipated as the rock ages, and the water depth increases from 2500 m in 0 age crust by 350 m/mil.yrs. By 1000 m below seafloor, the temperature is between 140°C in 6 Ma rock to about 40°C (at 40 Ma rock) (104 to 284°F). Below 1000 meters, the temperature gradient decreases with rock age from about 6.1°C/100 meters in 6Ma rock to 2.0°C/100 m in 40Ma rock (1.1 to 3.3°F/100 feet). Some coring is conducted in 300° C (572°F) hydrothermal vents. Effective vertical stresses increase almost linearly with depth of burial from 0 bars (0 psi) at 0 m penetration to 1120 bars (16,408 psi) at 6000 m penetration.

7) CORING SYSTEMS:

The 9.5 meter (31.17 foot) long X 5.9 cm (2-5/16 inch) cores are retrieved by wireline through the 5 and 5-1/2 inch OD tapered drill string, which has a 10.47 centimeter (4-1/8 inch) minimum ID. ODP owns everything that goes below the keel. Open holes in soft sediments to 300 m are cored using an Advanced Pis... and compacted to moderately indurated sediments t... cored in open holes with an eXtended Core Barrel (XCB). The APC and XCB systems are interchangeable because they use the same 8-1/4" OD (20.9 cm) bottom hole assembly with an 11-7/16" OD X 2.44" core ID (29.0 cm X 6.2 cm) four-cone tungsten carbide insert core bit.

Hard sediments and basement are cored using the Rotary Core Barrel (RCB) system with an 8-1/4" (20.9 cm) bottom hole assembly and a 9-7/8" OD X 2-5/16" core ID (25.1 cm X 5.9 cm) four-cone tungsten carbide insert core bit. The 9-7/8" OD RCB bit size is dictated by the 7-5/8" OD bit cone bearing size, which has proven to be the smallest practical cone bearing size for ODP's coring conditions to date. The present nested casing sizes (20", 16", 13-3/8" and 10-3/4") start with the 9-7/8" hole size at total depth and are dictated by experience with reasonable annular clearances up the hole. Other slim hole coring systems requiring smaller bits and casing programs are being considered for the 9-5/8" riser.

8) CASING & CEMENTING:

Most sites are cored in open holes to 200 to 1500 meters without any casing or reentry cones. Wireline electric logs, temperature probes, fluid samplers, and other special tools are run through 4-1/8" ID drill pipe. Deep holes, holes in unstable formations and instrumented or observatory holes can be equipped with Reentry Cones (in level sediment sites) or Hard Rock Bases (in volcanic sites with up to 35° slopes). The old "J" type dual casing system was used to support 16 inch (40.64 cm) casing to about 80 meters (260 feet) and 11-3/4 inch (29.84 cm) casing to about 500 meters (1640 feet). A new rotational release Dril-Quip quad casing hanger system for Reentry Cones can hang 20" 94.0# K-55 Buttress (washed-in or in 26" hole), 16" 75.0# K-55 Buttress (in 18-1/2" hole), optional 13-3/8" 61.0# K-55 Buttress (in 14-3/4" hole), and 10-3/4" 40.5# K-55 AB ST-L (in 12-1/4" hole as casing or liner). The Hard Rock Bases use the 20" hanger profile for the running tool; therefore, only the remaining three strings can be hung. If not all the casing strings are required, the system can be used as an uncased drilling templet or single, dual or triple casing hanger. An optional 8-5/8" liner can be run at TD to case-off the bottom of the hole; however, smaller diameter coring systems would be required to continue the hole.

The practical casing depth limits for the ODP casing system using Reentry Cones and Hard Rock Bases equipped for Dril-Quip dual and triple/quad casing hanger systems under various environmental conditions and water depths are specified in Reference 4. Sea floor bearing conditions will be determined by pre-site survey/evaluation options. The ship's ability to carry drill string, casing and riser is considered in Reference 4 with alternate solutions such as transfer at sea from a barge, going back into port, etc.

Cementing is usually accomplished with 100 meters of 15.6 ppg API Class H neat cement using a single float shoe and DP wiper plug/SSR top plug system. Silica flour is dry blended in bulk, but retarders, fluid loss additives, etc. are added to the fresh mixing water as required.

Diamond and PDC bits can also be used in conjunction with the Pressure Core Sampler (PCS), mud Motor Driven Core Barrels (MDCB), 7-1/4" bit conventional Diamond Core Barrel (DCB), Hard Rock Orientation system (HRO), CORK wellhead seal system for ROV sampling, and numerous other tools now under engineering development. A narrow-kerf high-speed Diamond Coring System (DCS) using an active/passive secondary heave compensator system is under development. Equipment and operating techniques are continuously refined and enhanced in response to changing geological requirements.

10) ENVIRONMENTAL CONDITIONS:

The ship is normally rotated into the prevailing forcing environmental conditions; however, the ship/waves/swell/ wind/current forces will have variable headings at times. Other forcing functions may include 0.5-3.0 knot currents and 20-50% pack ice for high latitudes. Sedco/BP 471 "Operational Limits", "Significant Allowable Motions" and "Hook Load vs Roll" graph are presented in Reference 4. Three generic environmental conditions which characterize operational capabilities are summarized below:

Mild: 0-5 ft seas, 3 ft swells, 4-7 second wave and swell periods, 0-25 knot wind, 0-2 degree roll and pitch, 0-2 ft heave. All operations possible.

Moderate: 6-12 ft seas, 7 ft swells, 4-7 second wave and swell periods, 30-45 knot winds, 2-4 degree roll and pitch, 3-6 ft heave. All operations possible.

Severe weather: 13-20 ft seas, 12 ft swells, 4-7 second wave and swell periods, 46-60 knot winds, 4-7 degree roll and pitch, 6-12 ft heave. Trips not recommended for safety. RCB coring possible in good hole, but recovery and speed is reduced.

11) DRILL STRING:

The practical operational depth limits and calculated design limits for the present drill string under various environmental conditions and water depths are specified in Reference 4. Ship board calculations for allowable static tensile loading normally use 80% of premium tensile strength (5" S-140 DP: 472,603 lbs, 5-1/2" S-140 DP: 703,717 lbs). Preliminary results of a drill string dynamic bending stress study now in progress indicate that for 85% wall thickness with 20% safety factor the maximum tension for 5" DP = 300,116 lbs and for 5-1/2" DP = 422,522 lbs. Dynamic loading depends on sea state, but a 60,000 lb heave load covers all but the most severe conditions (up to 5° roll). A hole drag of about 20,000 lbs is normal (Hole 504B at 2000 mbsf). A maximum string length of 8230 m could be run under good conditions, but the practical limit is about 7500 m. The drilling limitation is 100,000 lbs overpull with 5° roll using a guidehorn. Drill strings stronger than API Class S-140 (140,000 psi) will not be considered.

III. BACKGROUND REFERENCES

Additional references are included as Attach considered a formal part of this "Request for Proposal". Proposer should be thoroughly familiar with all references. If additional questions exist after reviewing the references, Proposer should direct questions in writing to the Ocean Drilling Program, 1000 Discovery Drive, College Station, TX 77845, Attn: Gene Pollard or Mike Storms. Simple questions may be handled by FAX to (409) 845-2308. The attachments are:

1) Excerpts from the minutes of the Technology and Engineering Development COMmittee (TEDCOM) meeting on September 11-12, '91, and the JOIDES Planning COMittee annual meeting on December 4-7, '91.
2) LITHosphere Panel (LITHP) Proposal.
3) TECtonics Panel (TECP) Proposal.
4) Report 9/25/92 from Gene Pollard, ODP/TAMU, "Deep Drilling Task Force, Revised Report on Current Capabilities".
5) ODP "Casing Systems" report.
6) "Sedco/BP 471 Capabilities".
7) "Acronyms and Abbreviations".
8) Summary of APC/XCB, RCB, MDCB and PCS coring systems.
9) Letter 4/29/87 from H. L. Zinkgraf, Sedco/Forex, "9-5/8" Riser and Well Control Proposed for 10000 ft Water Depth".
10) Notes 4/87 from Charles Sparks, IFP, "Preliminary Analysis of a Slimline Riser for 15000 ft Water Depth".
11) "Preliminary Review of 10,500 m Drill String Options".
12) "Tension Supported Riser With Moonpool Hangoff".

IV. DETAILED SCOPE OF WORK

The "Proposal" and "Study" are to be constrained to ODP's coring and casing program for the LITHosphere Panel generic 10.5 km hole and TECtonics Panel site G-1-A 8.7 km hole specified in Section IX. The available site information is modest, but ODP goes to these frontier types of sites precisely because not much is known about them; therefore, equipment and techniques must be extremely flexible. The current equipment on the Sedco/BP 471 and current ODP coring/reentry cone or hard rock base/hanger/casing/cementing equipment and techniques will be used (if practical).

The specified sites are expected to be normally pressured to TD and to have near-zero chance for encountering hydrocarbons of any kind. Both sites would be preceded by coring minimally cased pilot holes to the equivalent 13-3/8" casing seat in the main holes. This preliminary work might be done on a separate leg using the Sedco/BP 471 to confirm the absence of abnormal pressures and hydrocarbons to that depth and confirm the depth and suitability of tentative casing points. Pilot holes can be instrumented and temporarily plugged with an ROV accessible wellhead "CORK" to prevent unnatural inflow or venting, and the main hole could be drilled about 100 m away.

Site is expected to have unstab[illegible] volcanic/clastic mixes in the mud weight may be required to stabilize the hole. This would require a 3400-4400 m riser.

The TECP site has a better chance of being drilled without a riser using inexpensive mud cleaning pills; however, it could also require mud and a 5000-5200 m riser to control the 1600 m sediment section and 100 m sandstone/shale section.

As briefly stated in the Section I Summary, Items 1 to 4, the study scope items to be proposed are:

1) SLIM LINE RISER FOR 4000 m WATER DEPTH:

A) Recommend preliminary equipment designs and provide cost estimates for two "Slim Line" Risers (9-5/8" OD and 10-3/4" OD Riser) for 4000 m water depth with Riser Support Systems for the drilling vessel Sedco/BP 471. Assume the riser would be low pressure, would have integral threaded connections, and would not have flotation or choke/kill lines. Assume only a ship board diverter (ie, no seafloor BOP) would be used initially. Optional seafloor BOP Systems for both risers will be addressed in Section IV.2. Recommend the maximum water depth in which the riser design could be used.

B) Provide a dynamic mechanical analysis for the risers, required ship board modifications (such as reinstalling the original riser tensioner system or an integral riser slip joint/ tensioner system), and a redundancy and risk analysis for the riser.

C) Evaluate alternatives for reducing the time required to pull a long slim line riser when running larger diameter casing or for emergency disconnects (such as a moon pool hang-off system).

D) Evaluate riser handling and storage capacity on the Sedco/BP 471 to determine remaining casing storage capacity for various water depths.

E) If the Sedco/BP 471 has extensive deficiencies, define its limits and suggest specifications for an alternate vessel.

F) Evaluate drill pipe fatigue assuming the present guide horn must be removed to accommodate the riser. Assume a ball or taper joint (possibly with an internal bending radius) is used at the seafloor and/or ship to accommodate riser deflection.

The following constraints and guidelines apply:

a) The 10-3/4" Riser shall have a minimum long drift clear bore sufficient to pass a 9-7/8" OD core bit, and the 9-5/8" Riser shall have a minimum long drift clear bore sufficient to pass an 8-1/2" OD core bit.

b) A Riser/BOP System is not requi[illegible] control for deep scientific coring in [illegible] potentially hazardous sites will be re[illegible] rigorous review process, areas will be carefully surveyed for hazards and specific sites will be proven in advance by test hole coring. However, viscous mud/polymer systems may be required to provide adequate cleaning in deep holes, unstable formations may require control using mud to impose hydrostatic pressure, filter cake or chemical inhibition, and rigorous environmental/pollution/safety requirements on continental slopes may require BOP/Riser systems in some areas.

c) Circulated mud weight will normally be 8.8-9.4 ppg drilling and coring, but will not exceed 10.5 ppg. Emergency kill mud weight to load the hole below the mudline (ie, not circulated back to surface) will not exceed 12.5 ppg. Seawater will be standby fluid.

d) Riser shall be bare (ie, no fixed external lines, buoyancy material or appliances except clips for the electric umbilical). Provide a dynamic mechanical analysis (especially vertical forces due to vessel motion) on both connected and disconnected risers. Estimate required ship board modifications, with a redundancy and risk analysis for the riser.

e) The ship board riser diverter system shall consist of: one high pressure annular/full closure diverter (BOP), and a choke and kill hose outlet spool capable of sustaining full riser tension (in the riser below the tensioner/slip joint and diverter).

f) Riser tensioner capability sufficient for support of the above riser and umbilical in severe generic environmental conditions (as specified in Section II.3.). Evaluate alternatives for reducing the time required to pull a long riser when running larger diameter casing or for emergency disconnects such as a means for shifting a disconnected riser from beneath the center of the rotary to enable running casing beside it. The Sedco/BP 471 drill pipe guide horn might have to be removed for this purpose (see Reference 12).

g) Evaluate riser handling and storage capacity on the Sedco/BP 471 to determine remaining casing storage capacity for various water depths (Reference 4, Section III.A.a,b.).

h) General guidance for above concepts from references as noted in discussion (see References 4,5,6,9,10).

2) OPTIONAL SEAFLOOR BOP SYSTEM:

A) Recommend preliminary equipment designs and provide cost estimates for a future optional seafloor BOP System compatible with the two Slim Line Riser sizes for the drilling

3P 471 (to be quoted as optional
ection I.1.A.). Assume tha
n-coax system will be used for guideline-less operations (ie, without an ROV). Assume that a side funnel would be provided external to the riser so drill pipe (using appropriate wireline plugs) could be used to cement or kill flows, recharge accumulators, or hot charge batteries (using the logging line) while the riser was hung-off in the moon pool.

B) Conceptually define the mud line BOP, seafloor Valve/Remote Choke, and electric cable/DP recharge system that would be used.

The following constraints and guidelines apply:

a) The BOP at the mud line will consist of one double ram BOP (shear/blind and variable bore rams) with typical appliances for BOP disconnect, riser disconnect and flex joint. The cost estimate for the mud line BOP system shall be specified as a separate optional item. Evaluate the need for a seafloor Riser Pressure Readout/Dump Valve/Remote Choke for low fracture gradients, lost circulation or uncontrollable gas kicks.

b) Subsea BOP control system shall consist of one hydraulic umbilical (preferably with redundant power fluid hose) and supply readback, one multiplex electrical power cable (preferably with redundant circuits), two mini-electro/hydraulic control pods, and a subsea hydraulic accumulator bank capable of surface pre-charge and subsea recharge (via the umbilical).

c) Consider a means of emergency disconnect by hanging off the riser to the side of the moonpool and running drill pipe beside the riser to the sea floor and stabbing it into a receptacle for controlling flows or recharging the BOP if any.

<u>3) EXTENDING DRILL STRING TO 10,500 M:</u>

A) Evaluate extending the present drill string working depth to 10,500 m specifically for the TECP Generic Site in Section IX. The loss of tensile strength in aluminum drill strings at higher bottom hole temperatures may suggest simplifications and economies that can be made in the design by specifying the older and lower temperature site in deeper water (ie, 220°C in 4400 m WD or 440°C in 3400 m WD). The 2-4°C seawater column from 500 m to the seafloor effectively cools any circulated fluid to about the same temperature. In Hole 504B at 2000 m the circulated seawater was 110°C at the bit with a bottom hole static temperature of 196°C and a temperature of 160°C 8 hours after circulation stopped. Fluid exiting the annulus at the seafloor was about 50-100°C.

Attachment 12 is a preliminary feasibility analysis of two alternatives; however, the study may suggest alternate solutions. Provide a dynamic mechanical a[illegible] ship board modifications, comparative ri[illegible] estimated cost for supplementing the present [illegible] light weight aluminum drill pipe or larger diameter steel drill string. If maximum conditions cannot be met, advise what the limiting conditions (ie, depth, weather and/or temperature) are. The two options are:

a. Using light weight aluminum drill pipe run below the main unsupported 5-1/2" X 5" drill pipe (but above the sea floor to avoid rock abrasion and high temperatures). Evaluate seawater corrosion effects.

b. Using larger diameter steel drill strings above the 5-1/2" X 5" drill pipe. Evaluate ship board pipe racker and pipe handling system upgrades.

4) <u>SPECIFICATIONS FOR ALTERNATE CORING VESSELS:</u>

A) Prepare a "Scope of Work" with a detailed set of generic specifications (which can be used by ODP or a third party) to evaluate existing ship-shaped or semi-submersible dynamically positioned drilling vessels for riser operations at the LITHP Generic very deep coring site in Section X (10,500 m string length in 3400-4400 m water depth). The generic specifications should not be constrained to favor any specific equipment design or vessel.
The vessel specifications should include:

1. Overall vessel capability, space, consumables capacity, transit speed and fuel use, current daily oil field contract cost (without contractor's BOPs, riser or drill pipe) and loading for casing and drill string.

2. Hoisting/compensating capacity and suggested modifications for wireline coring.

3. Dynamic positioning modifications required to extend capability to 3400-4400 m water depth.

4. Riser tensioner capacity, riser storage, derrick and substructure capacity, and drill string storage.

5. Other considerations as appropriate.

B) Estimate the cost of using an alternate ship-shaped or semi-submersible dynamically positioned drilling vessel for 6-10 month very deep coring assignments (10,500 m string length) with riser operations (in 3400-4400 m water depth) for the LITHP Generic deep site in Section X.

C) Estimate the cost and time required for ship board additions (such as high speed wireline drawworks) and modifications (to accommodate such operations as wireline coring operations through the blocks/swivel/hook system). Include estimated restoration and demobilization costs.

lternate ship-shaped or semi-submersible, self-propelled, dynamically positioned, top drive equipped drilling platform will be retained about 1995 under a 5 year contract and dedicated to ultra deep drilling/coring (ie, 3500 to 6000 meters penetration in 3400-4400 m water depths requiring up to a 10,500 meter drill string length).

b) Six to ten months total time will be spent on one site, with a 3 to 5 day port call for fuel, reprovisioning and crew change (preferably every two months), with a 1000 nmi transit to the nearest port.

c) Minimal ship board modification will be done to existing equipment. Dual wireline coring winches (provided by ODP) would be mounted and traveling equipment (leased or provided by ODP) would be changed out to provide wireline access through pipe. No guide horn will be used.

d) Modifications for scientific purposes will be limited to mounting three shipping container sized portable units (two labs and core storage) on the main deck to provide comparable core splitting, examination and storage to the Sedco/BP 471.

e) The drill string will be 4-1/8" ID to permit RCB wireline core retrieval; therefore, the string design from Section I.2.a,b. would be applicable. ODP would provide the drill string.

f) Investigate the cost and operational implications of providing wireline access through the block, swivel and top drive as available on the Sedco/BP 471. Investigate the effect of the lower heave compensation capacity on operations.

V. TECHNICAL CONTACT

The technical contact for the Ocean Drilling Program shall be Gene Pollard or Mike Storms, 1000 Discovery Drive, College Station, TX 77845, Phone (409) 845-8481, FAX (409) 845-2308. Proposer shall nominate a Project Manager, who shall act as Proposer's technical contact. All correspondence and completed Proposal should be mailed or faxed to either ODP contact at address above.

VI. ANTICIPATED SCHEDULE

After PCOM review on December 2-5, '92, the "Request for Proposals" will be mailed to proposed consultants in early January '93. Consultants' "Proposals" will be due at ODP on March 15, '93. TEDCOM will review the "Proposals" on March 30-31,'93 and award or decline bids. The First Meeting with the contractor will be held at

ODP in early May '93 to review "Study" framewor[k] schedule. A Second Meeting will be held in ea[rly] ... present the "Study" concept to ODP for ap[proval] ... anticipated completion schedule). A written draft ... [fini]shed "Study" should be presented to ODP by early August '93. Consultant will present the finished "Study" to the TEDCOM meeting in Reykjavik on September 29,'93; thereby, completing all obligations.

VII. BUDGET

Consultant shall perform the "Study" as described herein on a "Fixed Bid Basis". One quarter of the bid awarded will be paid after the First Meeting, one quarter will be paid after the consultant presents the "Study" concept to ODP for approval, one quarter will be paid after ODP approves the preliminary finished "Study", and one quarter will be paid after Consultant presents the study results at the TEDCOM meeting in Reykjavik on September 29, '93. Payments will not be made in excess of the bid amount, and Consultant is hereby on notice that additional fund availability is not anticipated.

Travel costs should be included in bid. The ship may be inspected in Panama City, Panama on January 22-25, '92, and (tentative dates) in Lisbon, Portugal on April 19-20 and May 25-29, '92 and St. John's, Newfoundland on July 25-29, '92. Proposers may subcontract portions of the "Study" with prior ODP approval, but the main Consultant remains responsible for the "Study" in all respects and is entirely responsible for payments to any subcontractors.

VIII. PROPOSAL CONTENT

Bidder's "Proposal" should meet the following criteria as a minimum:

1) Provide a "Qualification Statement" identifying your organization's experience in oil field, mining, geothermal and scientific drilling and coring. Proposers may subcontract portions of the "Study" with prior ODP approval.

2) Provide a brief summary of each individual major contributor as applicable, including proposed subcontractors and their expected contribution to the "Study".

3) Provide a list of existing or previous clients with whom ODP may discuss Proposer's past performance. Please provide current phone numbers and addresses.

4) The "Proposal" should present a conceptual framework for the "Study" and may suggest additions to the general outline proposed in Section IV. The "Proposal" size limit is 8 typed pages, not including brochures, qualification statements or other printed material.

t's "Proposal" should contair understanding of the questions , an estimate of the man-ho involved and a firm all-inclusive bid for the work as follows:

Phase I

RISER STUDY	$________.
BOP STUDY	$________.
10,500 M DRILL STRING STUDY	$________.
SPECS FOR ALTERNATE VESSEL	$________.
TRAVEL EXPENSES	$________.

TOTAL:	$________.
ESTIMATED MAN-HOURS:	________.

NOTE: The bid can be broken down into smaller increments if desired following the general guidelines of the RFP.

Phase II

After ODP and TEDCOM review the "Study" and evaluate the specifications for an alternate coring vessel, another RFP may be issued (to the Phase I "Contractor" or an alternate neutral contractor) to evaluate all available, suitable drilling vessels.

6) The "Feasibility Study" will follow the conceptual framework of the "Proposal" after it is approved by ODP. A two page "Executive Summary" and "Conclusions" section should be included for quick review. The anticipated "Feasibility Study" size limit is 100 typed pages, not including graphs, tables or drawings.

NOTE: ODP reserves the right to reject any or all of the responses to this RFP. The "Proposals" and "Feasibility Study" become the sole property of ODP upon completion, and ODP shall retain the right to use or develop the ideas presented without further obligations, fees or licenses.

IX. DEEP DRILLING SITE PROPOSALS

PANEL	SITE	GENERAL AREA & LAT/LONG	GENERAL OBJECTIVE	WATER DEPTH	(METERS)
LITHP	Generic	Near a mid-ocean ridge such as the E.Pacific Rise or S.W. Indian Ridge	Rift processes. Casing to 1000 m thru pillow lavas.	3400-4400	300 Sedmt 700 Pillow 1000 Dikes 3000 Gabbro 1000 Dunite
				10,500	Total Depth

At 6000 mbsf, BHT 220°C in 4400 m WD
BHT 440°C in 3400 m WD

Proposed Program:

Pilot Hole, Hole A:
APC/XCB core Sediments, confirm top Basalt (est 320 mbsf). Log.

Pilot Hole, Hole B:
Move 300 m to Hole B.
Set Reentry Cone with Dual Casing Hanger & Cork profile.
Wash-in 80 m 16" casing.
Core into Pillow Basalts as deep as possible (est 500 mbsf).
Log.
Open Hole to 12-1/4".
Set & cement 10-3/4" casing (est 500 mbsf).
Core thru Pillow Basalts into Sheeted Dikes (est 1000 mbsf)
Log
Set Cork in Reentry Cone to plug hole.

Crooked Page

Deep Hole, Hole B:
Move 100 m to Hole B.
Set ReEntry Cone with Quad Casing Hanger and Cork profile.
Wash-in 20" casing to 80 m (ref. Hole A).
Drill 18-1/2" hole into Pillow Basalts as deep as possible (ref. Hole A, est 500 m).
Set 16" casing and cement at 500 mbsf. Test shoe to 9.0 ppg.
Run Riser.
Core 9-7/8" hole into Sheeted Dikes (est 1500 mbsf) w/ 8.8 ppg mud.
Log.
Underream hole to 14-3/4".
Circ out mud and stand Riser aside.
Float-in 13-3/8" casing and cement (est 1500 mbsf).
Run Riser. Circ 9.4 ppg mud. Test shoe to 9.7 ppg.
Core 9-7/8" hole as deep as possible (est TD at 6000 mbsf).
Log.
Note: If add'l casing is required, a 950 m long 10-3/4" liner can be set.
Underream hole to 12-1/4".
Circ out mud and stand Riser aside.
A 950 m long 10-3/4" liner can be set and cemented.
Core 9-7/8" hole to TD (est TD at 6000 mbsf).

	RAL AREA ?/LONG	GENERAL OBJECTIVE	WA DE	
TECP	G 1-A W. Galicia Margin 42°8.75'N/12°37.4'W 200 mi W of Spain	Synrift sediments, Rift processes. Casing to 1700 m. April to October. Reflector 700 m into Granite	5200	1600 Sedmt 100 SS,Sh 1800 Granite 8,700 m Total Depth

At 3500 mbsf, BHT 70°C

Proposed Program:

<u>Pilot Hole, Hole A:</u>
APC/XCB core into firm Sediments (est 800 mbsf).
Log.

<u>Pilot Hole, Hole B:</u>
Move 300 m to Hole B.
Set Reentry Cone with Dual Casing Hanger & Cork profile.
Wash-in 80 m 16" casing.
Core into firm Sediments (ref. Hole A, est 800 mbsf).
Open Hole to 12-1/4".
Set & cement 10-3/4" casing (est 800 mbsf).
Core thru Sediment and Sandstone/Shale into Granite (est 1850 mbsf)
Log.
Set Cork in Reentry Cone to plug hole.

<u>Deep Hole, Hole C:</u>
Move 100 m to Hole C.
Set Reentry Cone with Quad Casing Hanger and Cork profile.
Wash-in 20" casing to 80 m (ref. Hole B).
Drill 18-1/2" hole into firm Sediments (ref. Hole B, est 800 m).
Set 16" casing and cement at 800 mbsf.
Test shoe to 9.0 ppg.
<u>Note</u>: A Riser would not be run unless mud req'd to stabilize hole.
Core 9-7/8" hole into Granite (est 1850 mbsf) w/ 8.8 ppg mud.
Log.
<u>Note</u>: If add'l casing is required, a 630 m long 13-3/8" liner could be set from 750-1380 mbsf.
Underream hole to 14-3/4" to 1380 mbsf.
Circ out mud and stand Riser aside.
Run 13-3/8" liner and cement from 750-1380 mbsf.
Test shoe to 9.6 ppg. Run Riser.
Circ 9.3 ppg mud and core 9-7/8" hole as deep as possible into Granite (est TD at 3500 mbsf).
Log.
<u>Note</u>: If add'l casing is required, a 710 m long 10-3/4" liner can be set from 1330-2040 mbsf.
Underream hole to 12-1/4" (est 1330-2040 mbsf).
Circ out mud and stand Riser aside.
Run 10-3/4" liner and cement (est from 1330-2040 mbsf).
Core 9-7/8" hole to TD (est TD at 3500 mbsf).
<u>Note</u>: A 780 m long 8-5/8" liner could be set at TD.

X. LIST OF PROPOSED CONSULTANTS

1) Asia Brown Baveri Vetco Gray, Attn. Max Kattner, 10777 Northwest Fwy., P.O. Box 2291, Houston, TX 77252-2291, Ph:
2) Cooper Industries, Attn. Ed Fisher, P.O. Box 1212, Houston, TX 77251-1212, Ph: (713) 939-2211.
3) Dril-Quip, Attn. Gene Eubank, 13550 Hempstead Hwy, Houston, TX 77040, Ph: (713) 939-7711.
4) Earl & Wright, Attn. John Morris, 11111 Wilcrest Green, Suite 250, Houston, TX 77042, Ph: (713) 260-7000.
5) Hydril, Attn. Joe Roche, P.O. Box 60458, Houston, TX 77205-0458.
6) Japan Drilling Co., Ltd., Attn: Hiromitsu Yamamoto, No.11 Mori Bldg., 6-4, Toranomon 2-Chome, Minato-Ku, Tokyo 105, Japan, Ph: 03 (3501) 7395.
7) Neddrill Nederland B.V., Attn: Ronald Hoope, Coolsingel 139, 3012 AG Rotterdam, Netherlands.
8) Reading & Bates, Attn. Roger Mowell, 901 Threadneedle, Suite 200, Houston, TX 77079, Ph: (713) 496-5000.
9) Seaflo Systems Inc., Attn. Steve Homer, 3000 Wilcrest, P.O. Box 42260, Houston, TX 77242.
10) Sedco Forex, Attn. Andre Gould, R & E Dept, 50 Ave Jean-Jaures B.P. 599, 92542 Montrouge Cedex, France 92542.
11) Sonat Offshore Drilling, Attn. Don Ray, Altens Industrial Estate, Hareness Circle, Aberdeen AB1 4LY, Scotland, UK.
12) Stress Engineers, Attn. Joe Fowler, 13800 Westfair East Drive, Houston, TX 77041-1101, Ph: (713) 955-2900.
13) W. H. Linder & Assoc., Attn. Bill Linder, 3330 Esplanade Ave., Metterie, LA, Ph: (504) 835-2577.

United States Department of the I

GEOLOGICAL SURVEY
BOX 25046 M.S. 940
DENVER FEDERAL CENTER
DENVER, COLORADO 80225
Office of Energy and Marine Geology
Branch of Petroleum Geology

IN REPLY REFER TO:

November 27, 1992

Memorandum

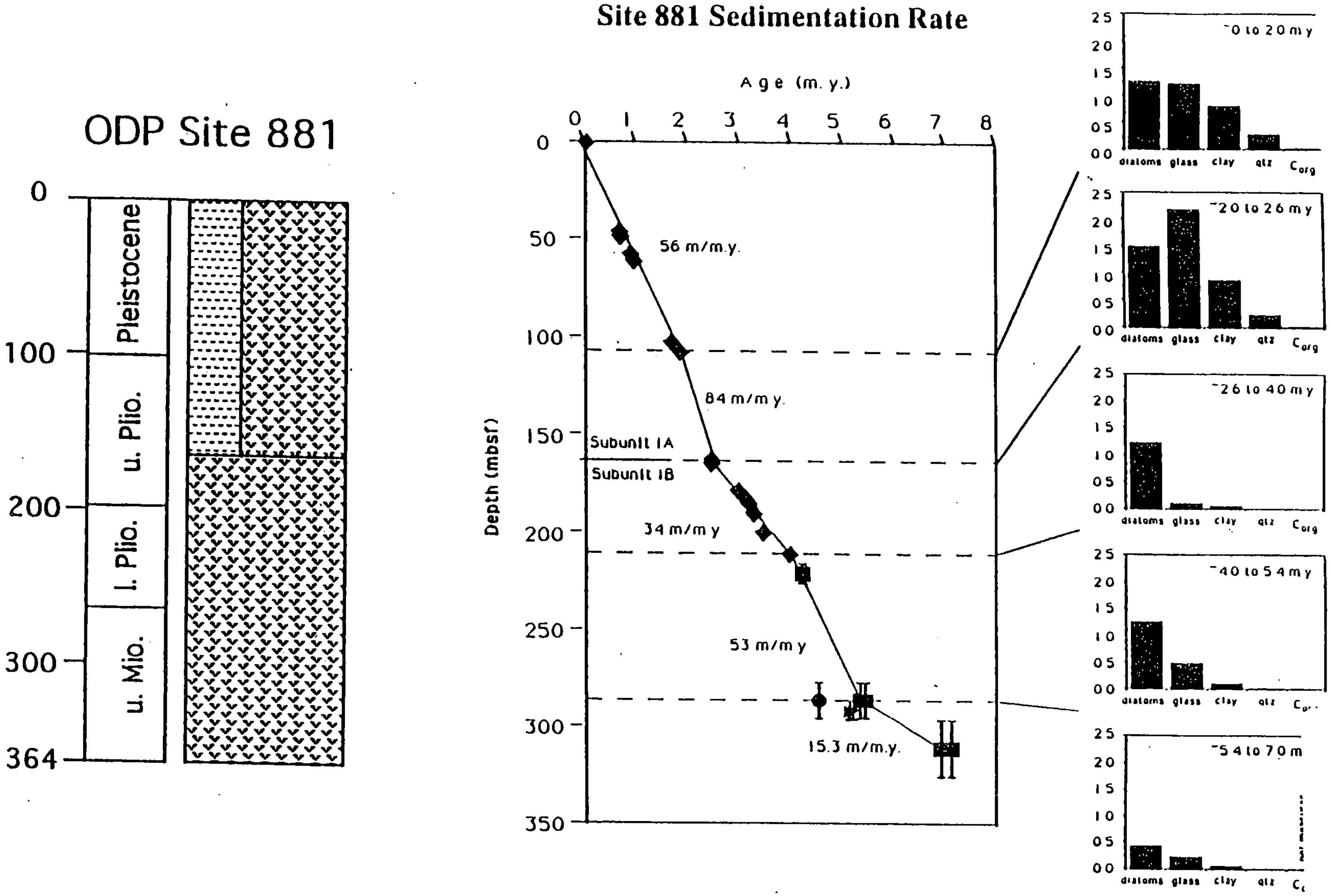
To: Brian Lewis, PCOM Chair

From: Mahlon M. Ball, PPSP Chair

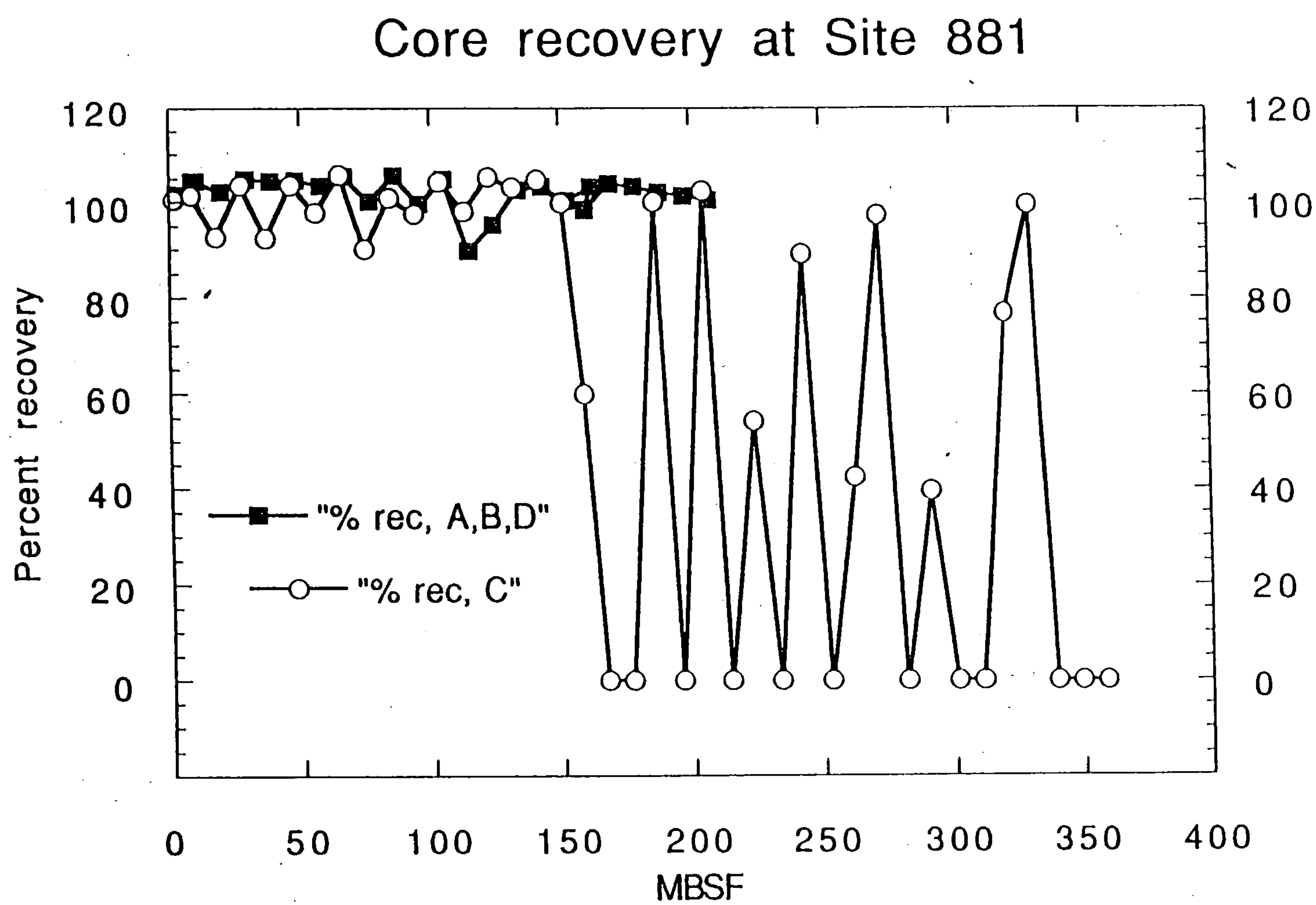
Subject: 1992 Annual Report of PPSP to PCOM

PPSP, in its role of providing independent advice to PCOM concerning safety and pollution hazards, met twice during 1992. The meetings involved proposed drill sites for legs 145, North Pacific Transect; 146, Cascadia and the Santa Barbara Basin; 149, Iberian Abyssal Plain; and 150, New Jersey Sea Level. Forty-three sites were approved with several moved to avoid structurally high positions. Eleven sites were not approved with eight of these occurring on the New Jersey margin in water depths of less than 100 m. The failure of these leg 150 sites to be approved resulted from (1) reticence of Safety Panel members to sanction use of the Resolution with its drilling mode involving sea water for drilling fluid, lacking return circulation and with inadequate capabilities for blow-out prevention, and (2) inadequate high-resolution geophysical data to insure absence of near-surface gas accumulations at the proposed shallow water sites.

An analysis of results of Leg 141, Chile Triple Junction, that involved the first authorized drilling through a bottom simulating reflection (BSR), lead to the following conclusions. The approach that was deemed reasonably safe, was to drill a BSR deep and downdip on the slope and then make subsequent penetrations, moving upslope as long as no free gas was encountered. No evidence of free gas was found off the Chile Margin. Furthermore, it appears that diagenetic changes related to the permeability barrier formed by the base of gas hydrates or located at former locations of a clathrate base may contribute to origin of BSR's. BSR's configured to form seals that separate an upper zone of damped, suppressed, reflection amplitudes, inferred to be well-developed hydrates, above high amplitude reflections, with bright spots, inferred to be gas bearing reservoir strata, are still judged unsafe to drill.

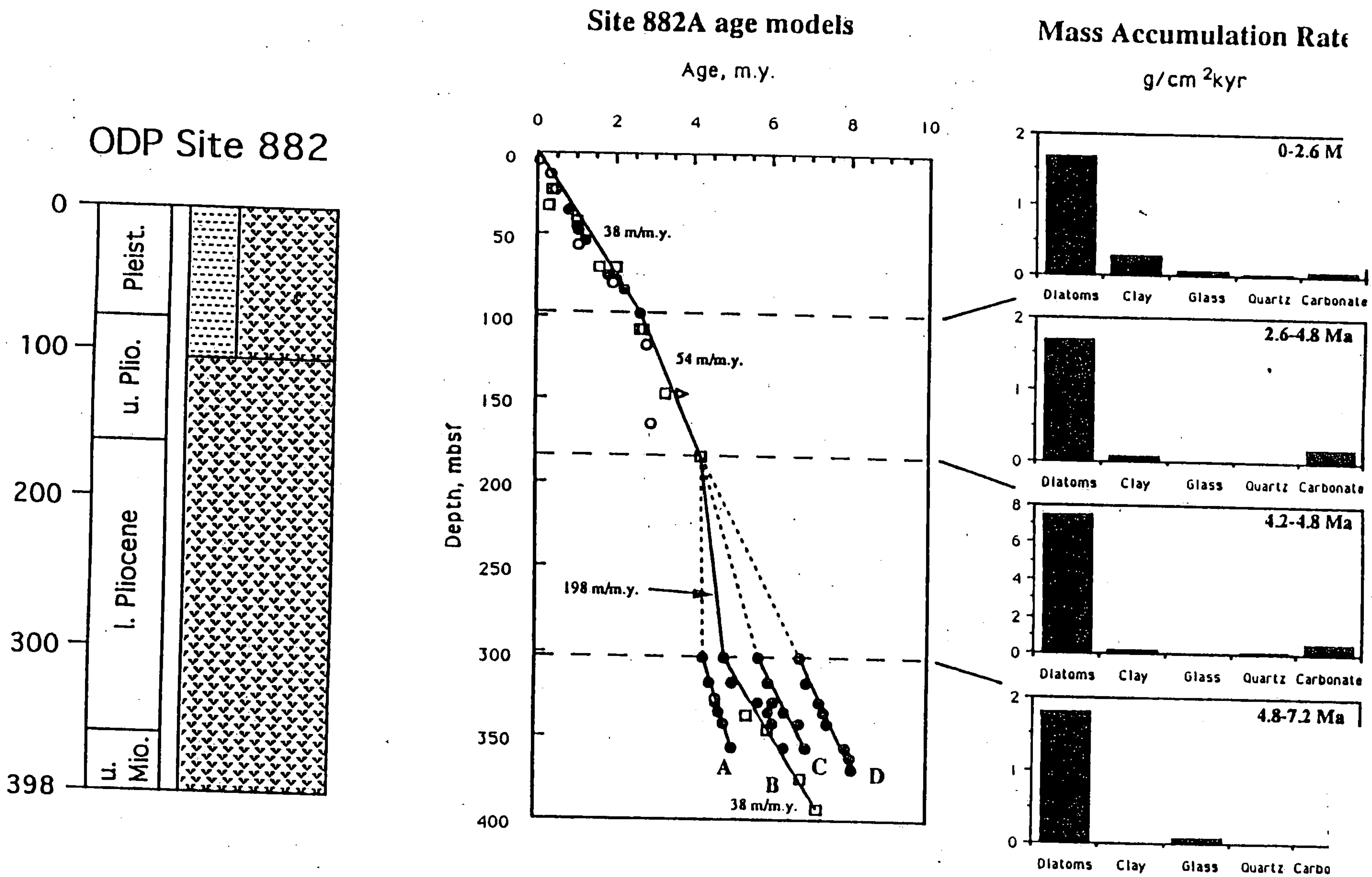


Appendix 17.0

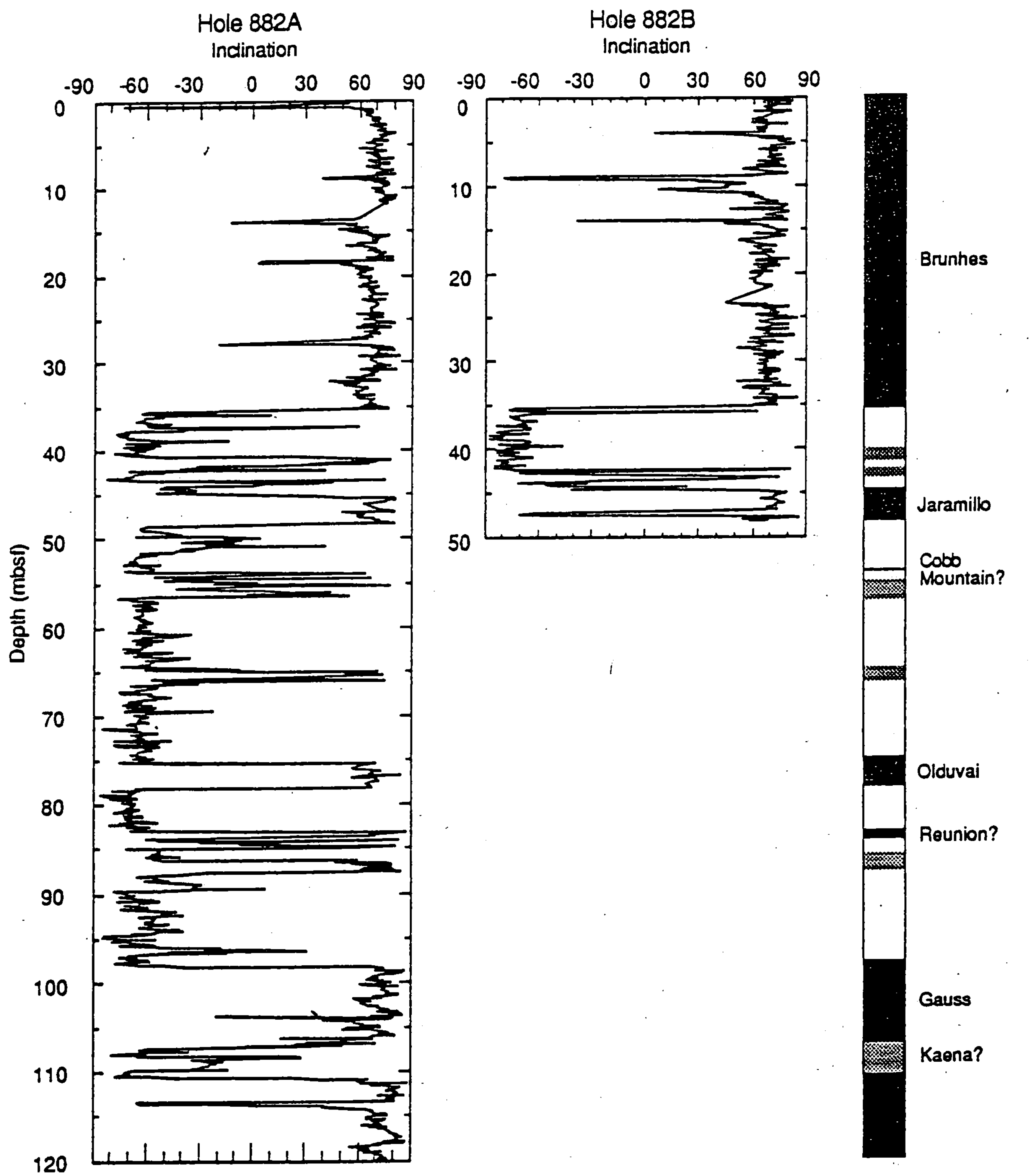


Appendix 17.1

Appendix 17.2

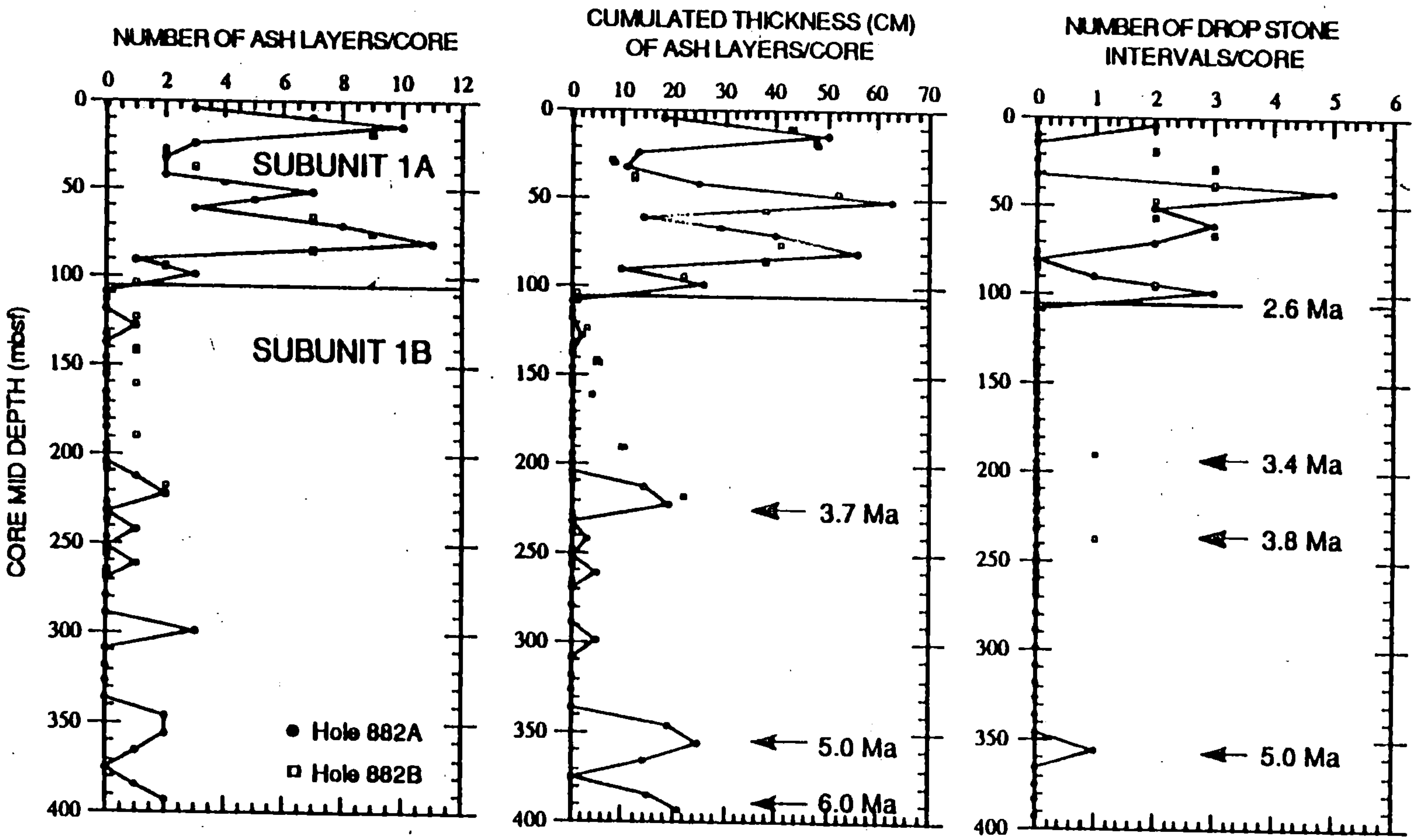


Appendix 17.2

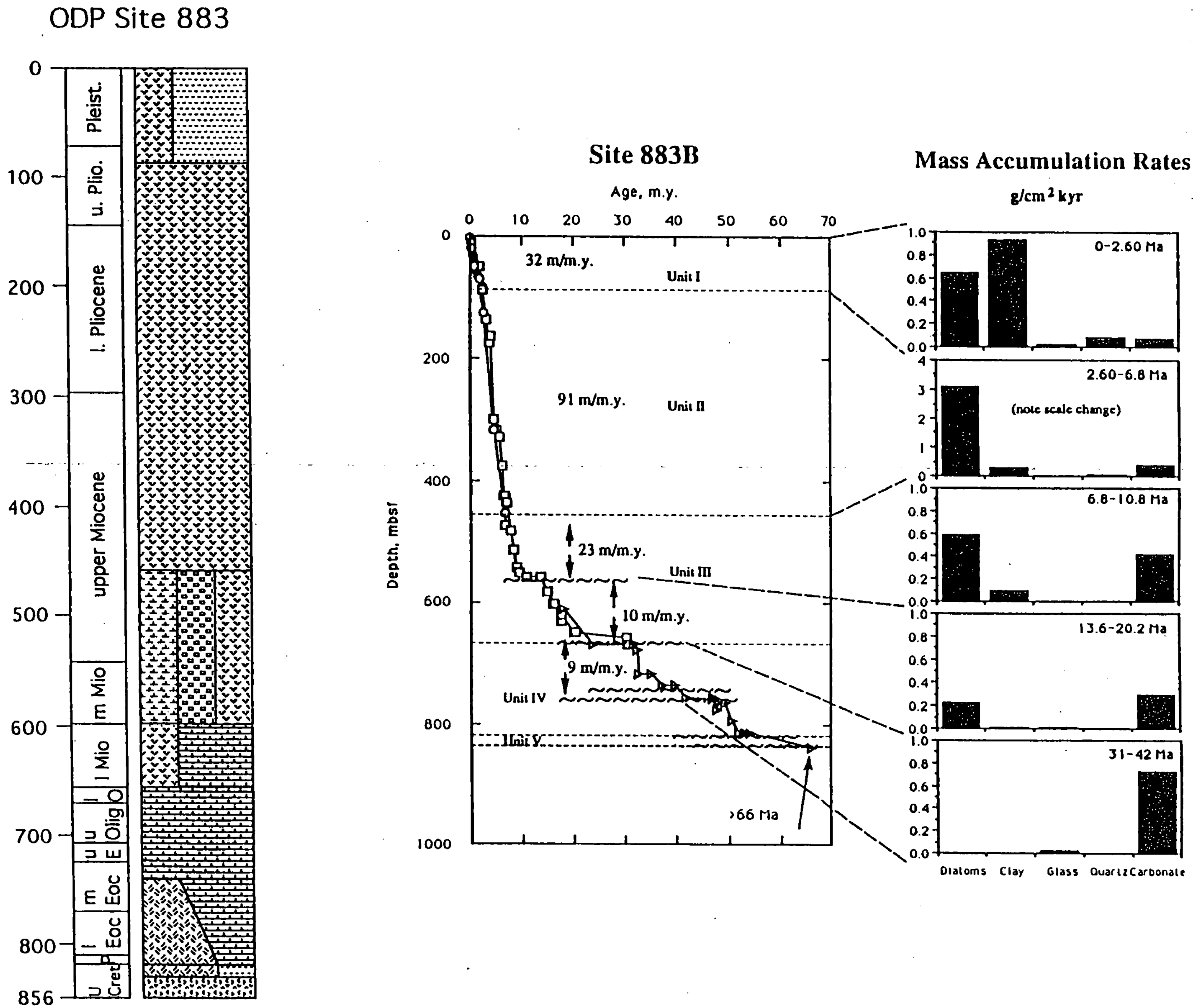


Hole 882A
Inclination
-90
-60
-30
0
30
60
90
0
10
20
30
40
50
60
70
80
90
100
110
120
Depth (mbsf)
Hole 882B
Inclination
-90
-60
-30
0
30
60
90
0
10
20
30
40
50
Brunhes
Jaramillo
Cobb Mountain?
Olduvai
Reunion?
Gauss
Kaena?

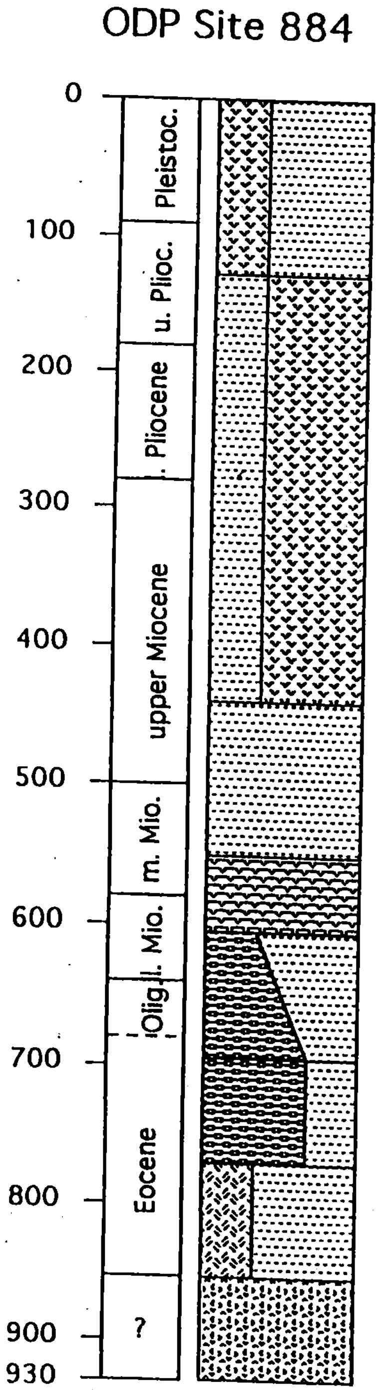
Site 882

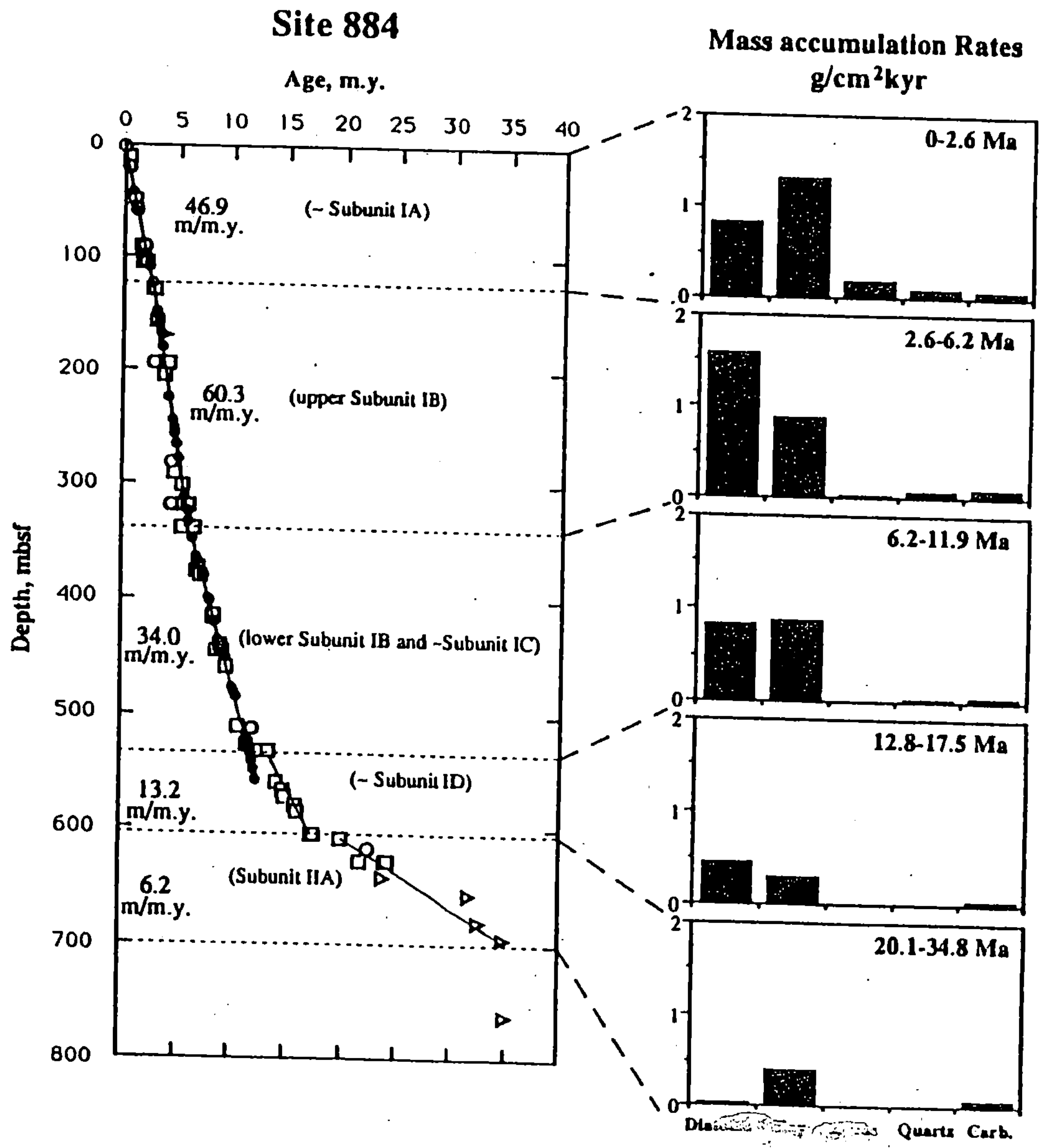


Appendix 17.4



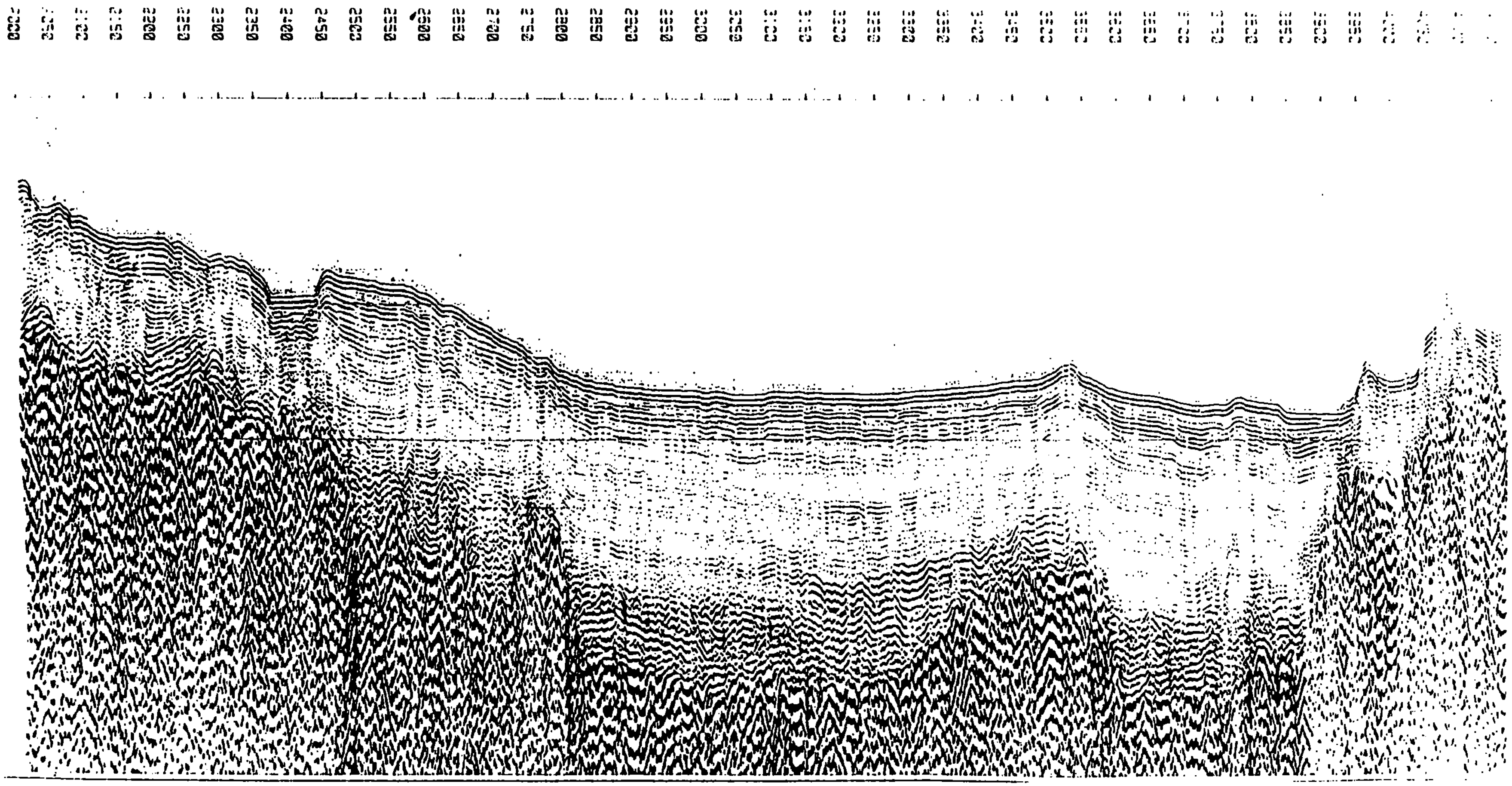
Appendix 17.5





Appendix 17.6

DEPTH SECTION [DECON /FKMIG (1480M/S)/GAIN .5 /BIAS -.7]



Appendix 17.7

Appendix 17.8

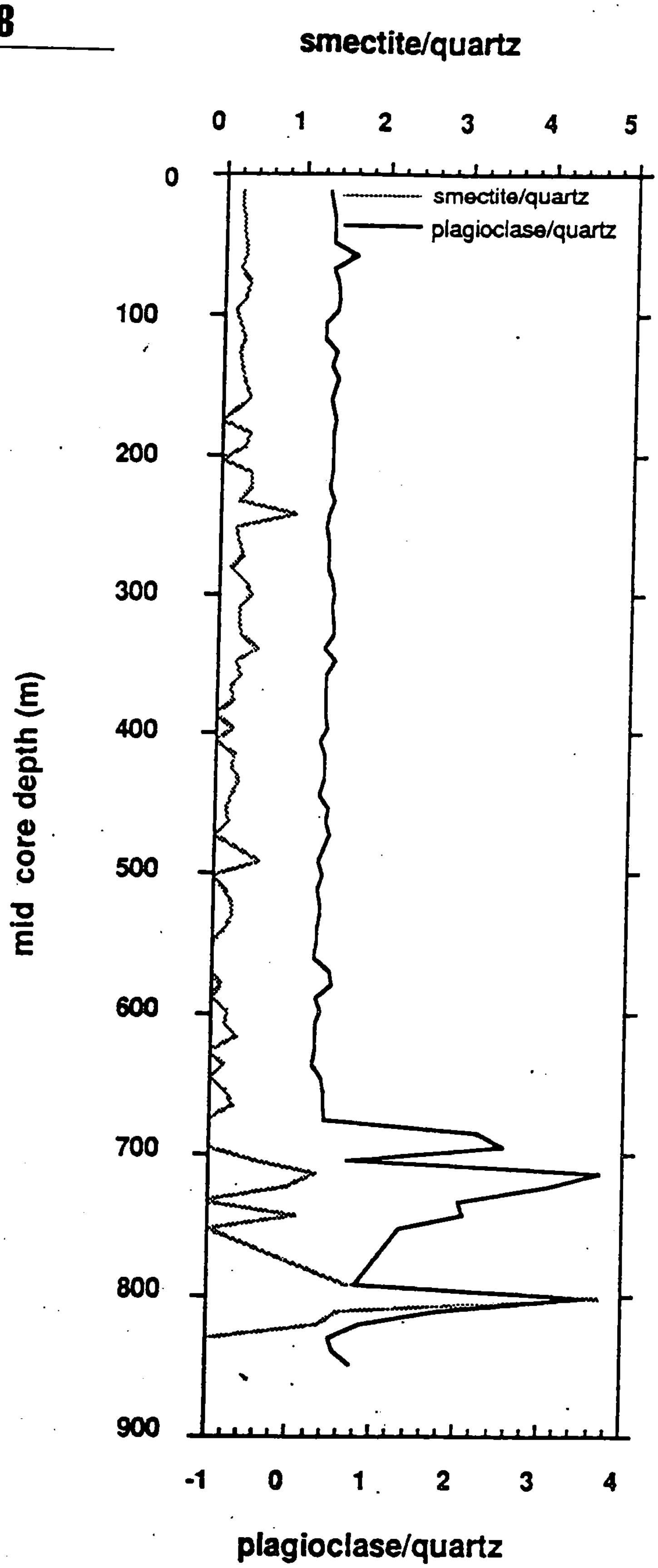
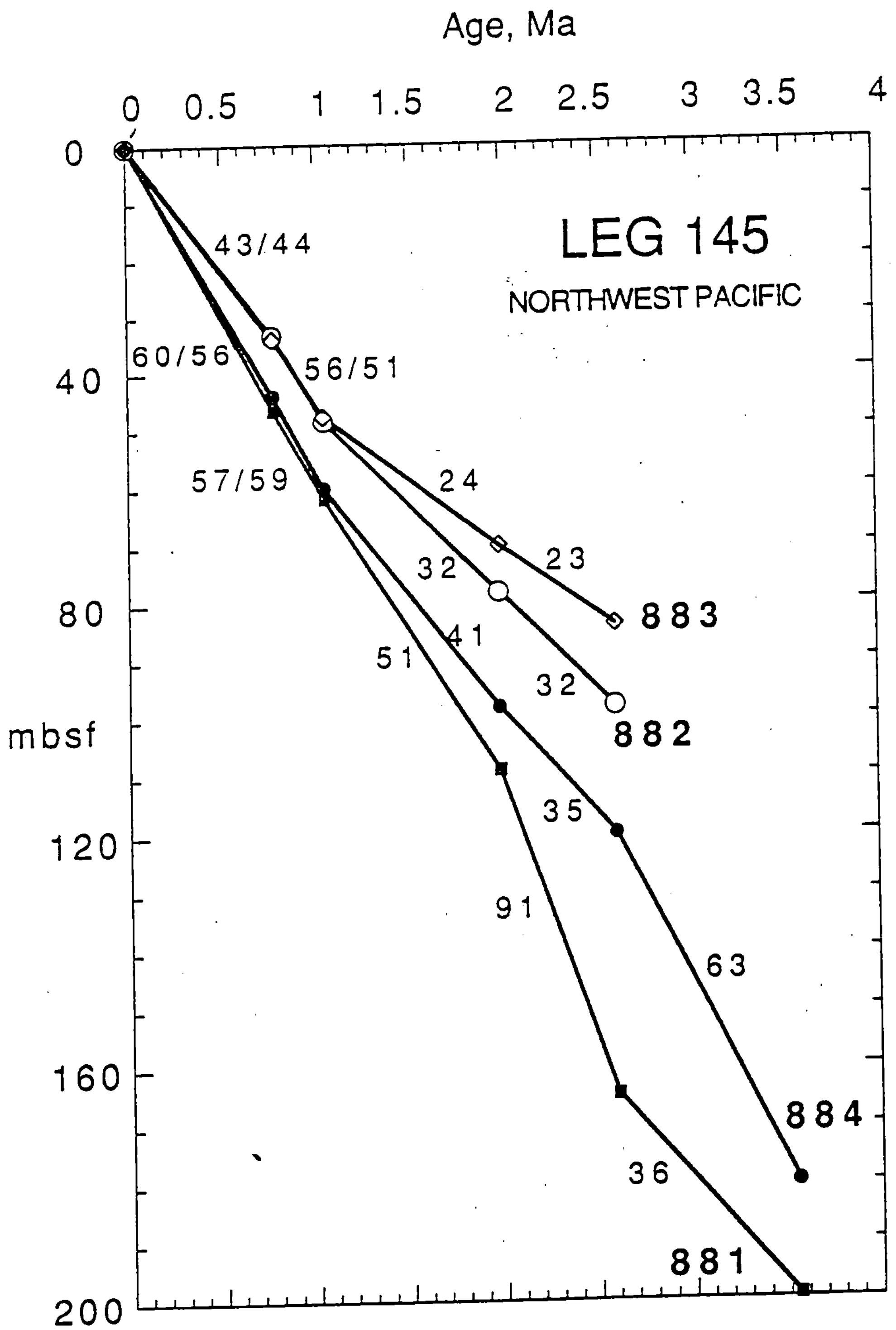
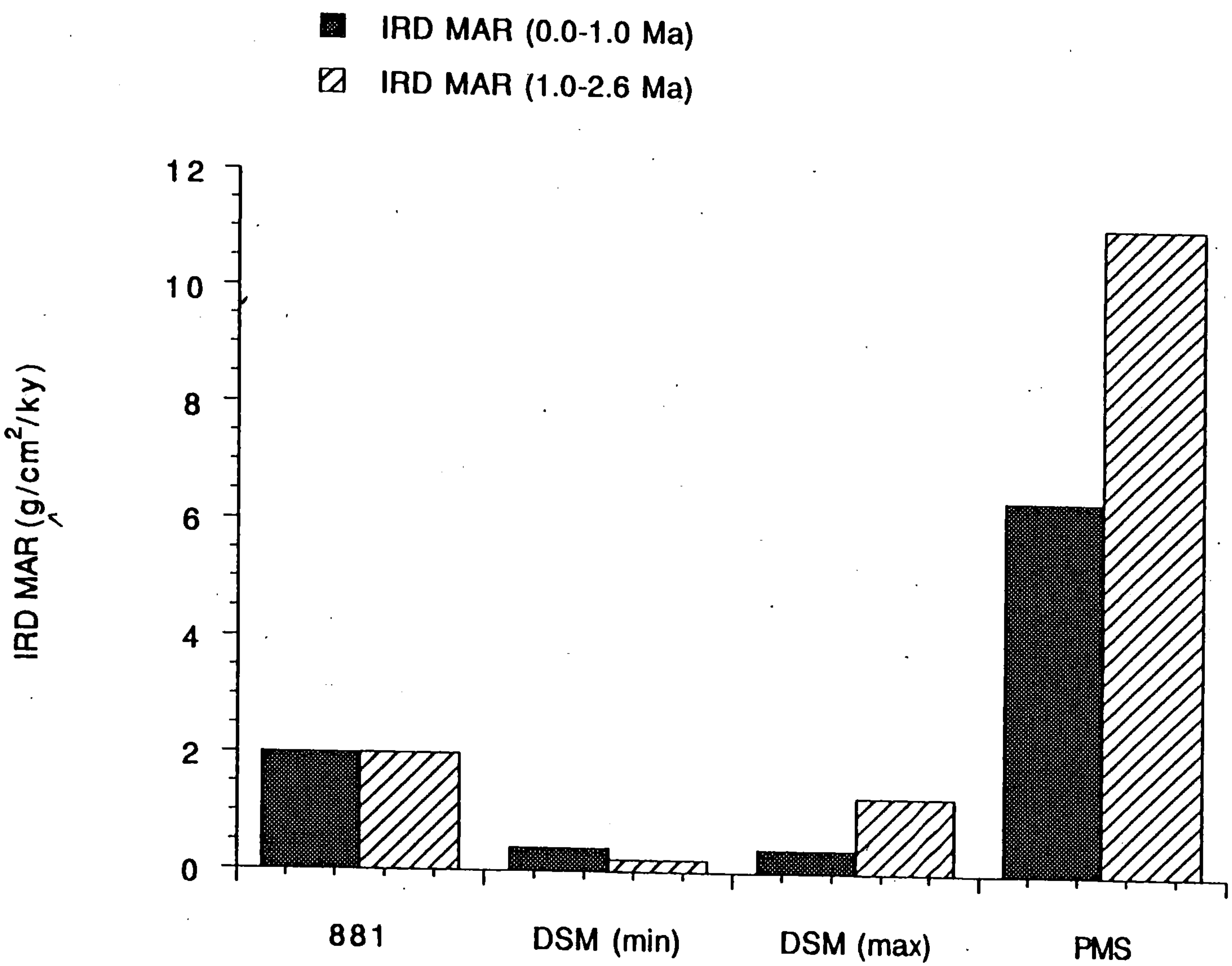


Fig. 884-E-5



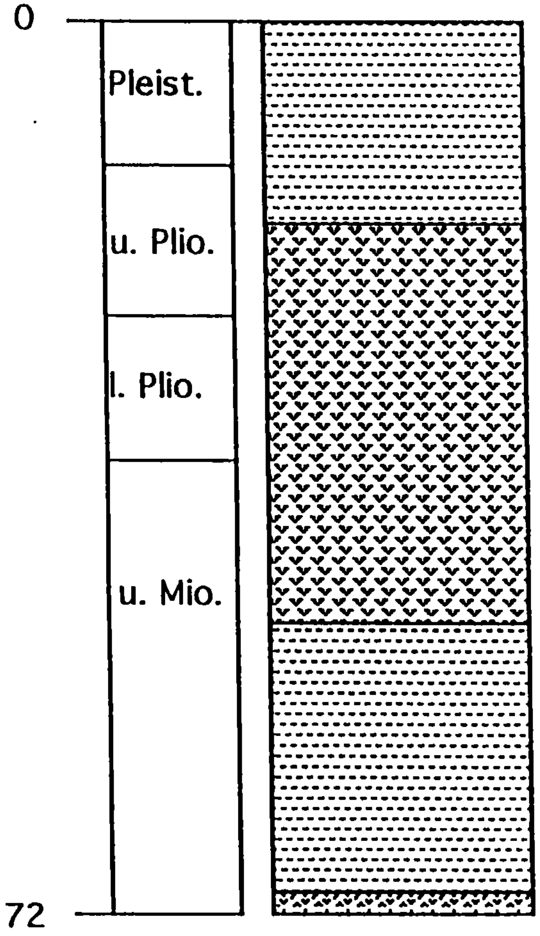
Linear Sedimentation Rates in m/m.y. from magnetostratigraphy

Appendix 17.10

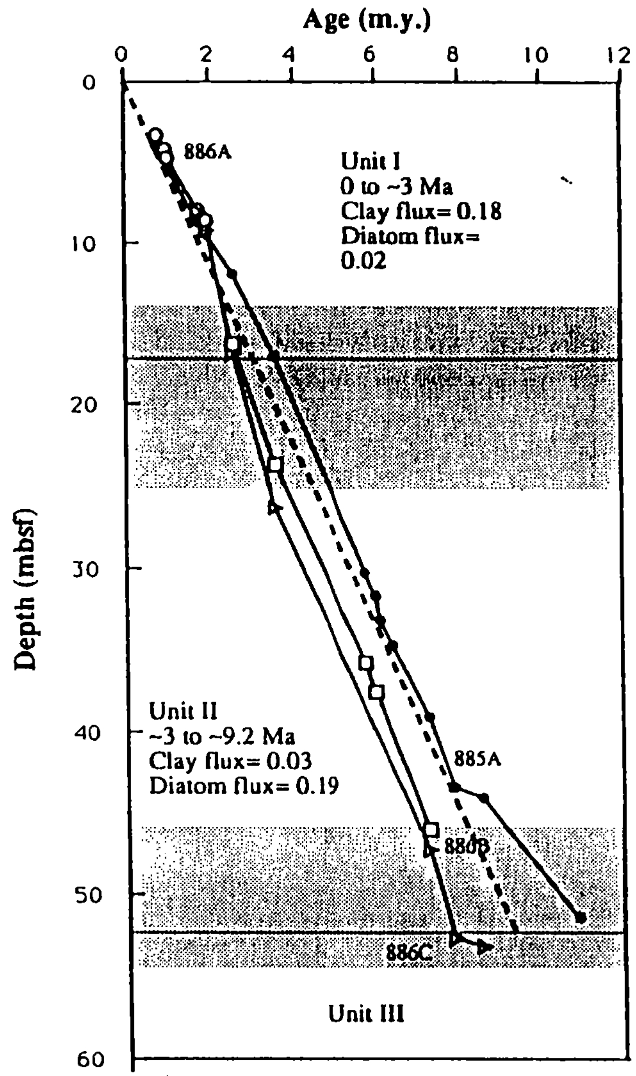


Appendix 17.10

ODP Site 885/886

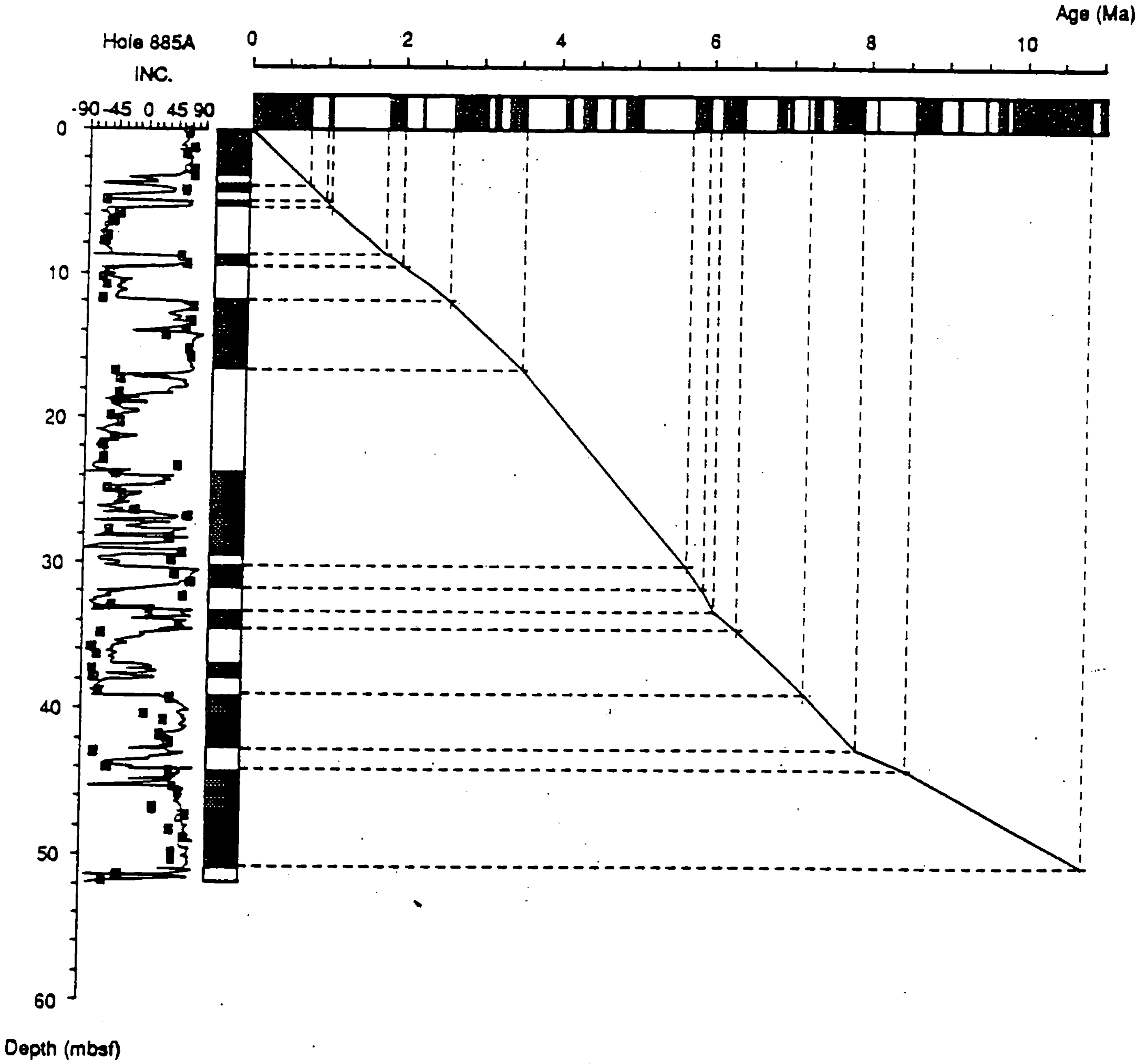


Site 885/886

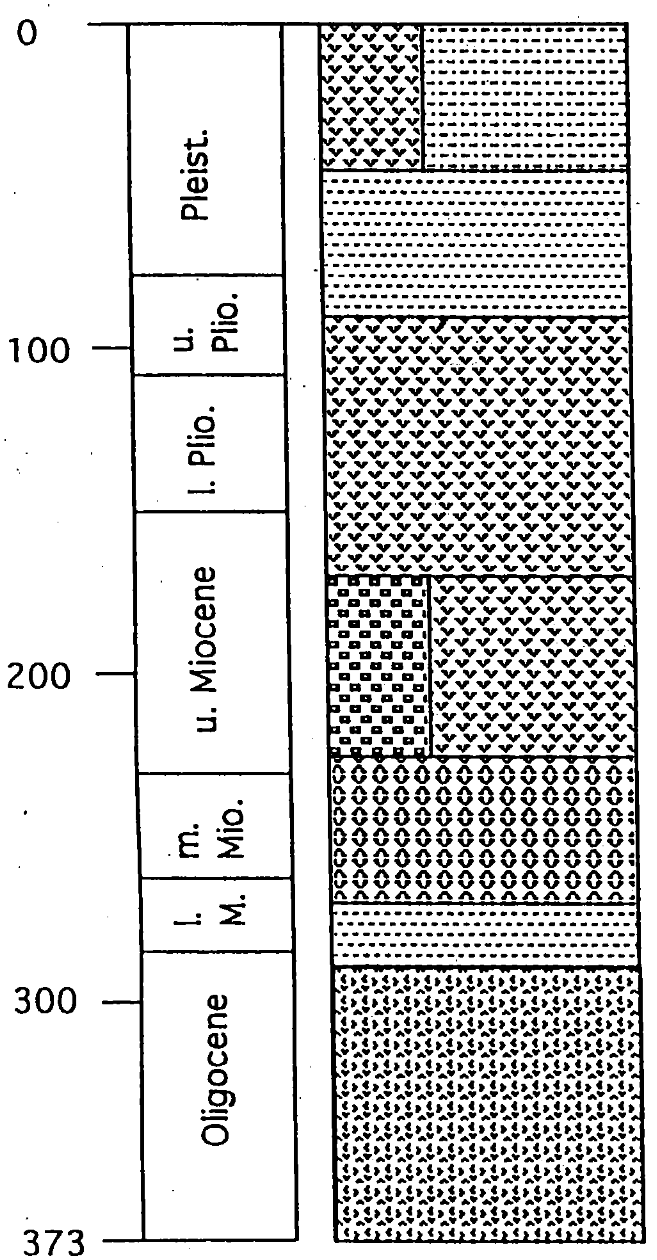


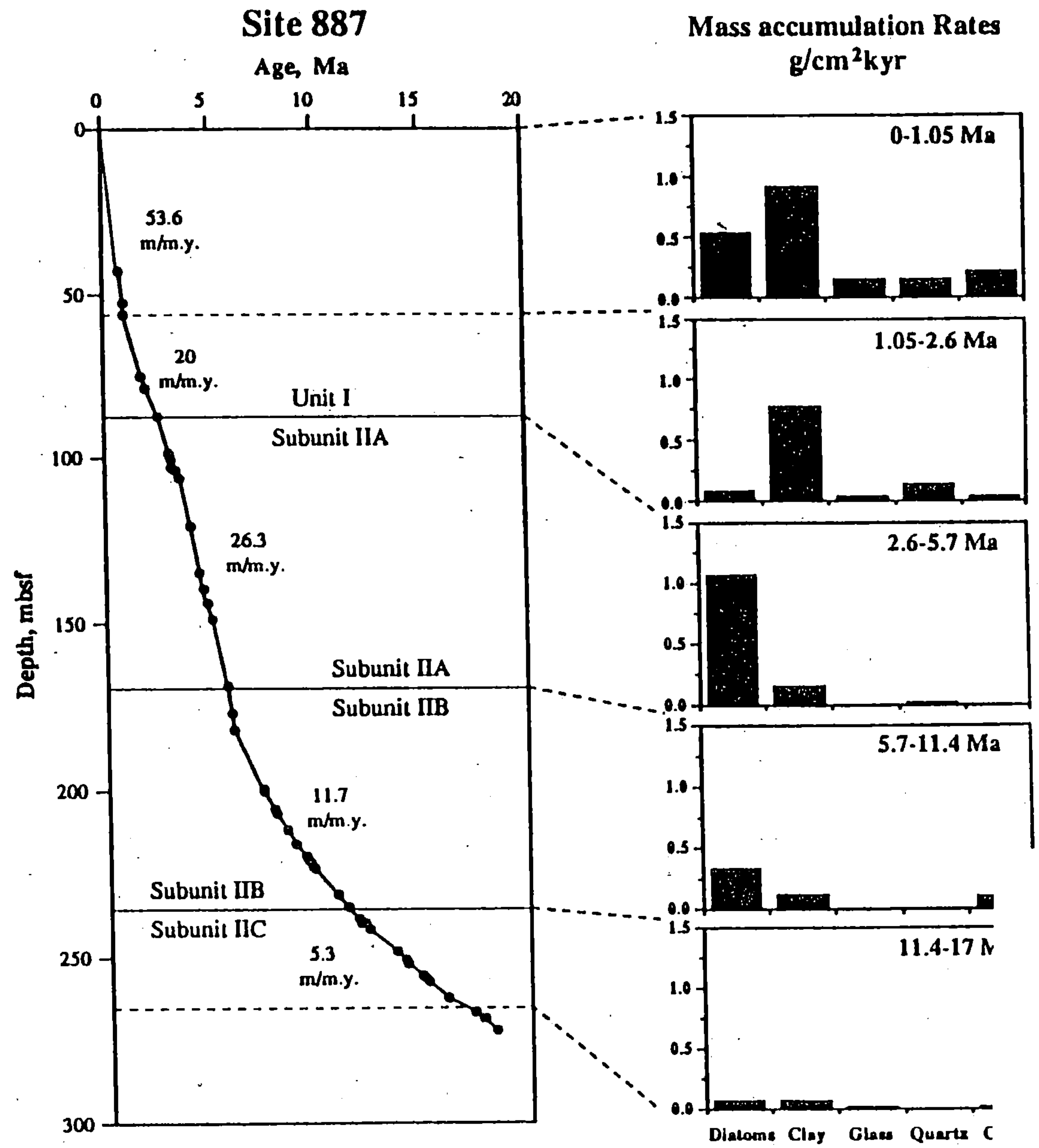
Appendix 17.11

Appendix 17.12



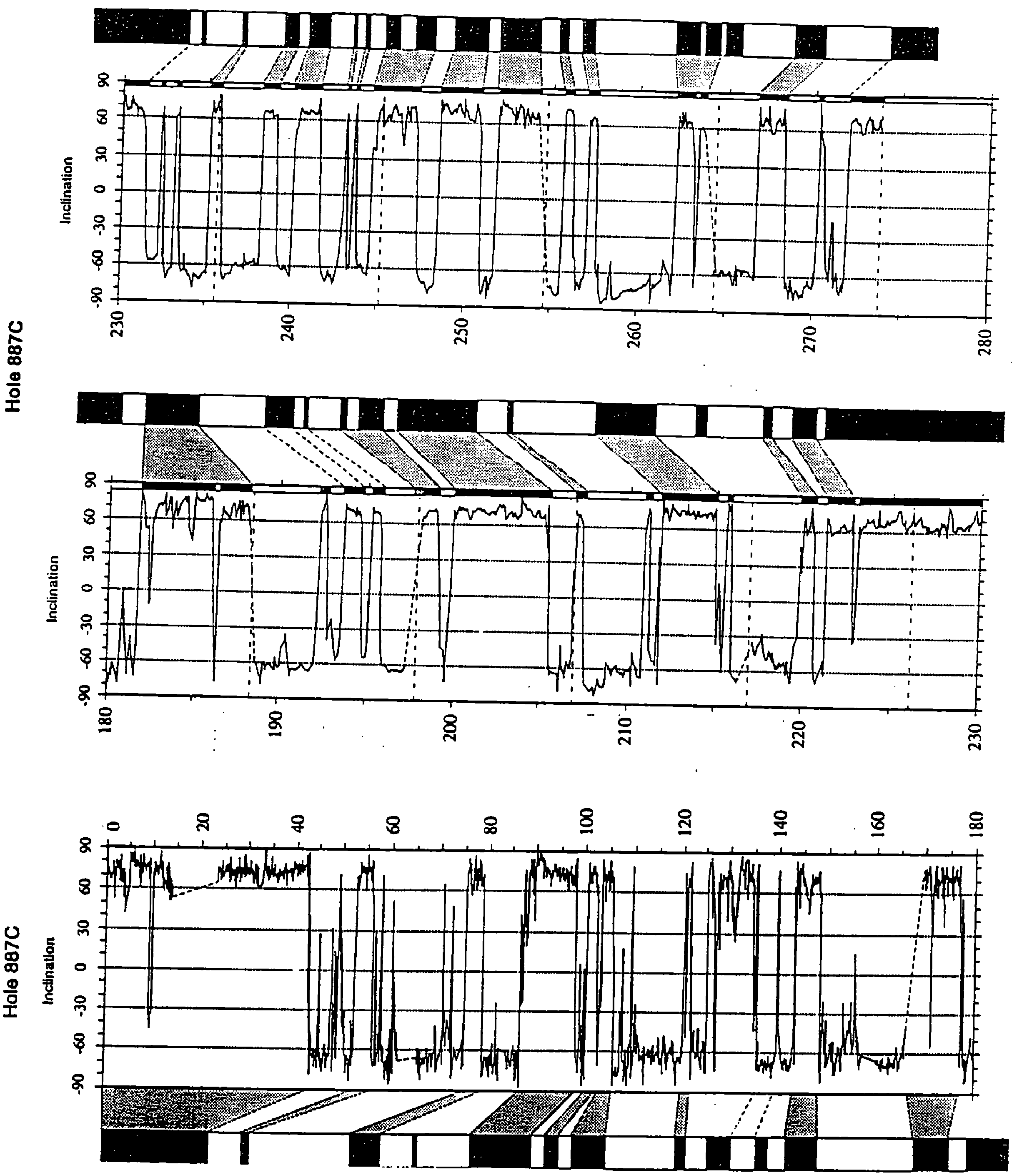
ODP Site 887



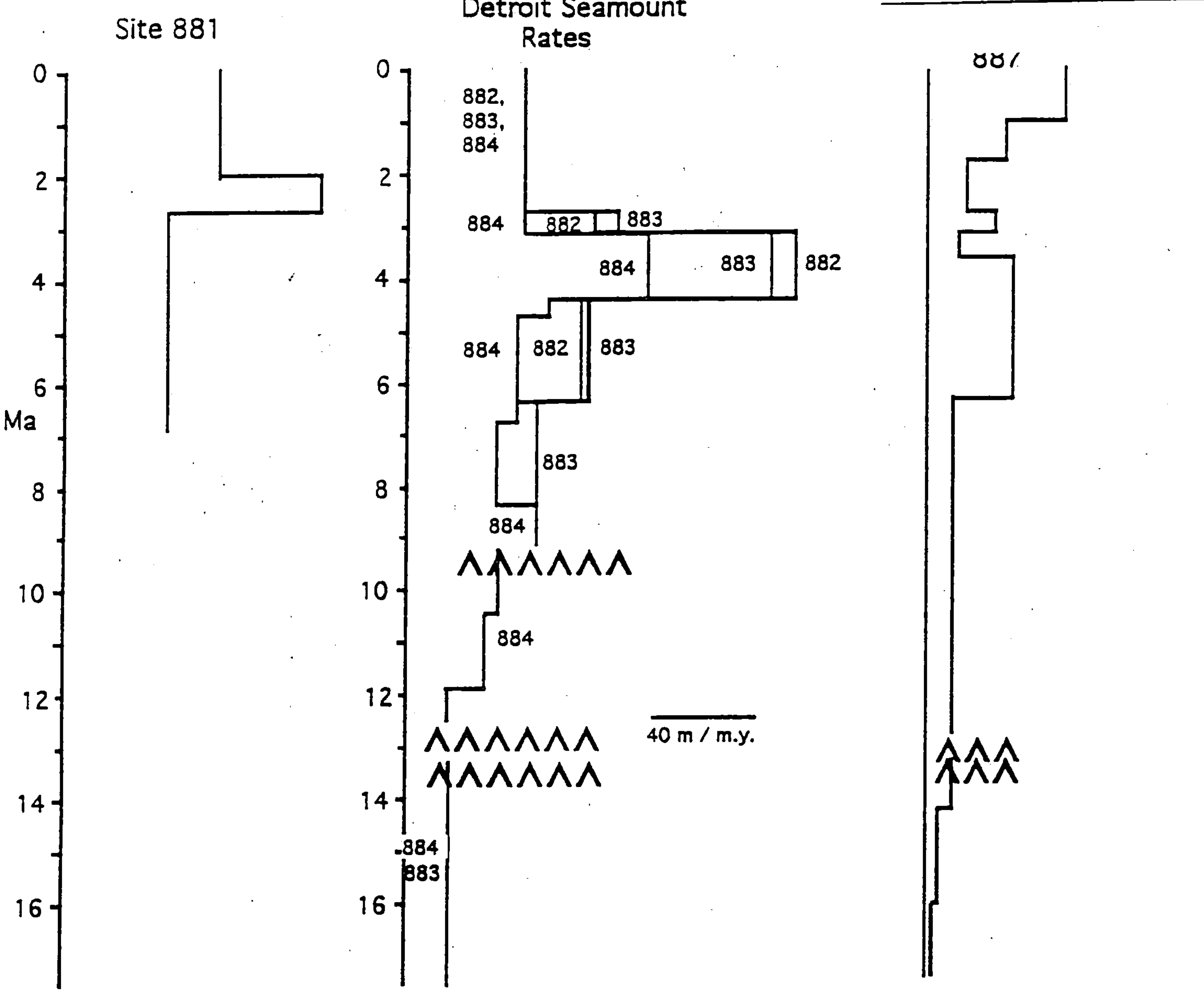


Appendix 17.13

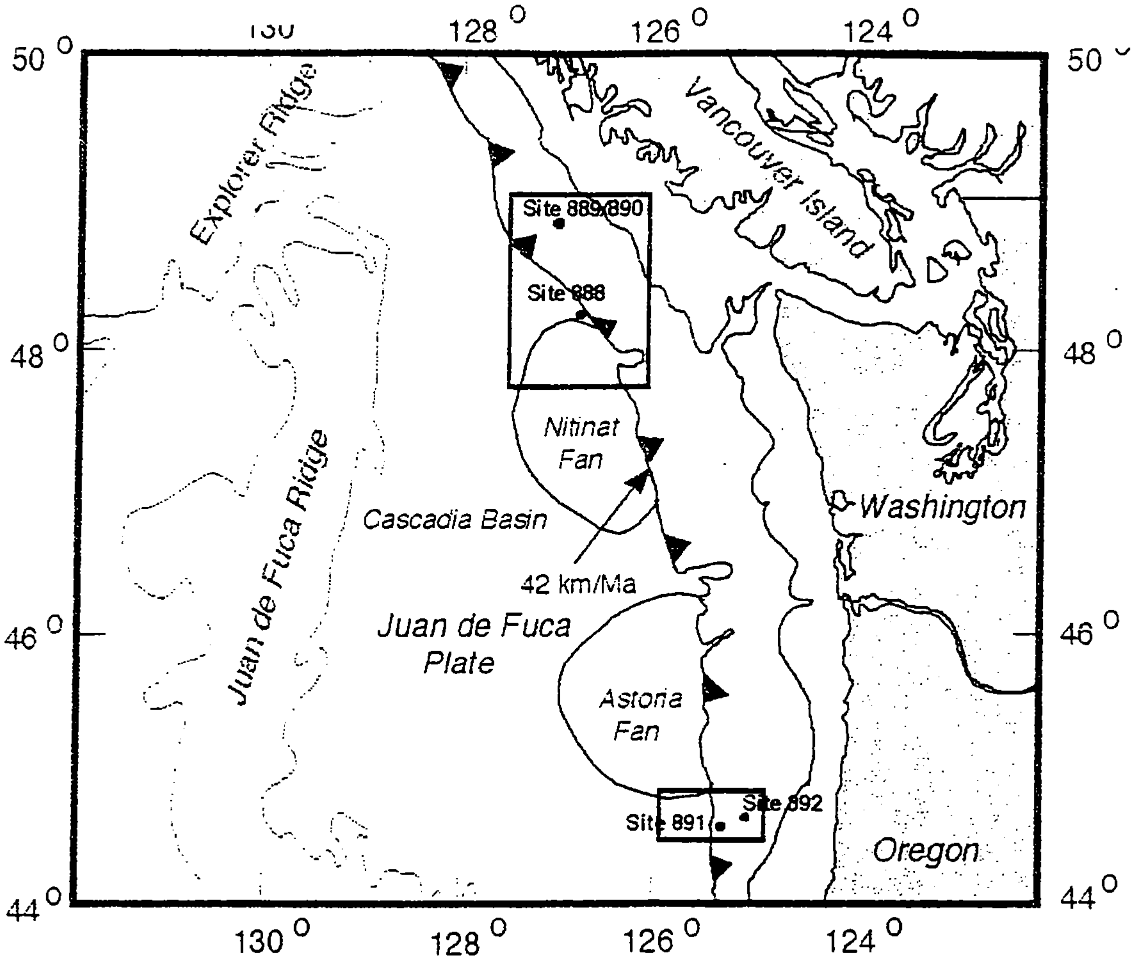
Appendix 17.14

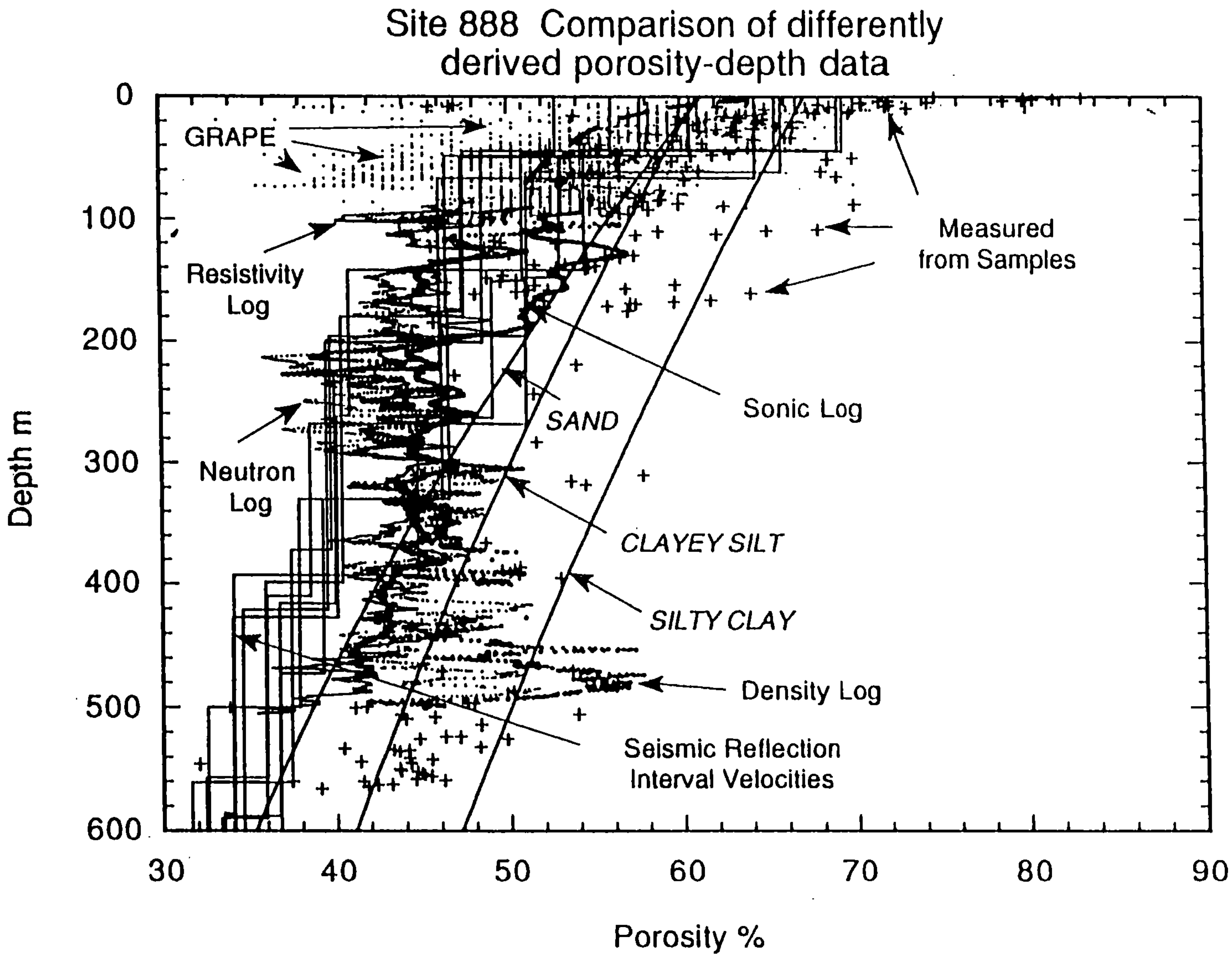


Appendix 17.15

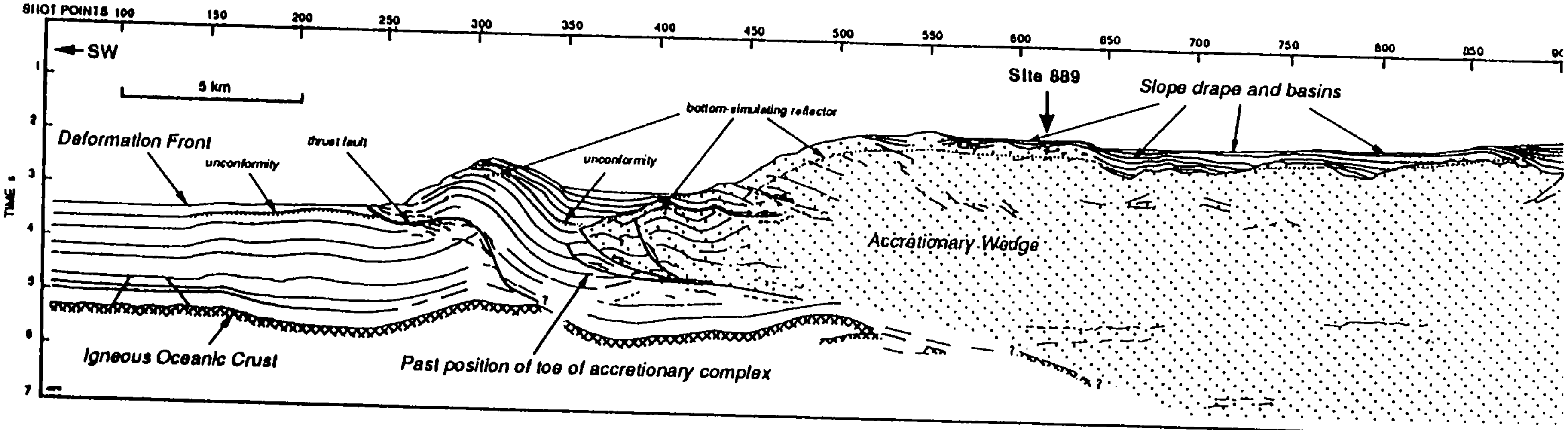


Appendix 18.0



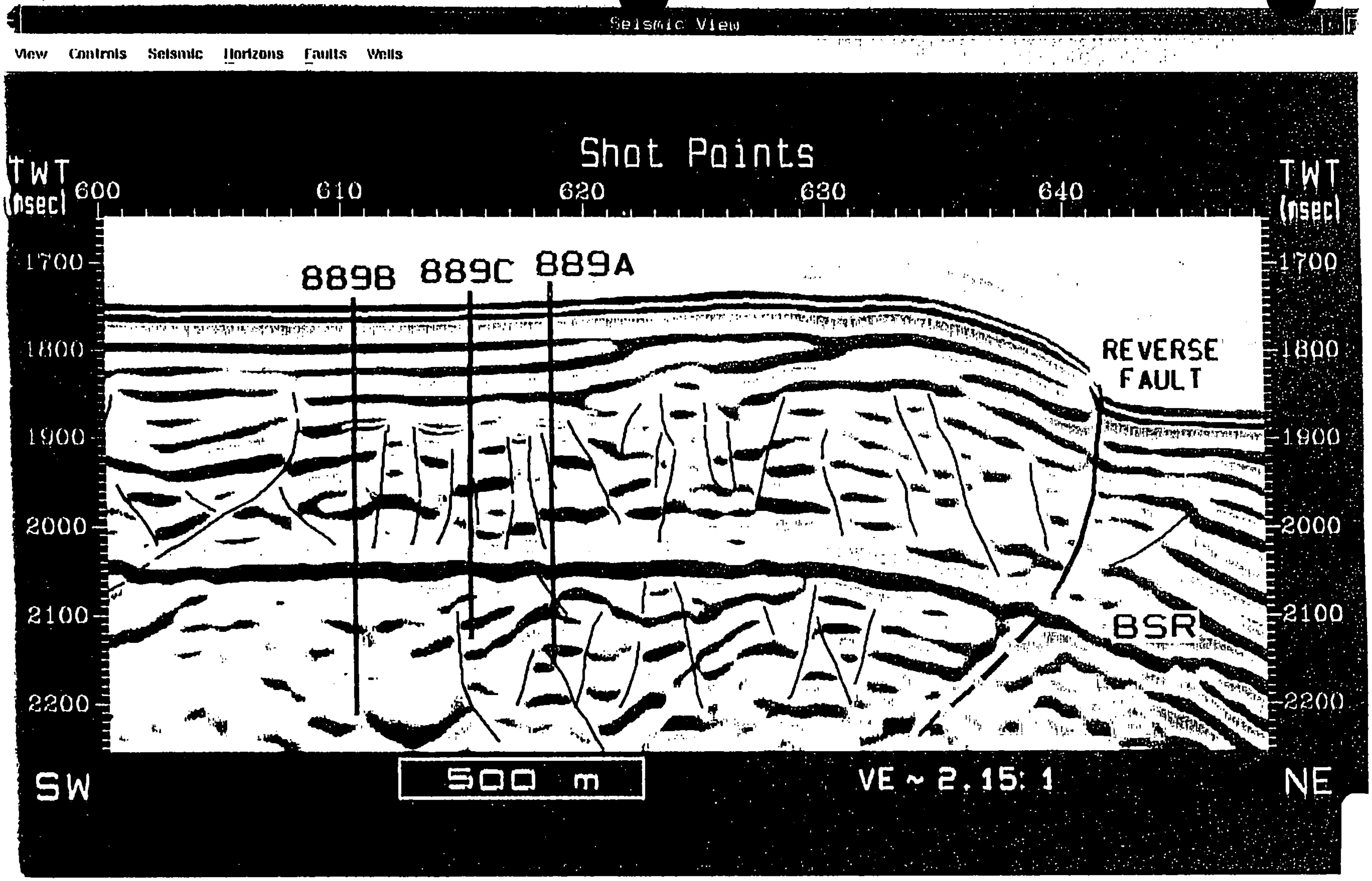

Site 888 Comparison of differently
derived porosity-depth data
GRAPE
Resistivity
Log
Neutron
Log
Measured
from Samples
Sonic Log
SAND
CLAYEY SILT
SILTY CLAY
Density Log
Seismic Reflection
Interval Velocities
Depth m
Porosity %
0
100
200
300
400
500
600
30
40
50
60
70
80
90

Line 89-08 Line Drawing of Migrated Seismic Section

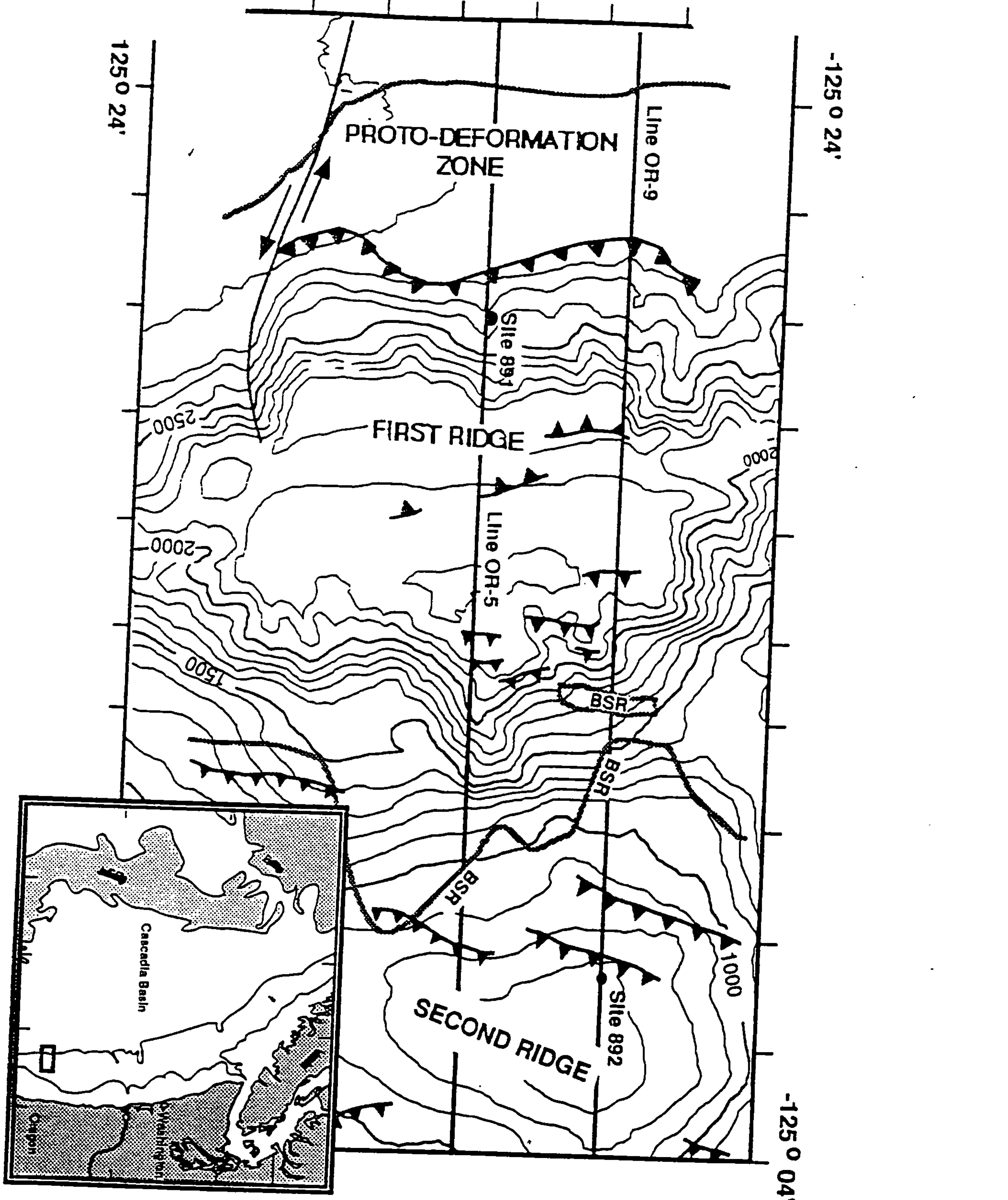


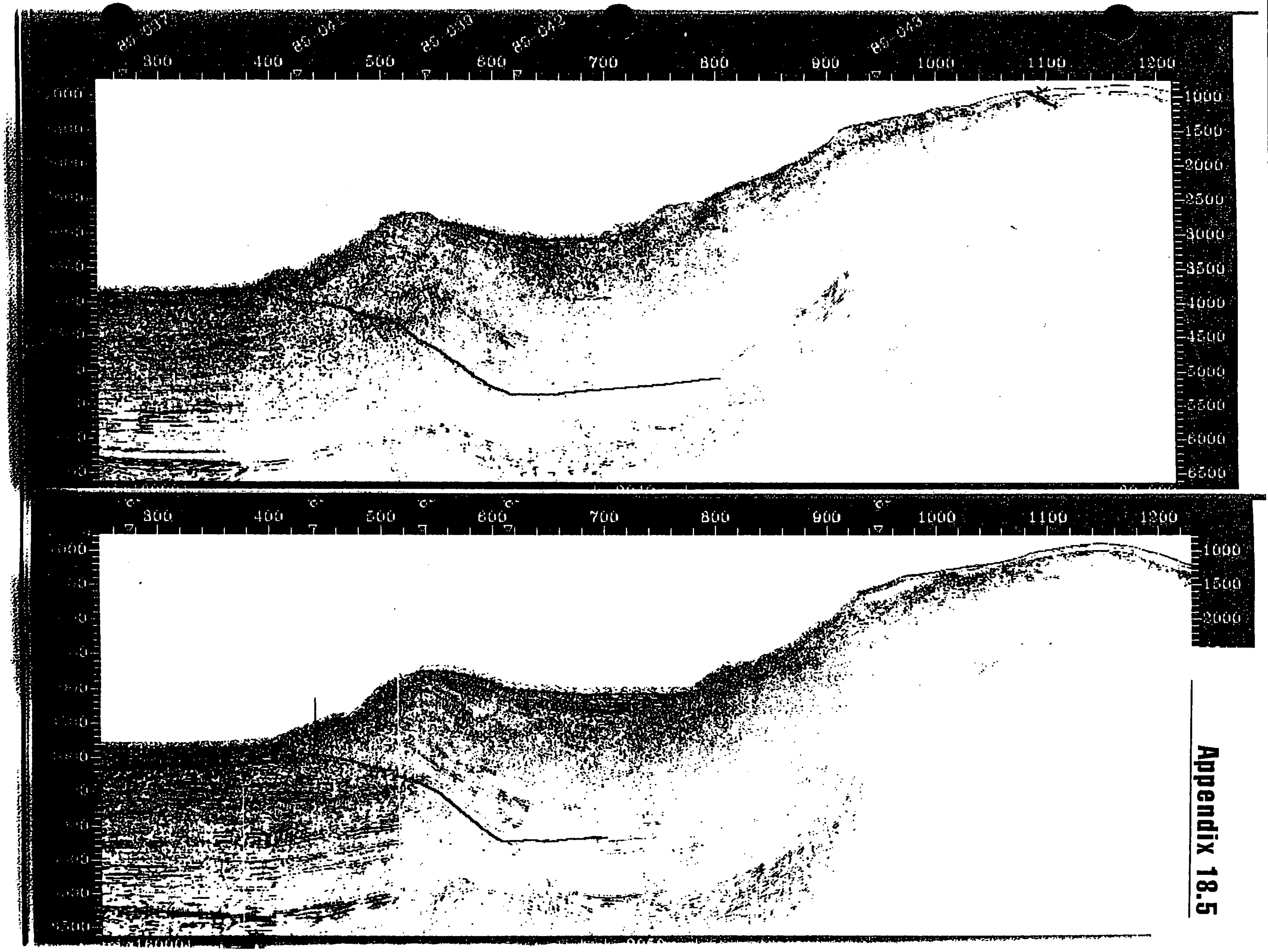
Appendix 18.2

Appendix 18.2

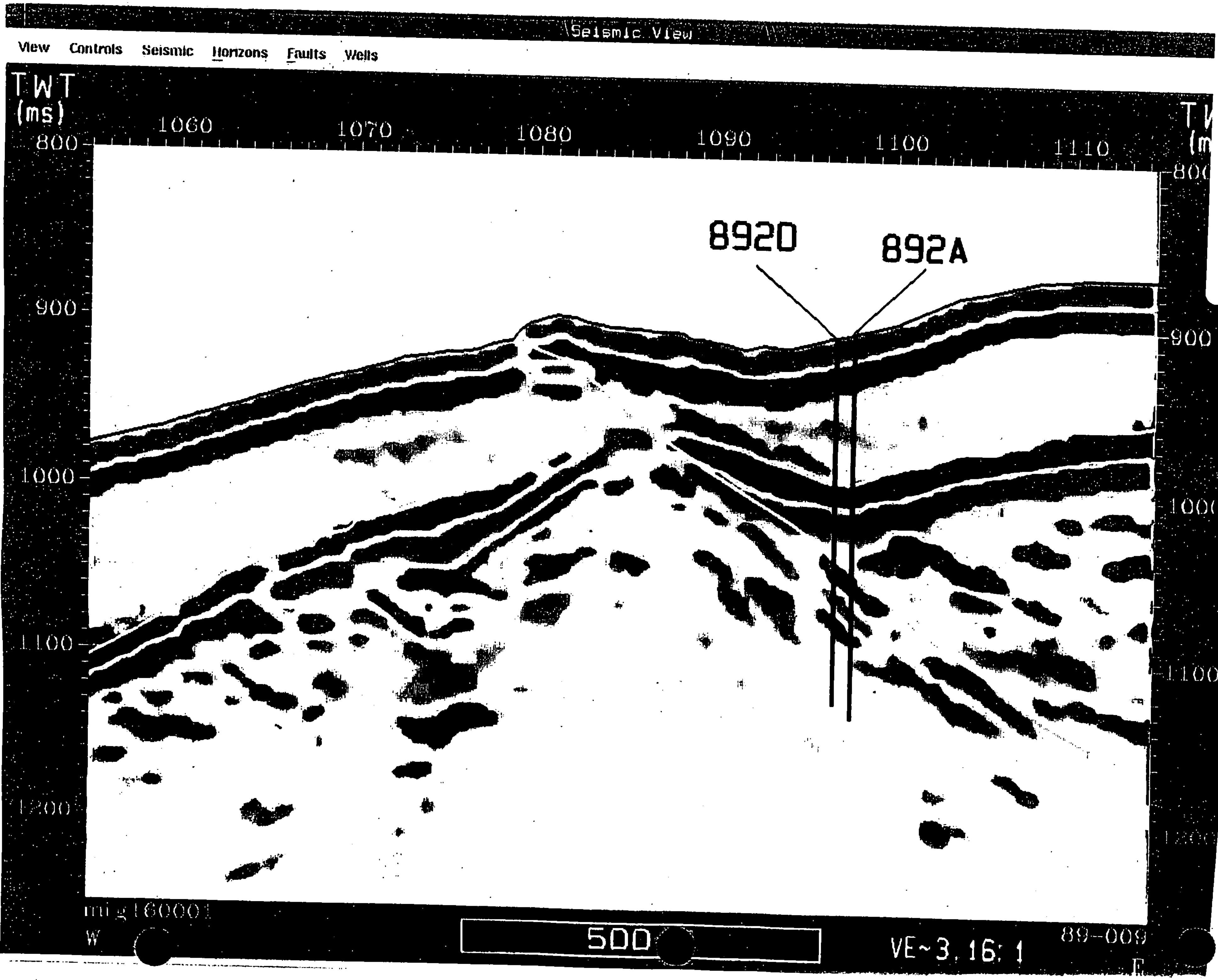

Seismic View
View
Controls
Seismic
Horizons
Faults
Wells
Shot Points
TWT (msec)
600
610
620
630
640
1700
1800
1900
2000
2100
2200
889B
889C
889A
REVERSE FAULT
BSR
500 m
VE ~ 2.15: 1
SW
NE

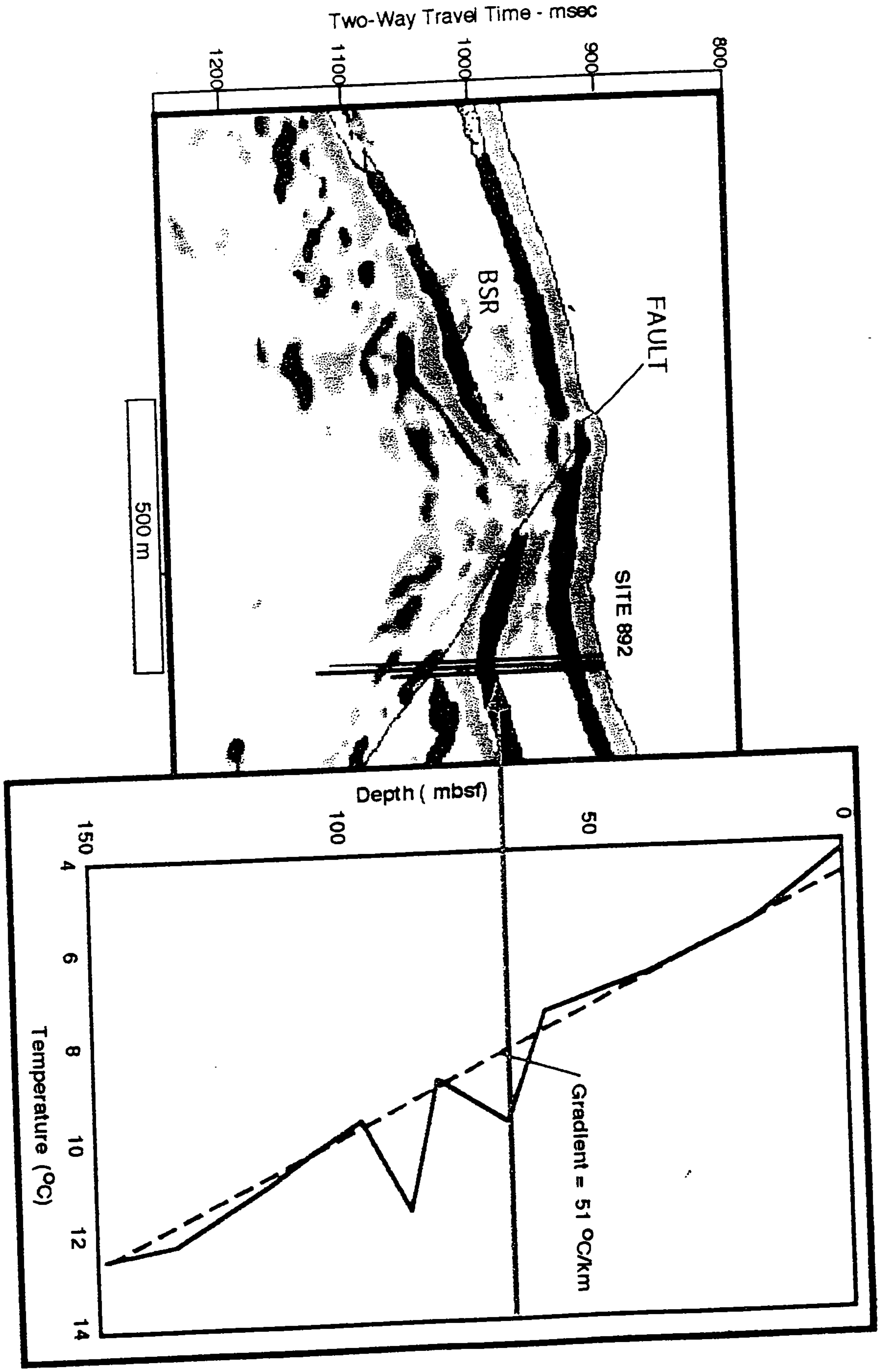
Appendix 18.4



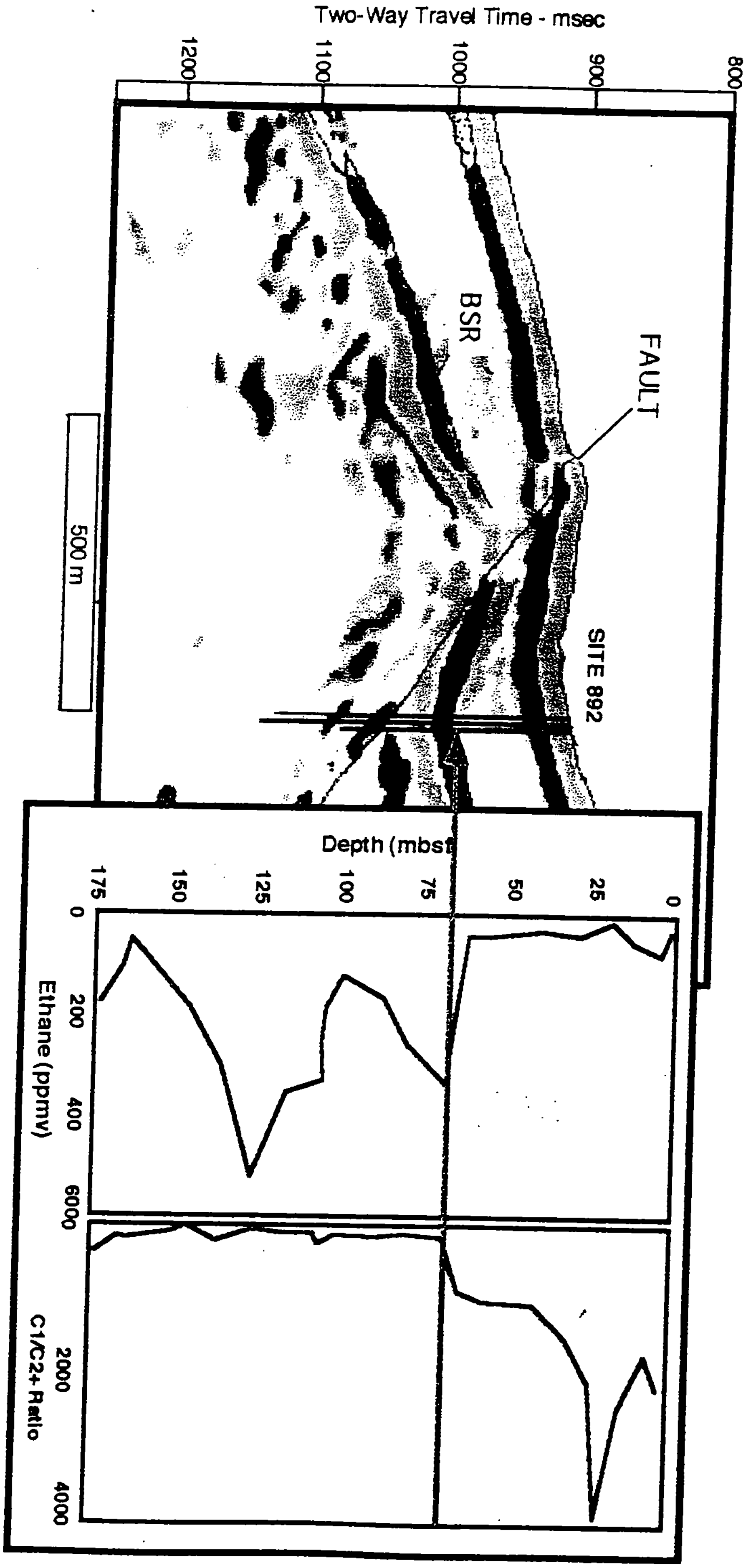


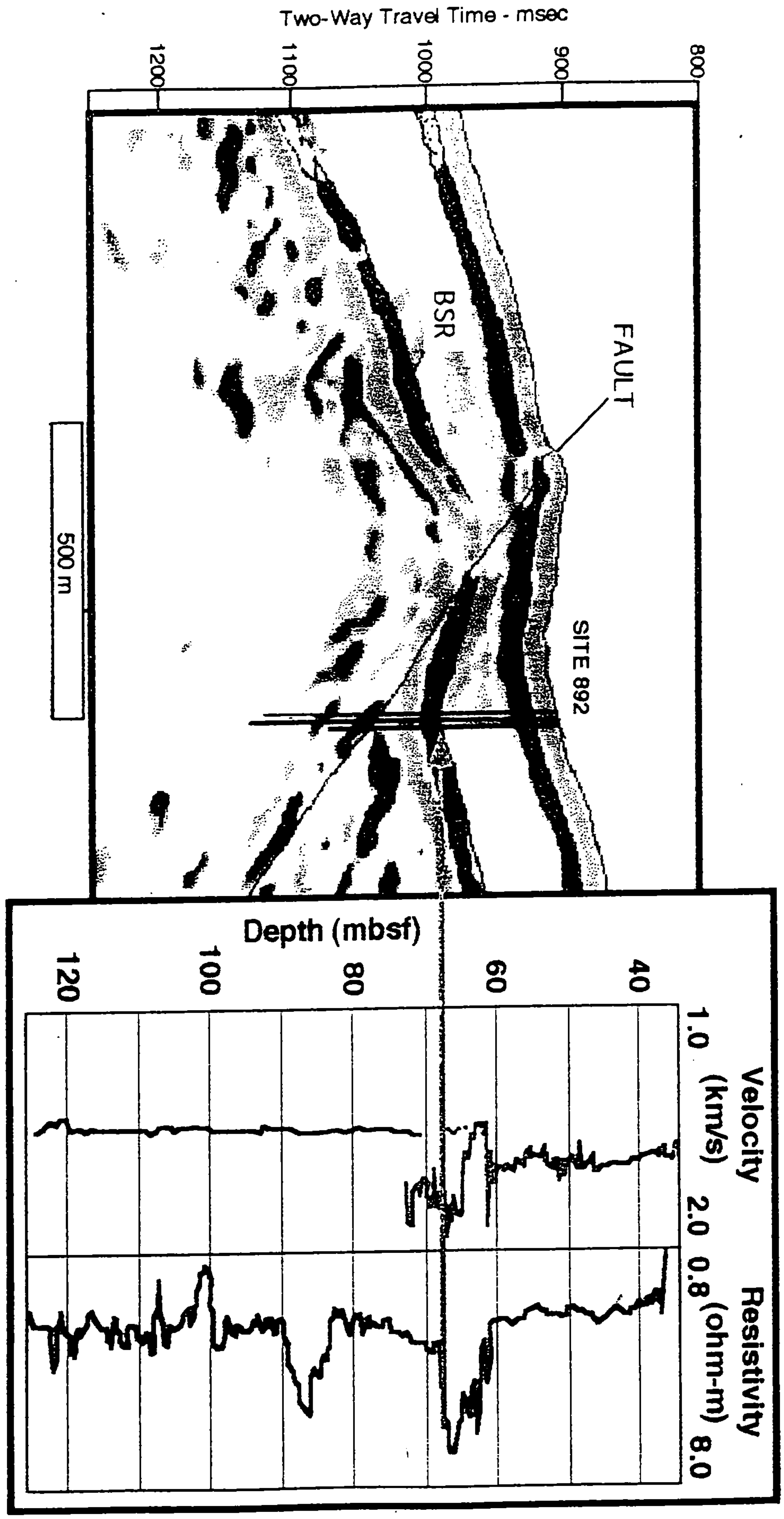
Appendix 18.5


Seismic View
View
Controls
Seismic
Horizons
Faults
Wells
TWT (ms)
1060
1070
1080
1090
1100
1110
800
900
1000
1100
1200
8920
892A
mig160001
W
500
VE~3.16:1
89-009

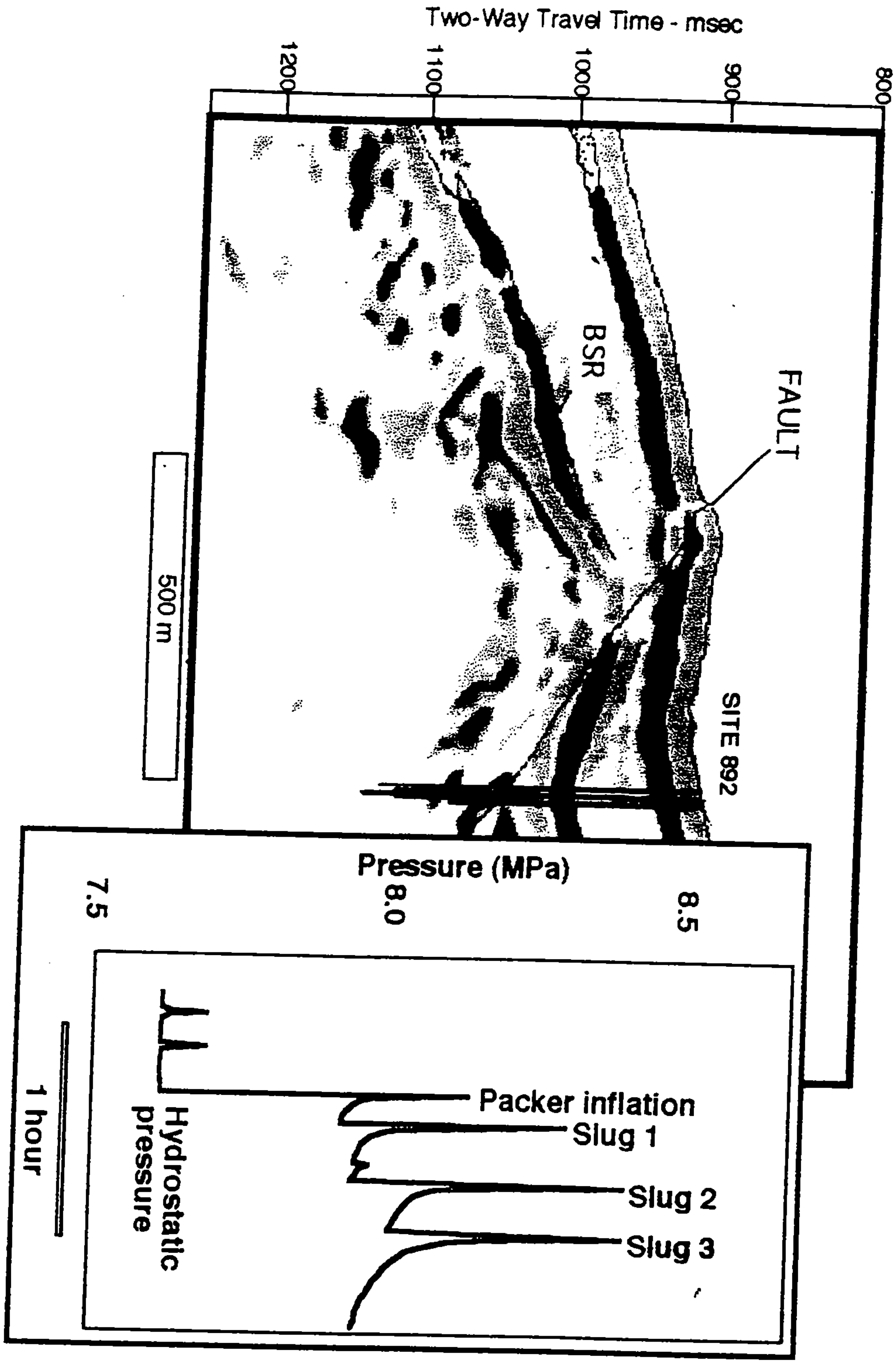

Two-Way Travel Time - msec
800
900
1000
1100
1200
FAULT
BSR
SITE 892
500 m
Depth (mbsf)
0
50
100
150
4
6
8
10
12
14
Temperature (°C)
Gradient = 51 °C/Km

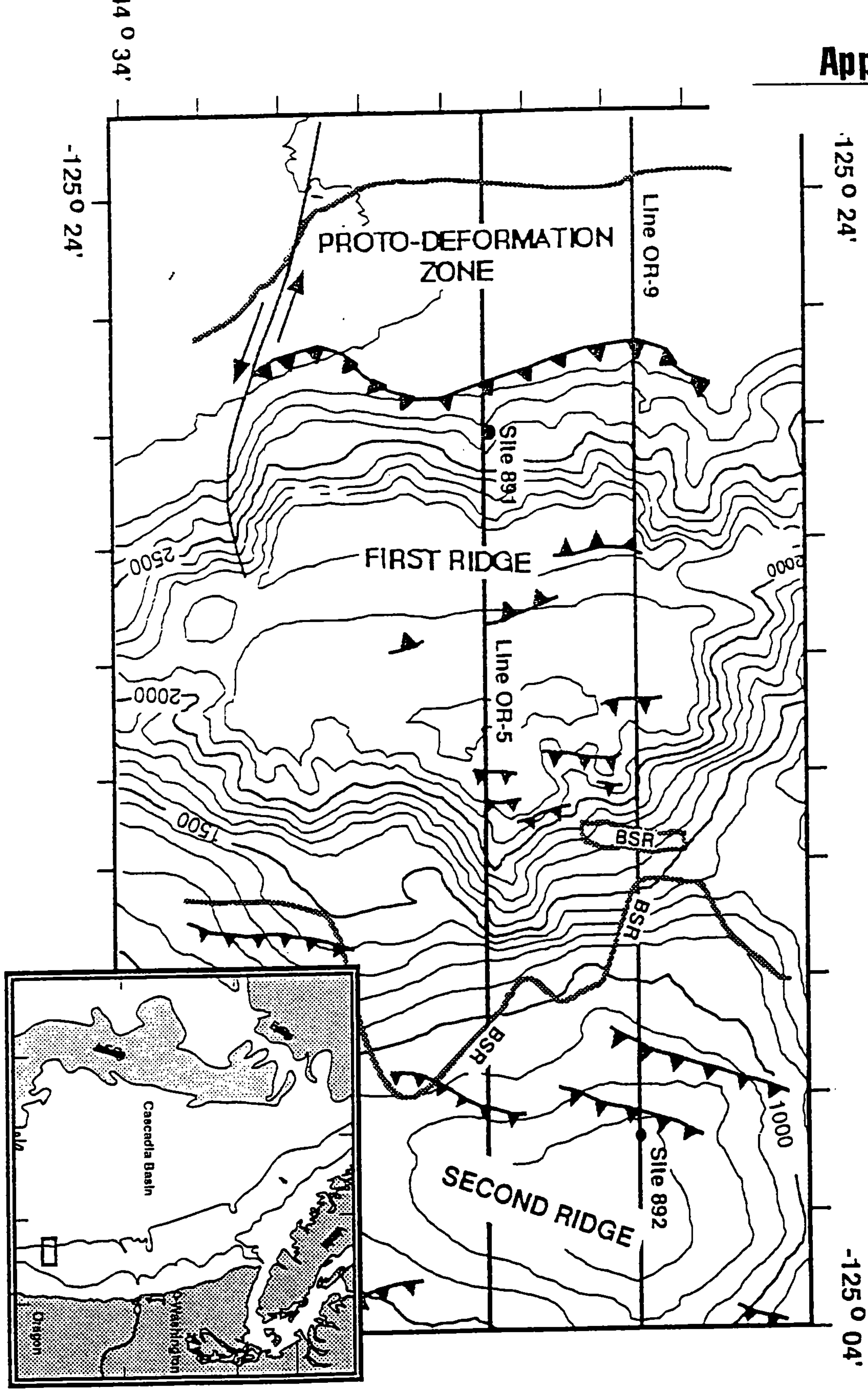
Appendix 18.8




Two-Way Travel Time - msec
800
900
1000
1100
1200
FAULT
BSR
SITE 892
500 m
Depth (mbsf)
40
60
80
100
120
Velocity
(km/s)
1.0
2.0
Resistivity
(ohm-m)
0.8
8.0

 Appendix 18.10

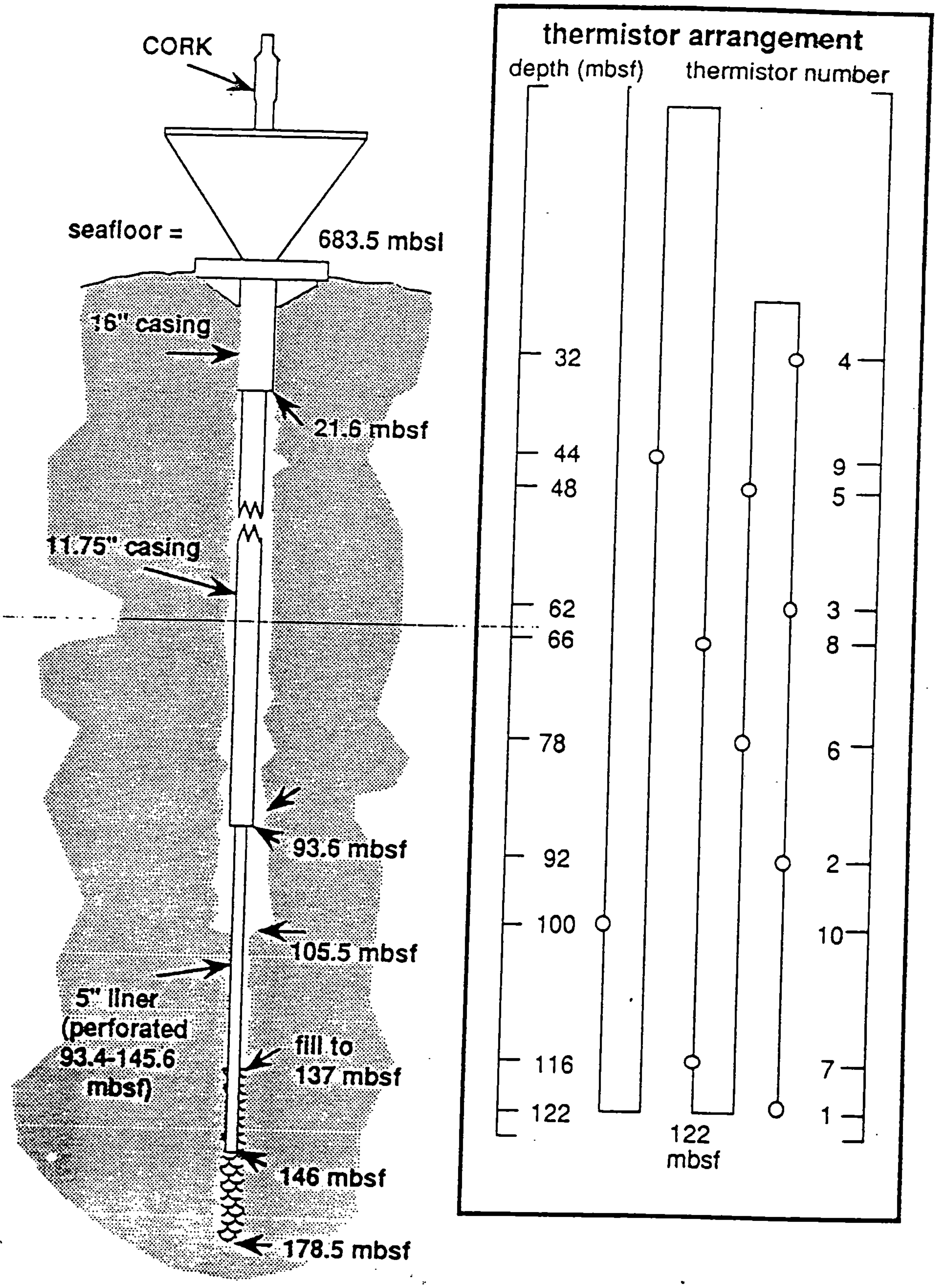




PROTO-DEFORMATION ZONE
FIRST RIDGE
SECOND RIDGE
Line OR-9
Line OR-5
Site 891
Site 892
BSR
2500
2000
1500
1000
-125° 24'
125° 24'
-125° 04'
Cascadia Basin
Washington
Oregon

Appendix 18.12

'OREHOLE SEAL DEPLO\



TECP - Watchdogs

1. Translational Margins
2. Mid Ocean Ridges (incl. OBWG)
3. Rifted Margins (incl NARM)
4. Convergent Margins
5. Collisional Margins
6. Marginal + Backarc Basins
7. Stress + Mid-plate deformation
8. Plate history
9. Paleostress + deformation mechanisms

Appendix 19.1

IECP RANKINGS
DEC 1992

	1.	323 Rev 2	Alboran	8.41
	2.	323 Rev	Mediterranean Phase 1	7.45
3	3.	369 Rev 2	MARK	6.64
	4.	376 Rev 3	Eq. Atlantic Transform	6.50
	5.	NARM	Non-Volcanic II	6.42
	6.	NARM	Volcanic II	6.33
	7.	376 Rev 2	Vema F.Z.	4.58
	8.	334 Rev. 2	Galicia S' refl.	3.42
	9.	NARM	Nonvolc Leg 3	2.33
	10.	414 Rev.	N. Barbados	2.91

Alboran Sea:

Combination of 2 proposals -
Excellent international cooperation
Succinct, well focused:
Much data -- marine on land

General thematic question:
Extension in collisional setting
Contemporaneous - How?
Oblique strain partitioning -
Collapsed collisional welt or
mantle involvement?
World-wide problem

Objectives
Nature of pre-existing crust
Geometry and timing of rifting process
P-T histories
Asymm vs Symm. Extension.
Role of volcanism
Magnitude of extension
Rates of subsidence

Appendix 19.3

4 holes:

AL1 Rift graben Flank - to get @
deep sed. sequence. (Messinian window)
1036 water
2700 m. TD (wash to 800)
1A - thin Messin. sections

AL2 Basement block w/ thin cover
(DSDP 121 not adeq constraint)
(2A - diffs in overlying sequence
929 M water
1000 m. seds ±
300 m. basem. penetration

AL3 So. flank Alboran Ridge
Calibrate stratigraphy
Syndep. deformation
Initiation + subsidence of ridge
800 m deep
1200-1500 seds
50 m. basement

[illegible]
AL4 - Graben Structure
"Syn rift" sediments
Timing + duration of rifting
Nature of basement
2000 m. water
12-1800 m. seds
50 m. basement

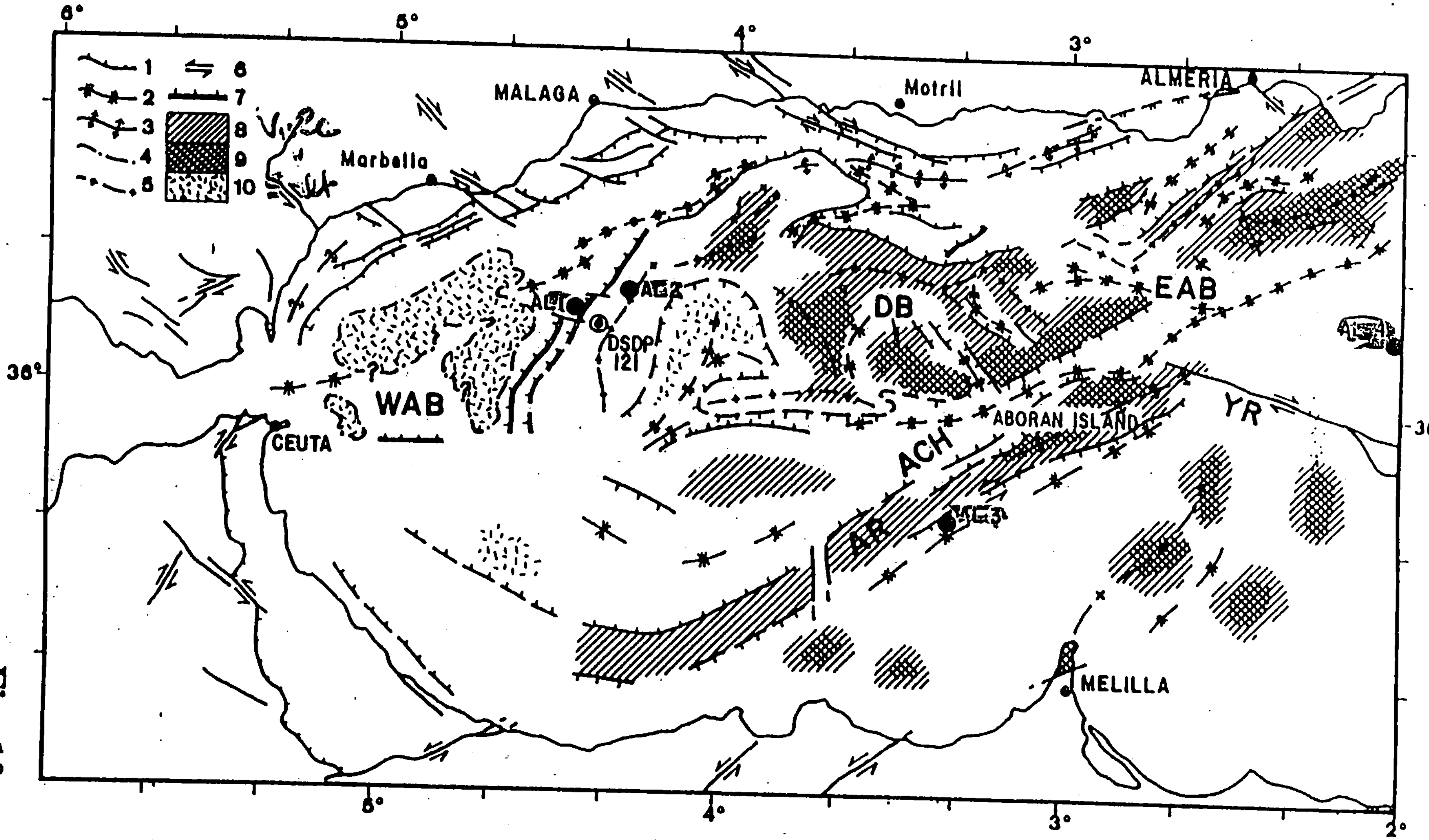
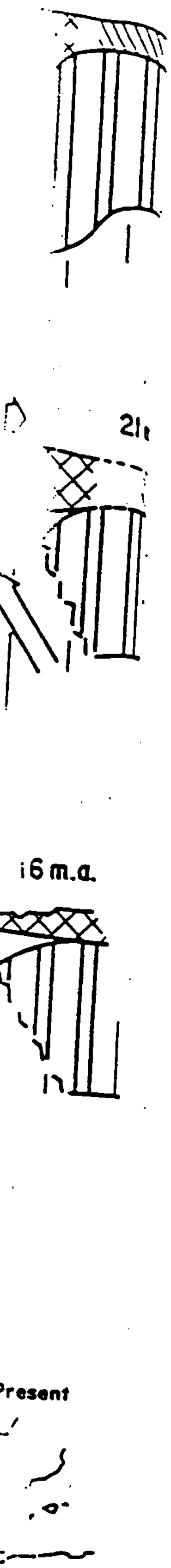


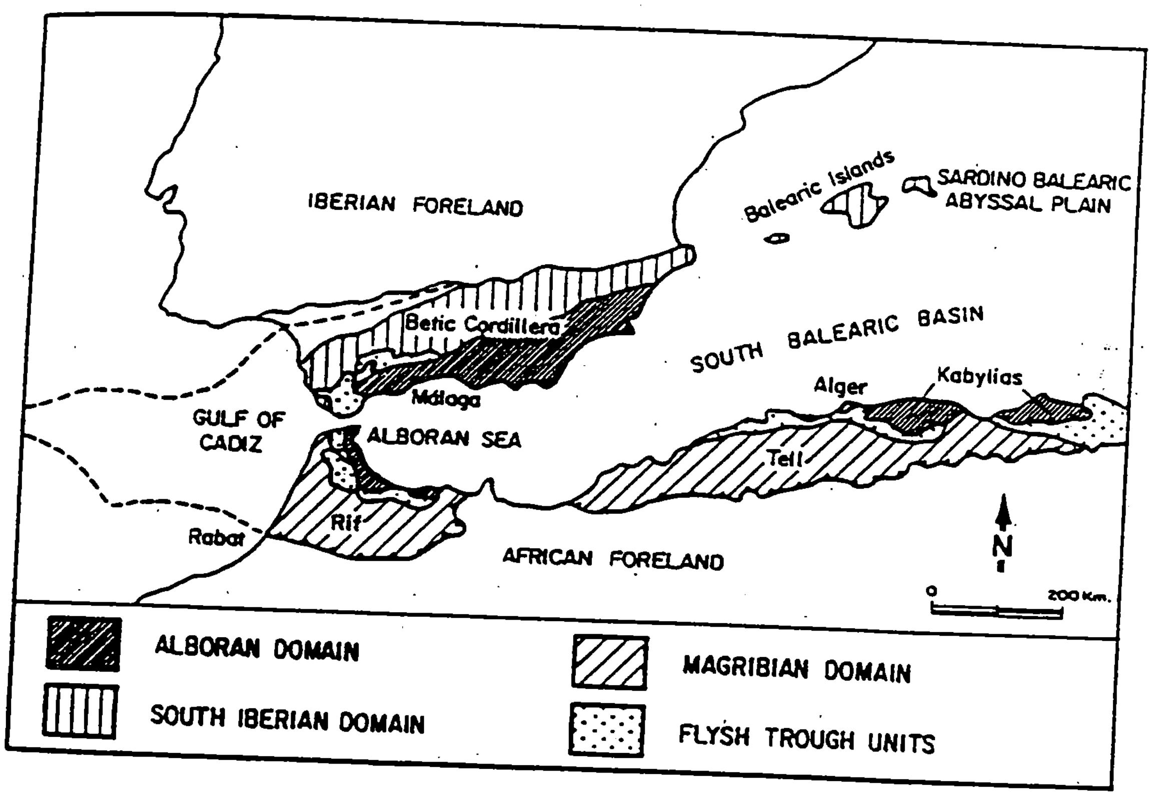
Fig. 10

Appendix 19.4



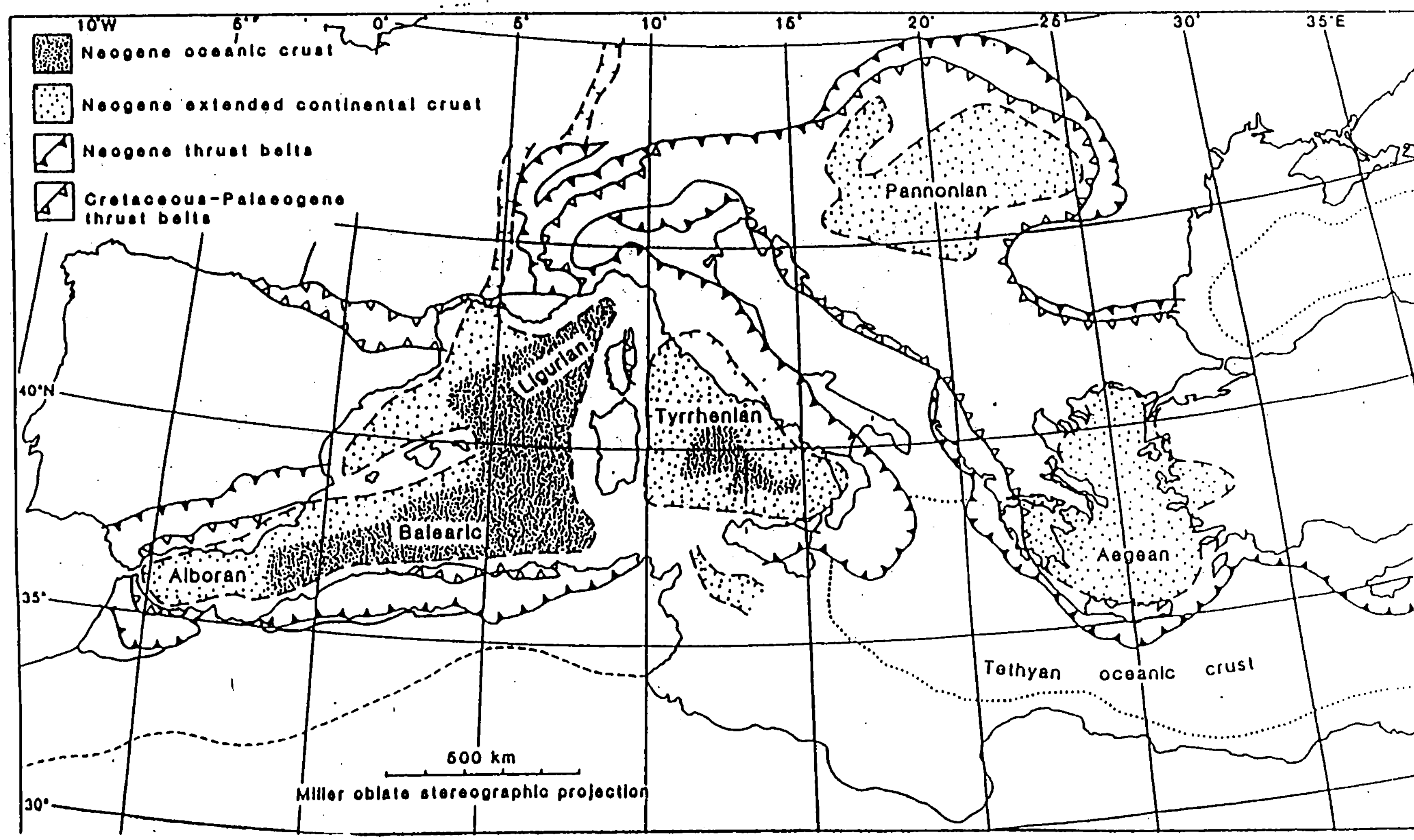
21
16 m.a.
Present

Fig. 3



IBERIAN FORELAND
Balearic Islands
SARDINO BALEARIC ABYSSAL PLAIN
Betic Cordillera
SOUTH BALEARIC BASIN
Málaga
Alger
Kabylias
GULF OF CADIZ
ALBORAN SEA
Tell
Rif
Rabat
AFRICAN FORELAND
N
0
200 Km.
ALBORAN DOMAIN
SOUTH IBERIAN DOMAIN
MAGRIBIAN DOMAIN
FLYSH TROUGH UNITS

Fig. 4



10°W
5°
0°
5°
10°
15°
20°
25°
30°
35°E
40°N
35°
30°
Neogene oceanic crust
Neogene extended continental crust
Neogene thrust belts
Cretaceous-Palaeogene thrust belts
Pannonian
Ligurian
Tyrrhenian
Balearic
Alboran
Aegean
Tethyan oceanic crust
500 km
Miller oblate stereographic projection

Fig. 1

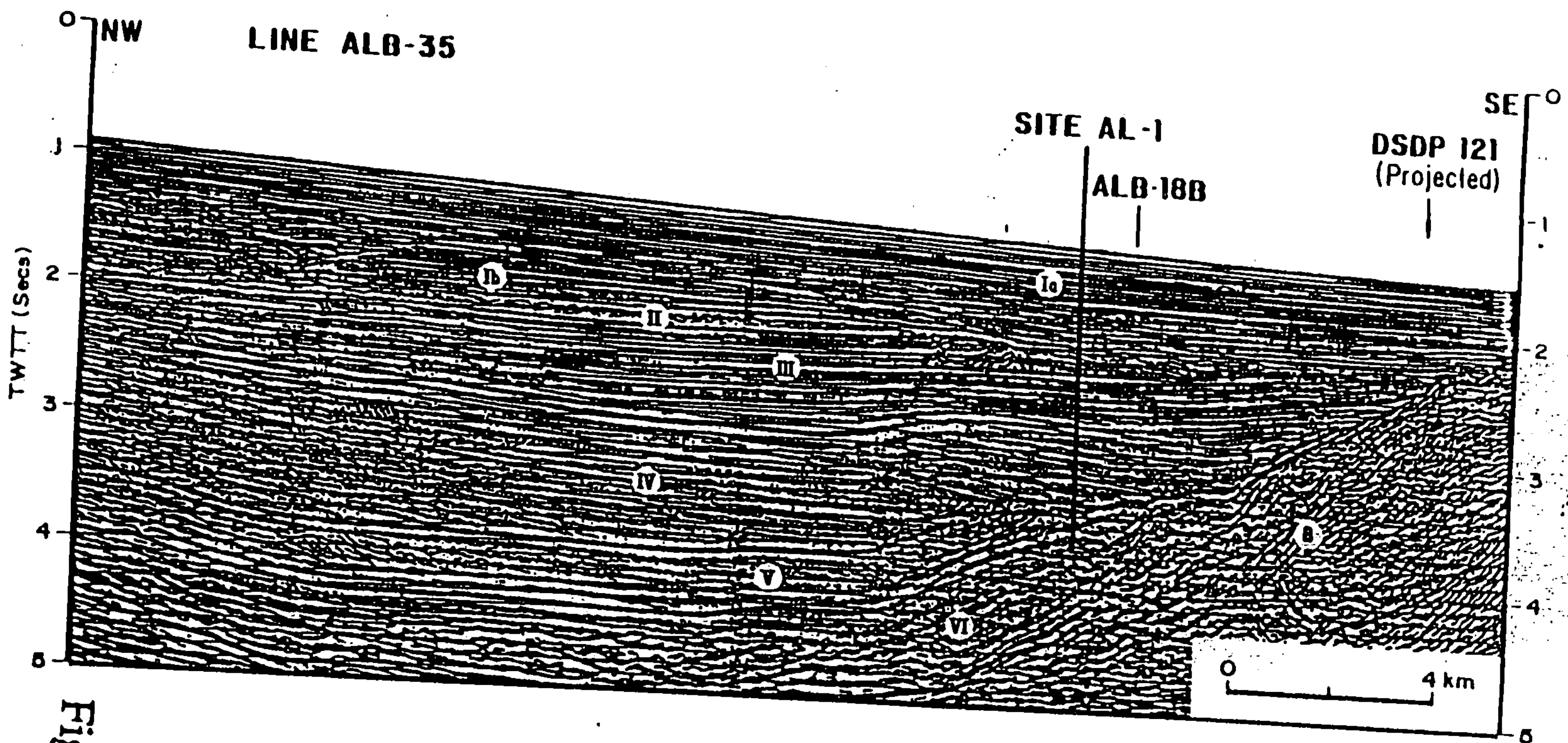
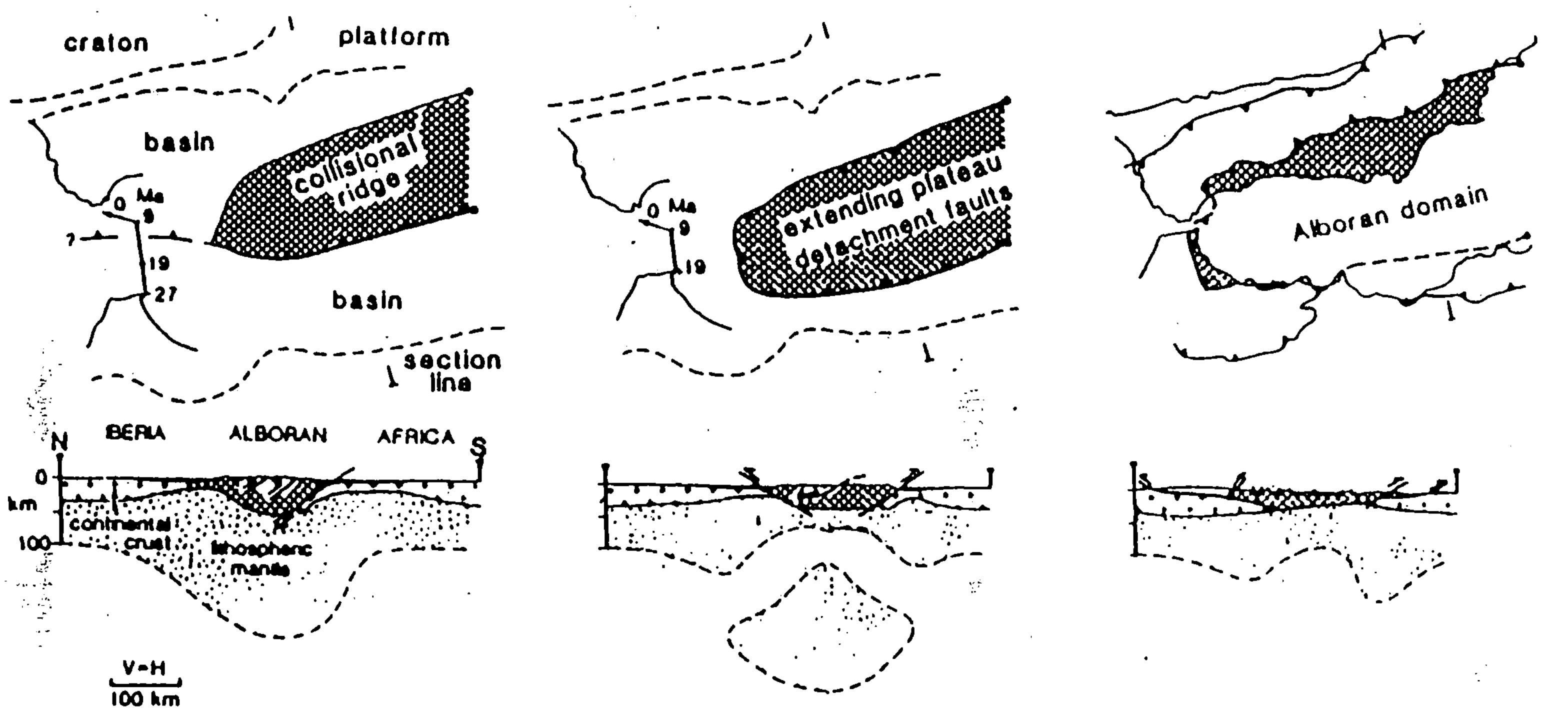


Fig. 21A

Appendix 19.7

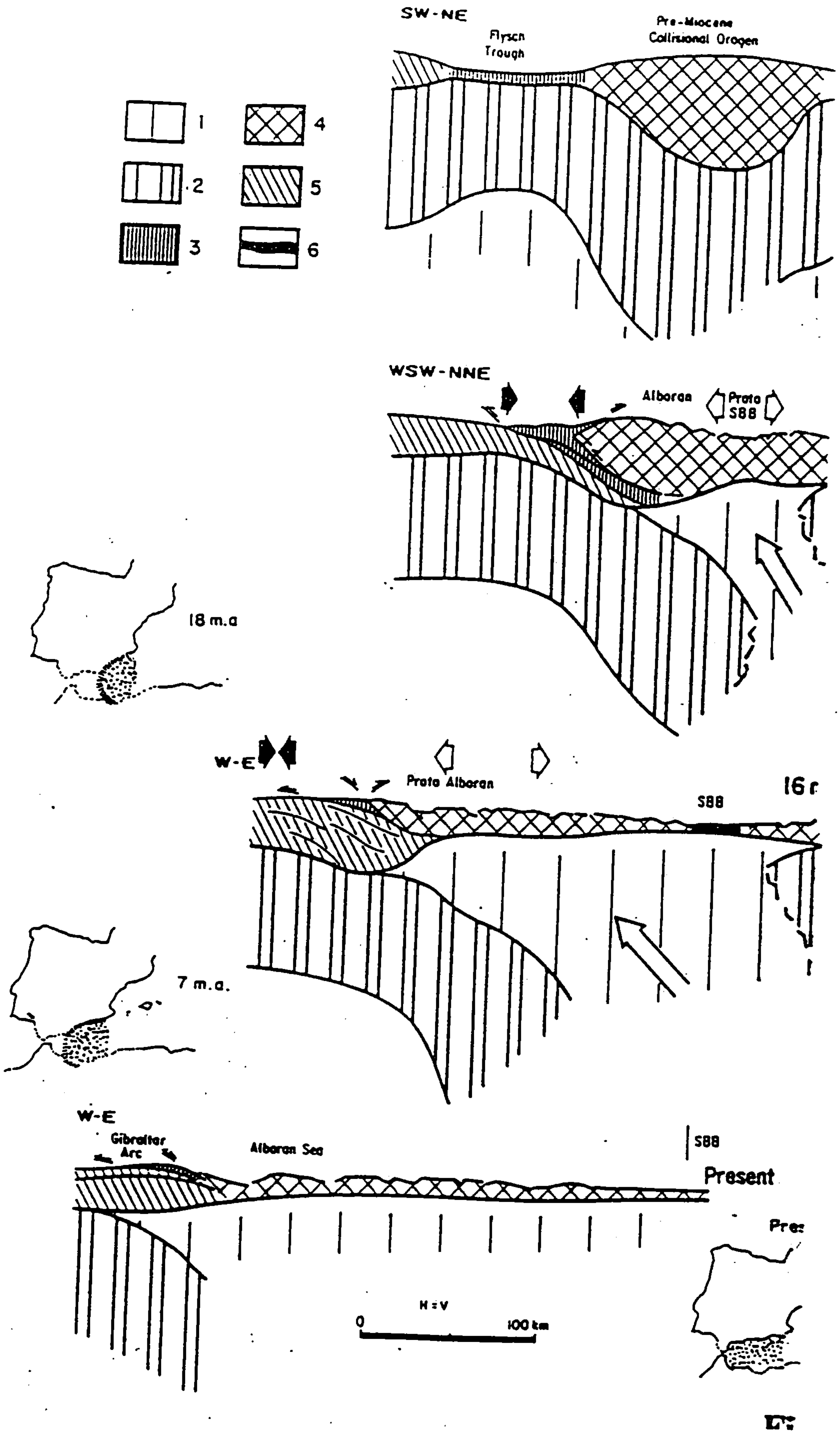


a. 27Ma b. 19Ma c. Present

Fig. 2

Appendix 19.8

Appendix 19.9



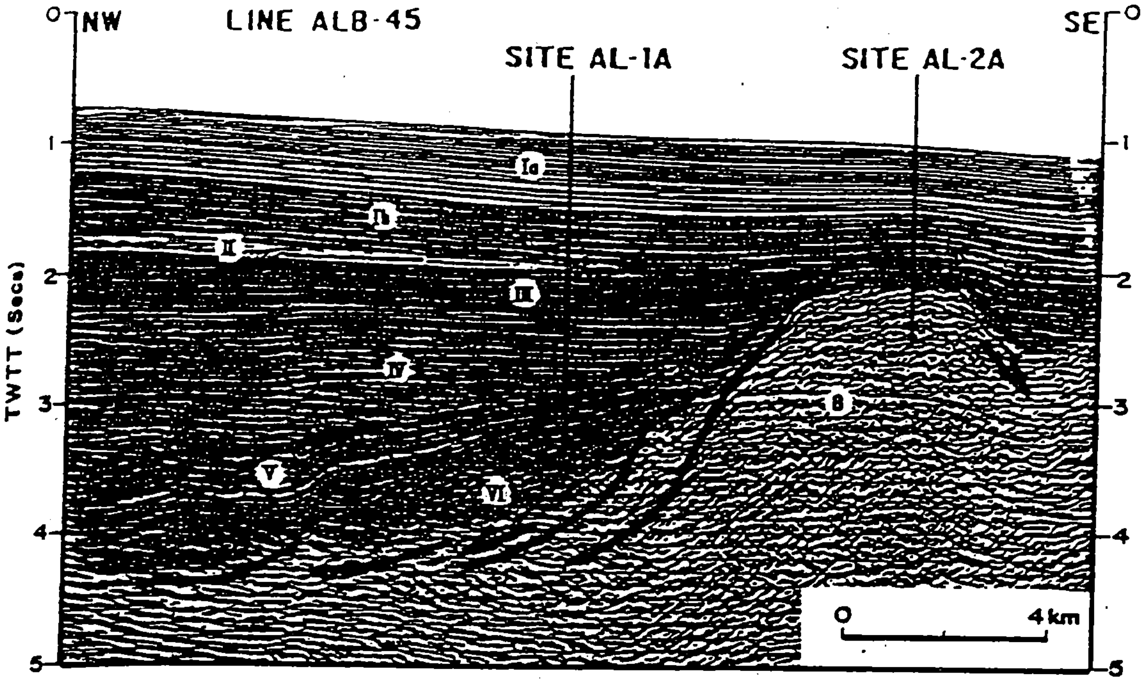

NW
LINE ALB-45
SITE AL-1A
SITE AL-2A
SE
TWTT (Secs)
0
1
2
3
4
5
Ia
Ib
II
III
IV
V
VI
B
0
4km

Fig.23B

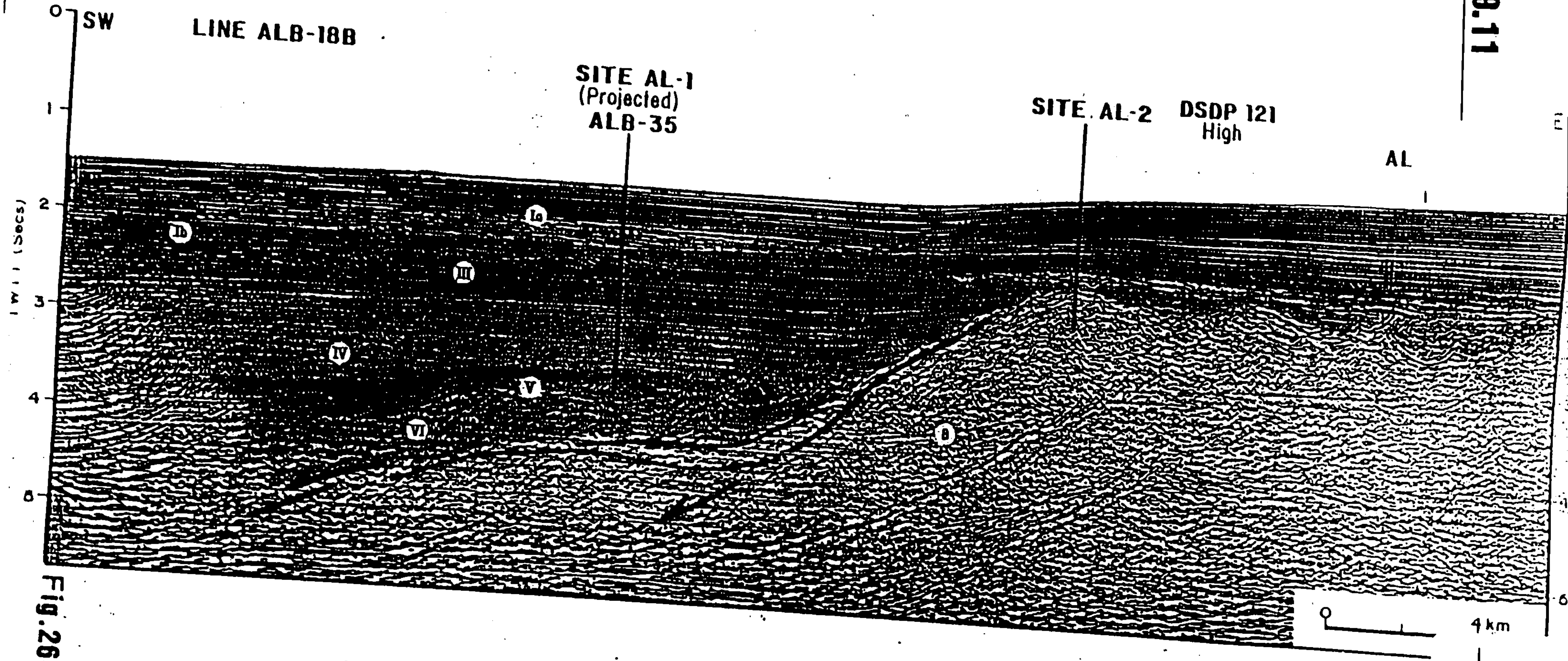


Fig.26B

Appendix 19.11

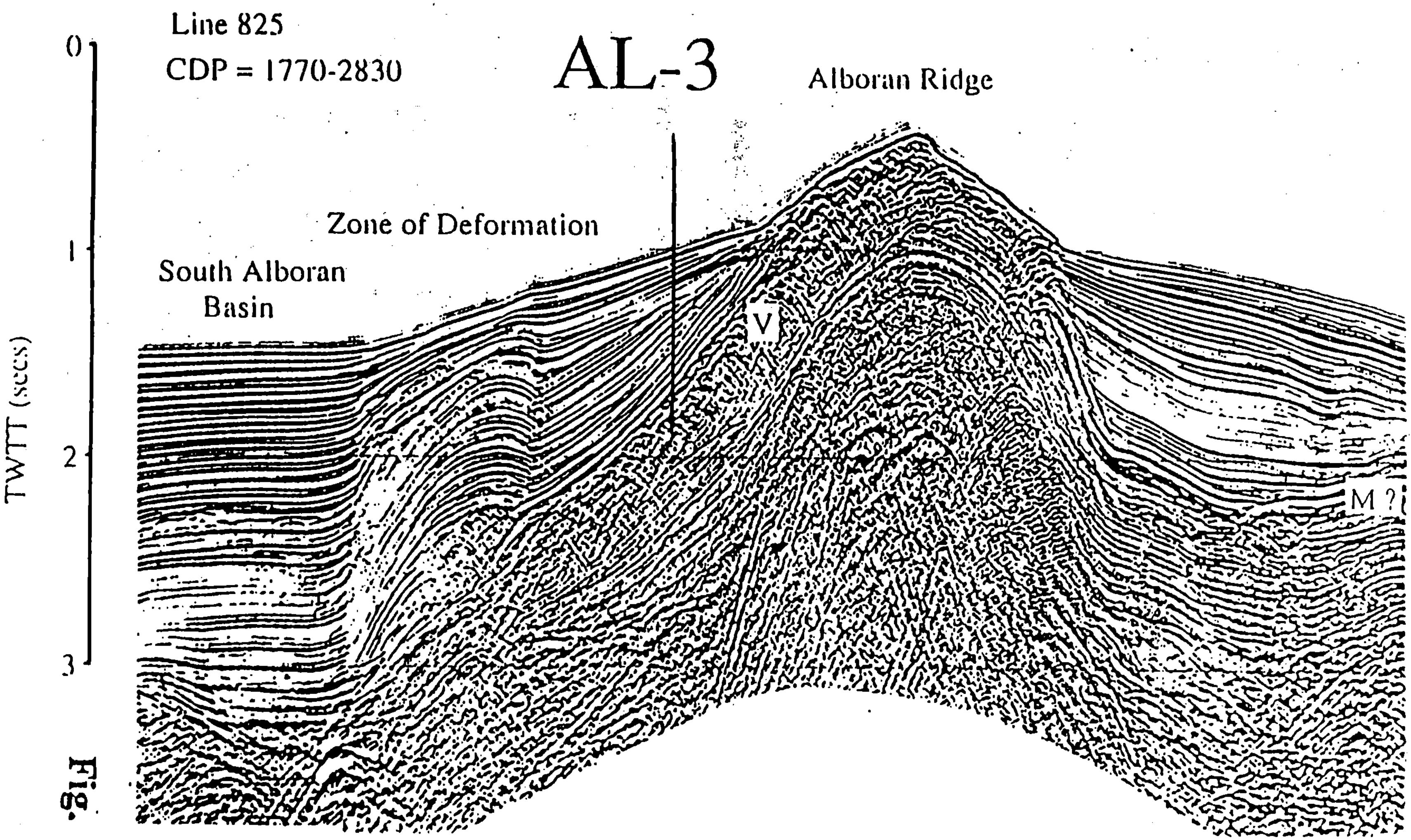


Fig.

Appendix 19.12

Appendix 19.13

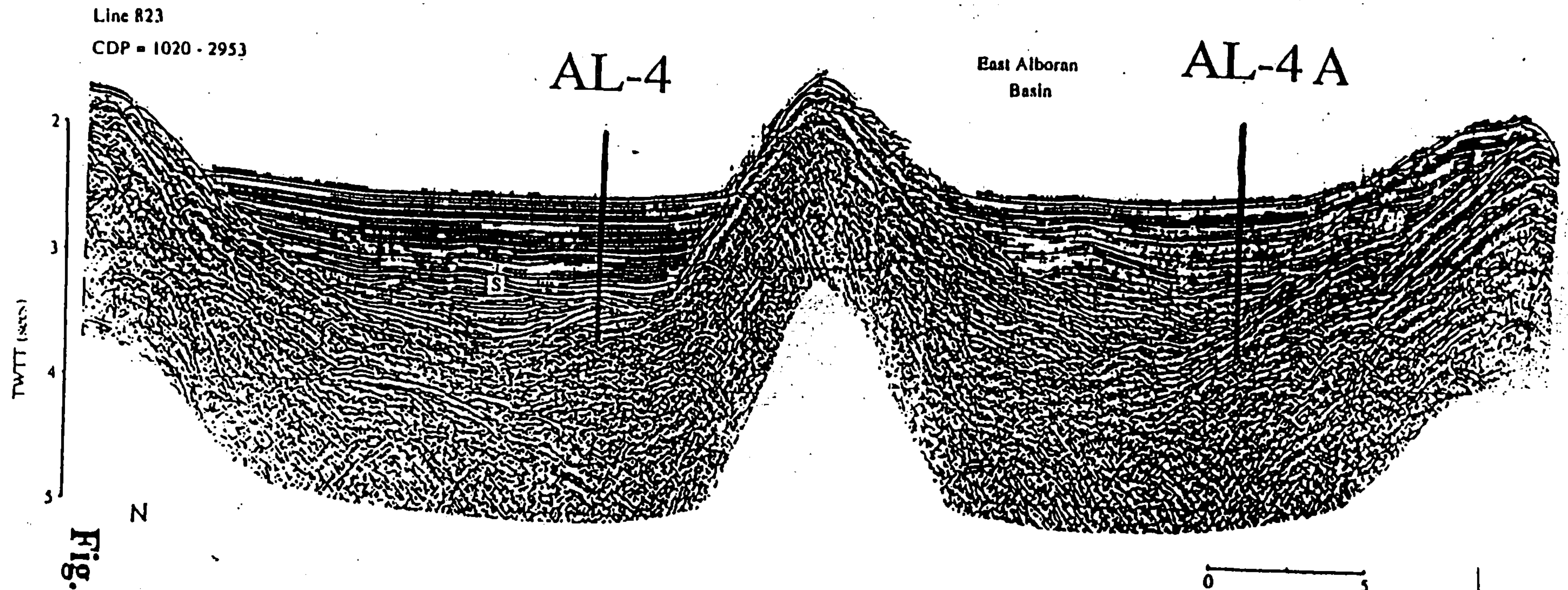


Fig. 33

Appendix 19.13

330 Med. Ridge Phase 1

High rating:

1. Thought drillable with modif. SSP - veto?
2. Salt-bearing accretionary complex. global problem
3. Incipient continental collision - global problem
   One of 3 poss. locations.
   (Also Banda - Australia
   W. Luzon - Asia)
4. Low ∠, hi pore pressure and member

Objectives.

Geometry + kinematics incip cont. collis
Influence of salt
Fluids; sediment diagenesis
Sed. environ of initial collision

Strategy - A. 4 traverses - Ionian }*
Sirte
Katia *
Herodotus

B. Mud volcano
C. Eratosthenes.*

Now: Site survey concerns.
? 95 contingency ?

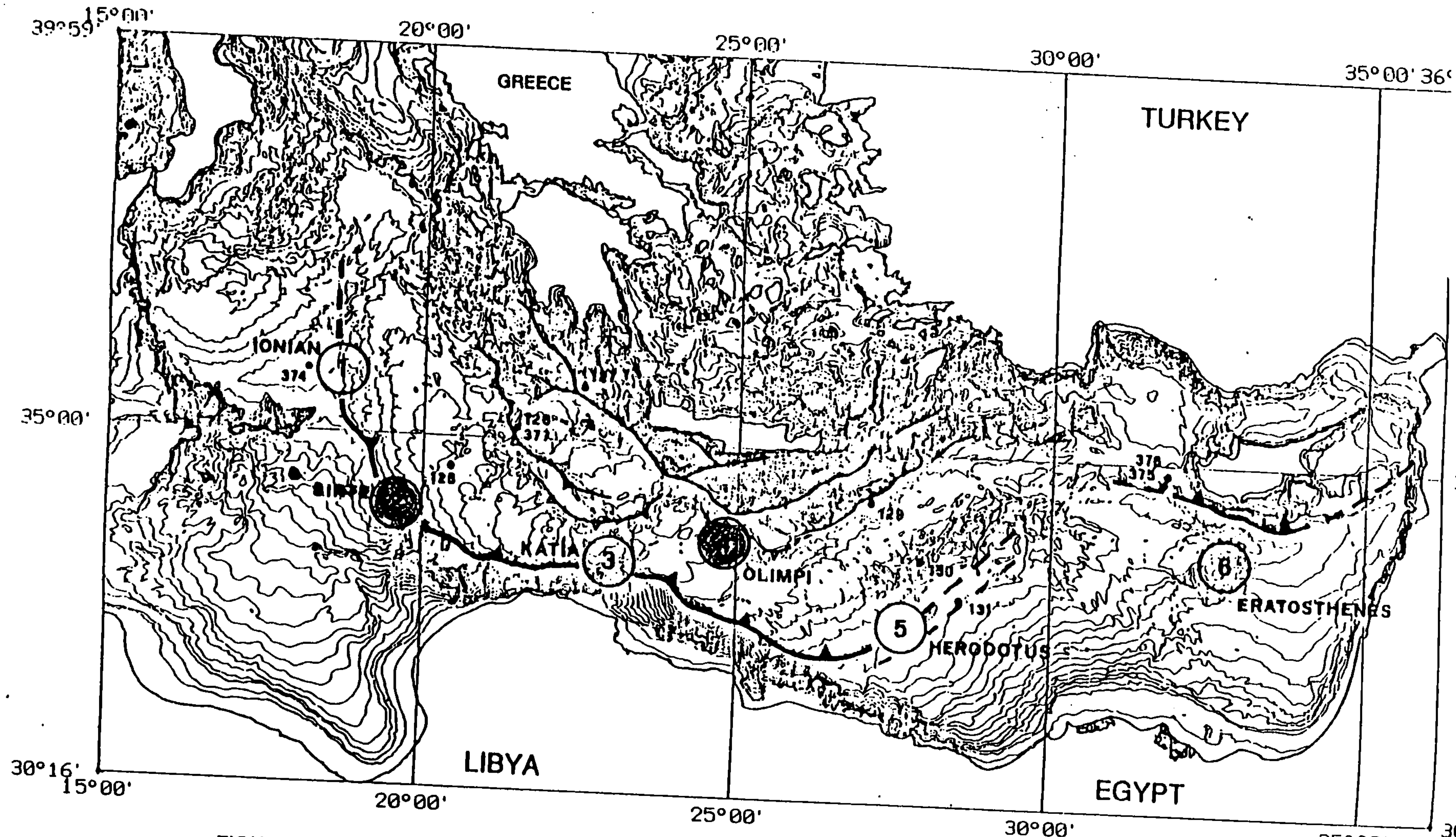


FIGURE 1 - Location of the five transects of shallow holes on the Outer Deformation Front of the Mediterranean Ridge (1, 2, 3, and 5) and the Eratosthenes Seamount (6). One site is proposed on a mud volcano (4). Bathymetry after IOC International Bathymetric Chart of the Mediterranean (contours every 200 m). Black triangles: Outer Deformation Front. Open triangles: Inner Deformation Front. Continous line: Outline of the Hellenic Trench. DSDP drillsites on the Eastern Mediterranean collisional margin are indicated.

Appendix 19.15

TABLE

SUMMARY OF PROPOSED SITES

Site name	Lat N	Lon E	Penetration (m)	Context
AREA 1(IONIAN)				
MR-1	35°42.1'	18°21.2'	300	Abyssal Plain
MR-2	35°46.8'	18°42.8'	200	Lower Deformation Front
MR-3	35°46.8'	18°56.8'	200	Lower Deformation Front
AREA 2 (SIRTE)				
MR-4	34°07.0'	19°32.4'	400	Abyssal Plain
MR-5	34°11.7'	19°40.0'	290	Lower Deformation Front
MR-6	34° 15.2'	19°46.4'	150	Upper Deformation Front
AREA 3 (KATIA)				
MR-7	33° 13.2'	22°57.3'	200	Lower African Continental Margin
MR-8	33° 18.9'	22°58.3'	300	Lower Deformation Front
MR-9	33° 25.9'	22°59.3'	200	Upper Deformation Front
AREA 4 (OLIMPI)				
MV-1	33° 43.7'	24°41.8'	200	Mud Volcano
AREA 5 (HERODOTUS)				
MR-10	32° 24.9'	27° 30.0'	400	Abyssal Plain
MR-11	32° 31.4'	27° 30.0'	350	Lower Deformation Front
MR-12	32° 36.6'	27° 30.0'	350	Upper Deformation Front
AREA 6 (ERATOSTHENES)				
ESM-1	33° 38.0'	32°40.0'	250	Top of the Seamount
ESM-2	33° 52.0'	32°44.0'	150	Northern Flank of the Seamount
ESM-3	34° 05.0'	32°45.0'	500	Trough between the Seamount and the Cyprus Margin
ESM-4	34° 11.0'	32°46.0'	300	Lower Cyprus Margin

Total number of Sites 17

Total penetration 3640 m

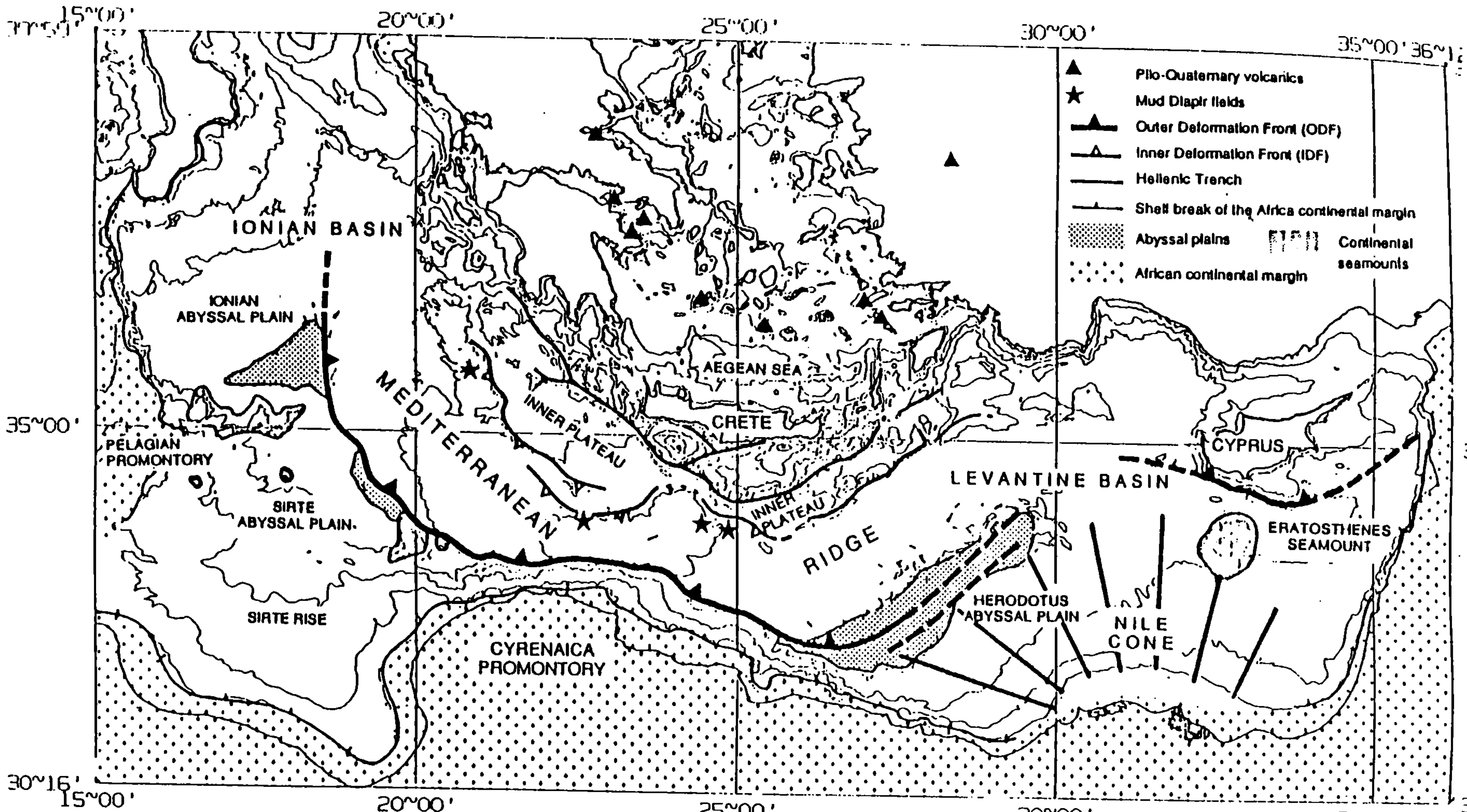


FIGURE 2 - Tectonic scheme of the Eastern Mediterranean collisional margin.

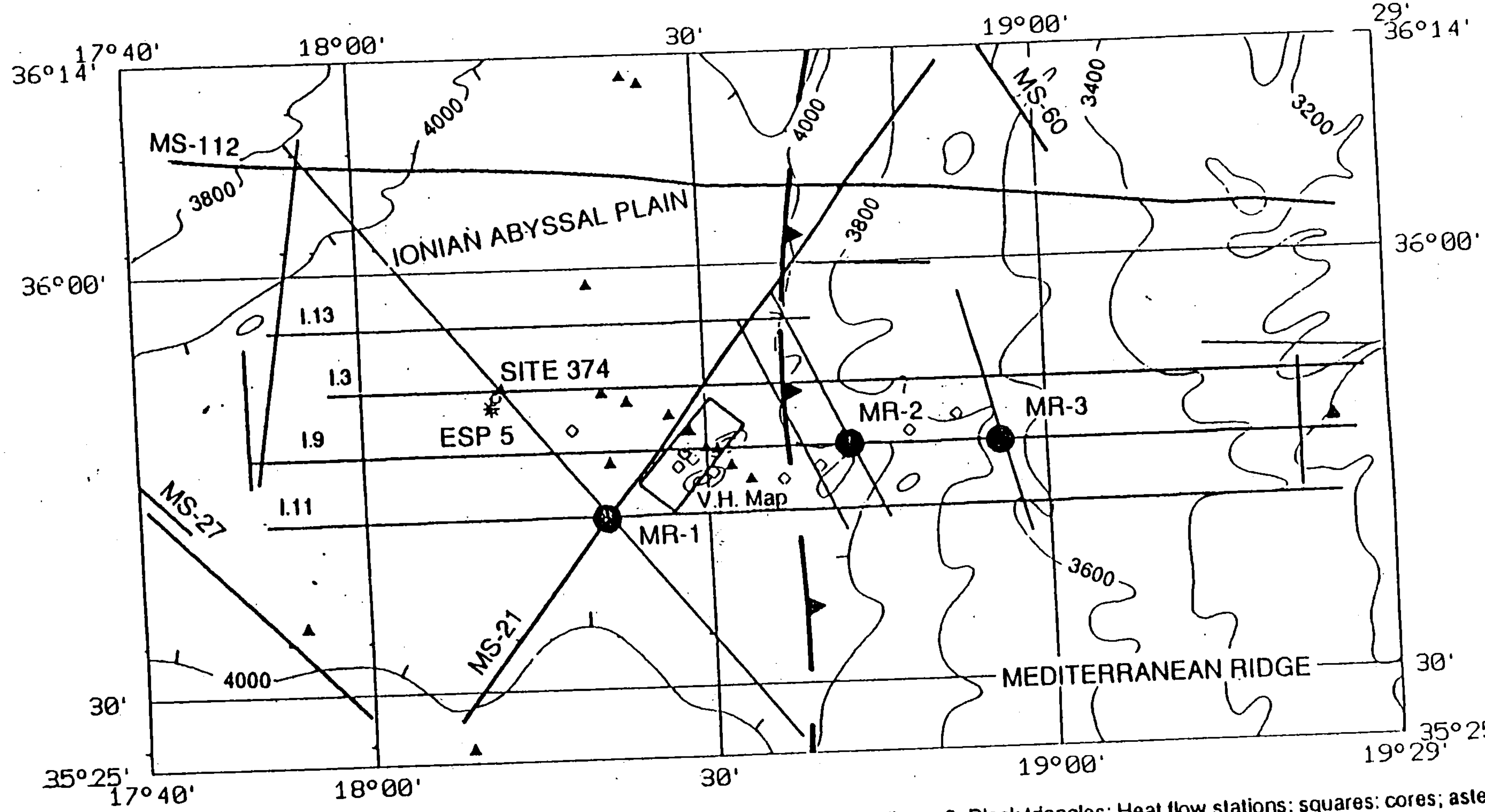


FIGURE 10 - Available site survey data on the Ionian Deformation Front. Thickness of lines as in figure 9. Black triangles: Heat flow stations; squares: cores; asteriscs: ESPs; open circles: DSDP Sites. Black circles: proposed drillsites.

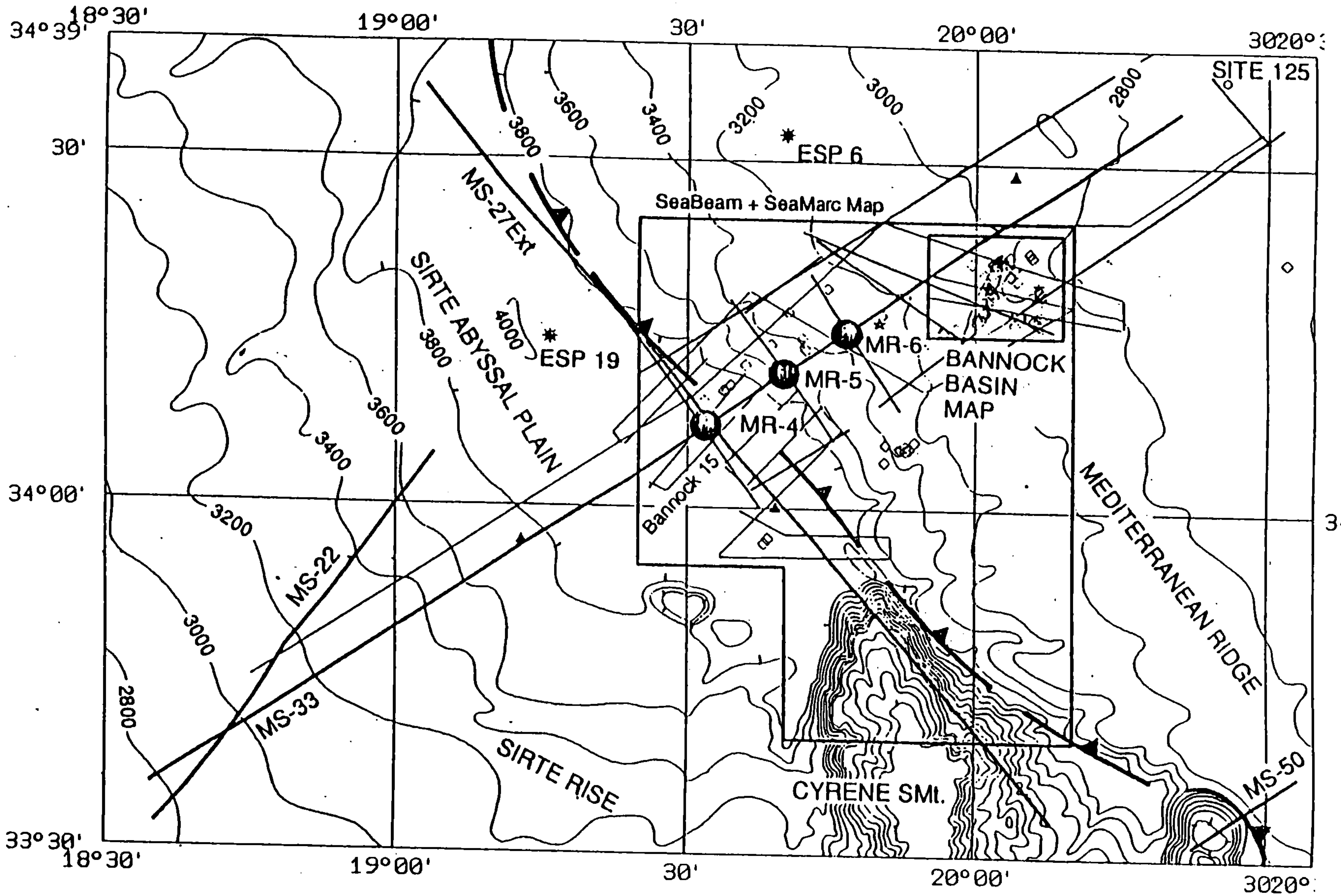


FIGURE 13 - Available site survey data on the Sirte Deformation Front. Explanation of symbols as in figure 10.

Appendix 19.19

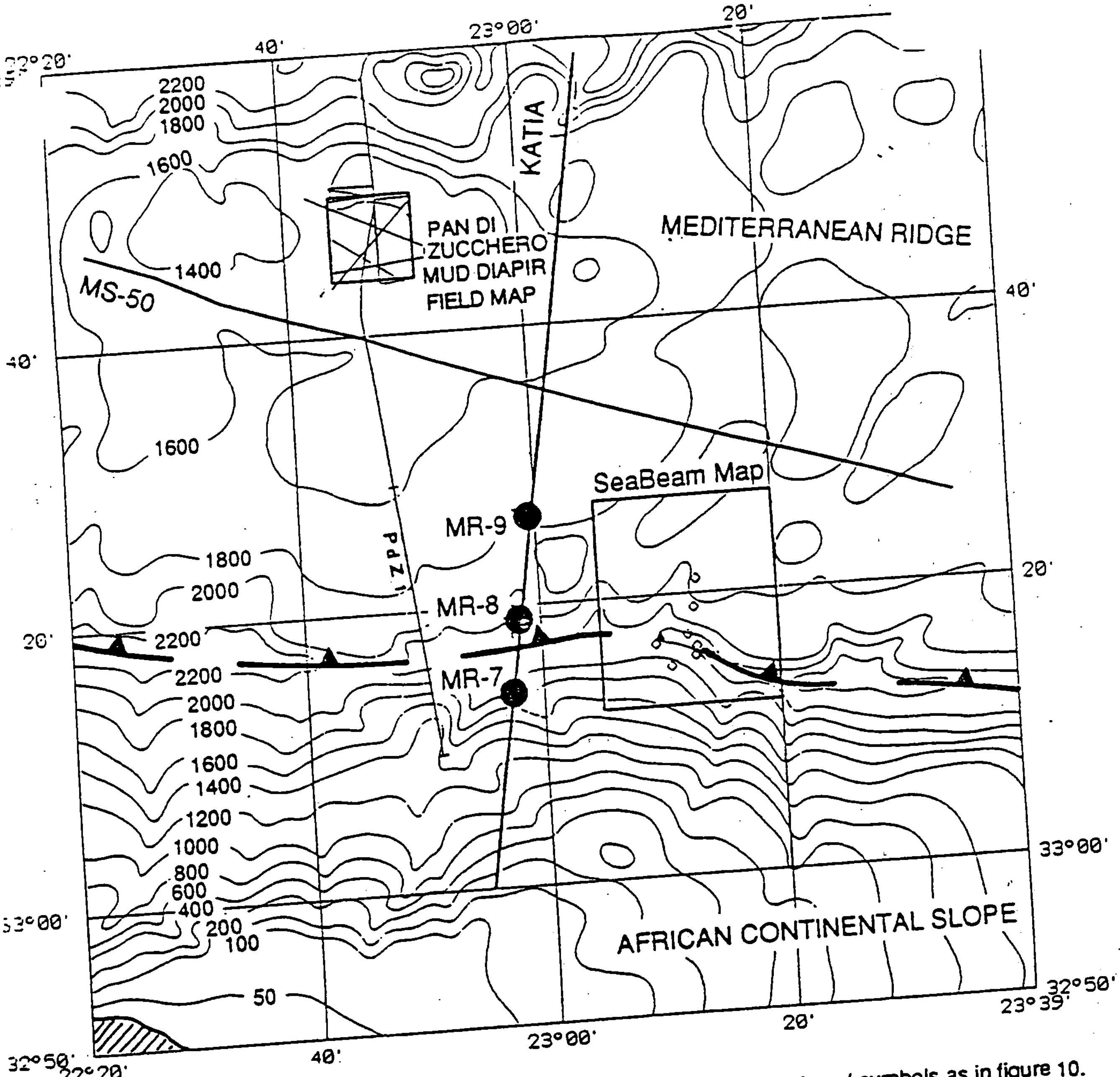


FIGURE 20 - Available site survey data on the Katia Deformation Front. Explanation of symbols as in figure 10.

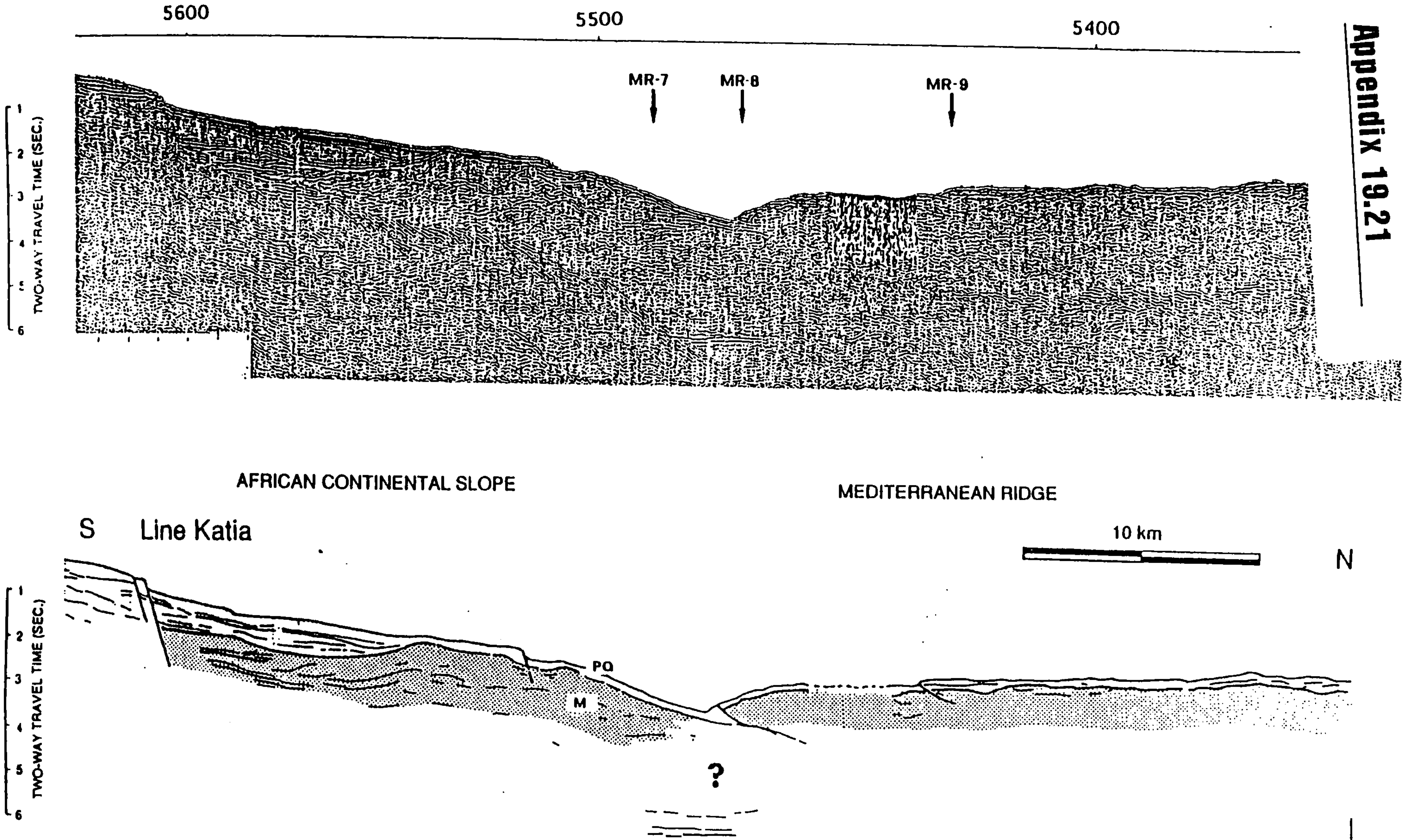


FIGURE 23 - MCS line Katia across the Katia Deformation Front (location in figures 9 and 20).

Appendix 19.21

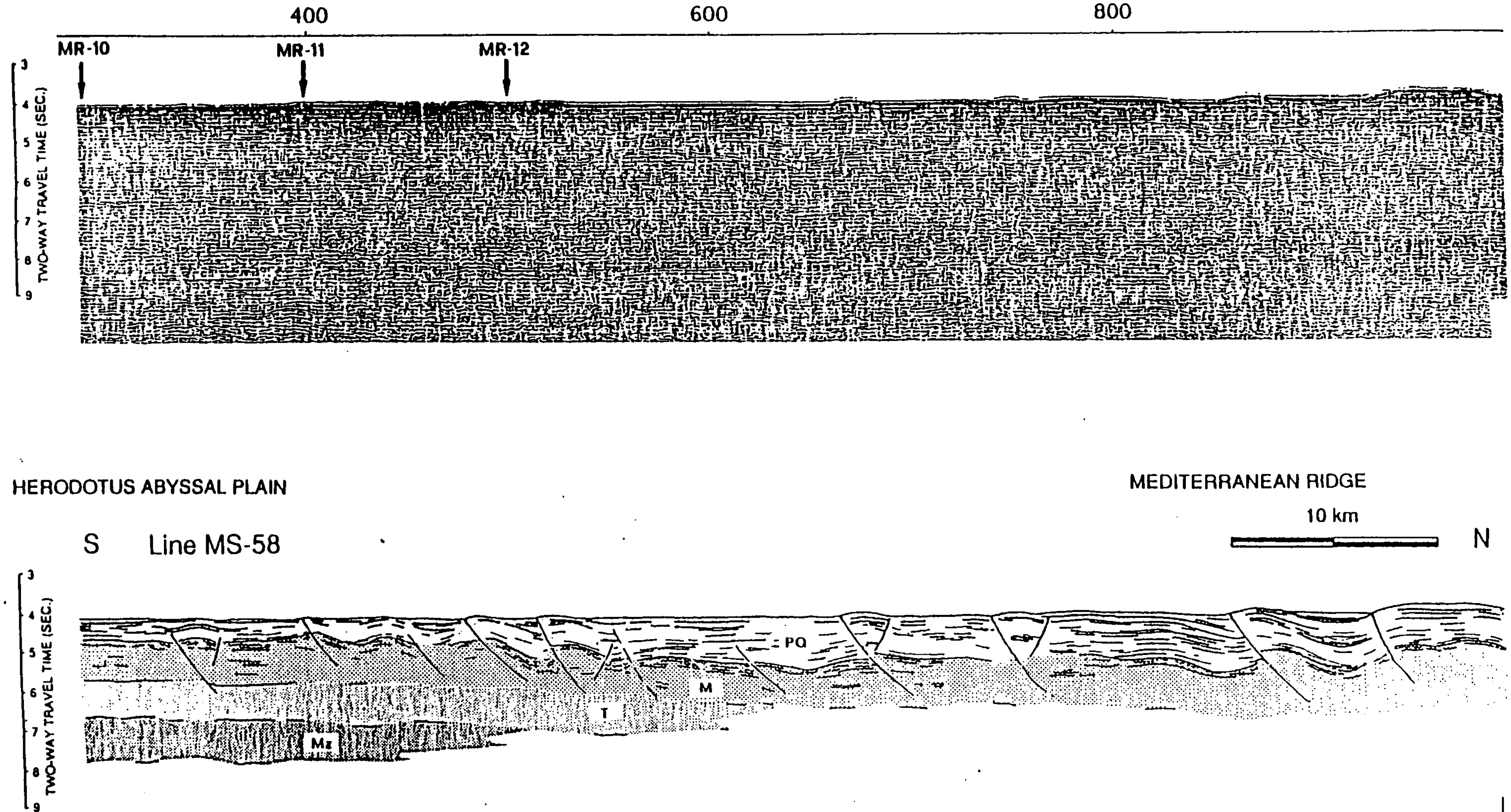
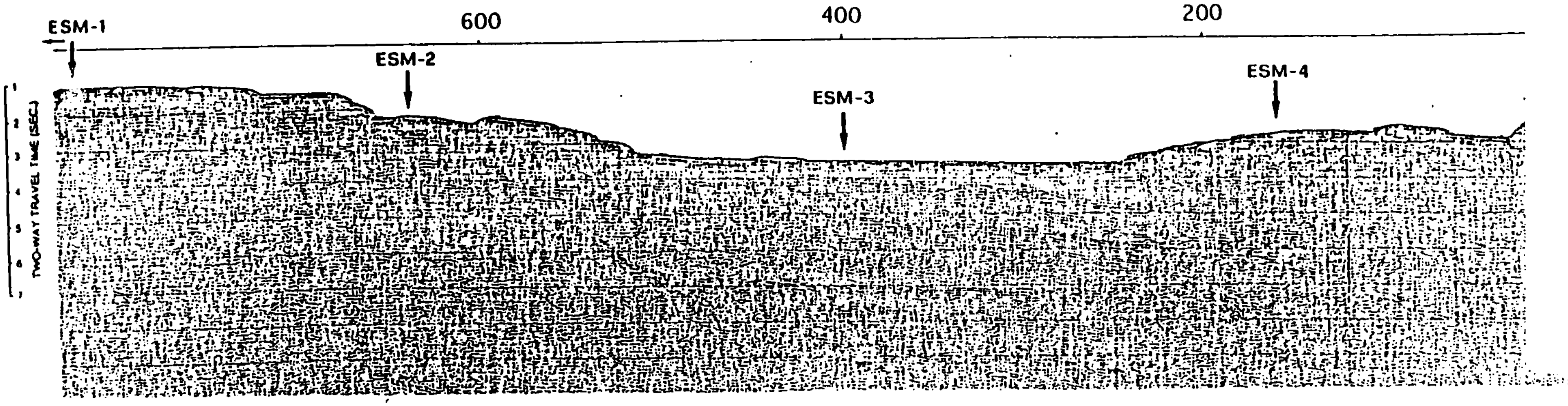


FIGURE 27 - MCS line MS-58 across the Herodotus Deformation Front



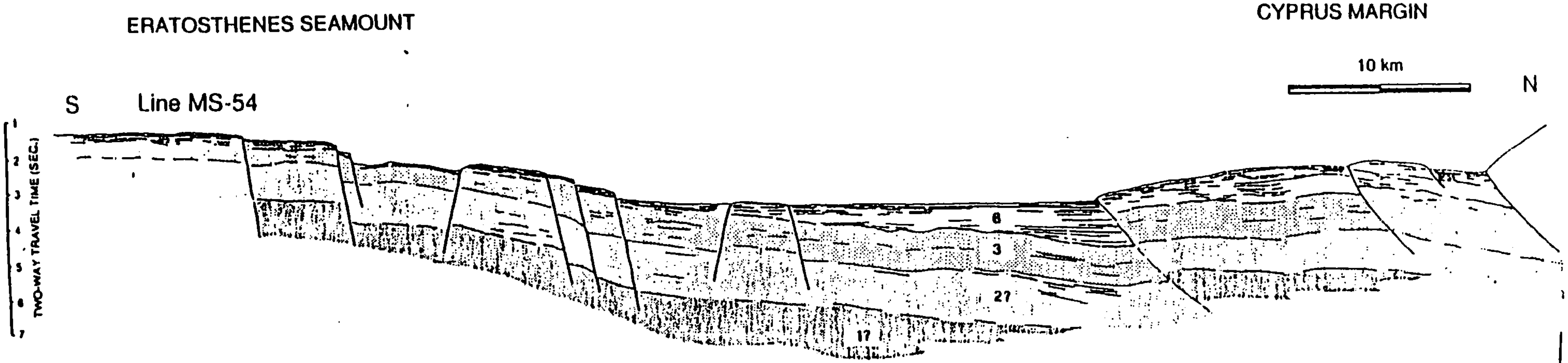


FIGURE 36 - MCS line MS-54 between the Eratosthenes Seamount and the Cyprus margin (location in figures 9 and 36).

Appendix 19.23

346 Rev 3 Ivory Coast Ghana
Transform Margin.

Thematic justific:
One of 3 major plate boundary type
Thus - Global Problem
other examples: S.W. I.O.
S. Newfoundland
Exmouth Plateau

Best documented.
Most accessible

Responded to TECP evaluation -- condensed to
1 program.

Principal features:
Sharp linear continent - oceanic transition
Divergent basin
Marginal ridge

4 Stage Model:
1. Contin - contin contact - marginal basin
sim to Calif

2. Contin - thinned o.c. -- forms
marginal ridge

3. Drift phase -- contin - hot oceanic
crust

4. Thermal Subsidence

 Appendix 19.25

~~Strategy~~ to test:

Two transects:

1. Transverse: 2 holes IG 4, IG 2 bis
   - Marginal basin,
   - Marginal ridge + cover
   - So. oceanic crust.
2. Lateral. 4 (5?) holes
   IG 3, 5, 6 bis (7?)

Extra site IG 1 - thinned sed. cover + tilted block

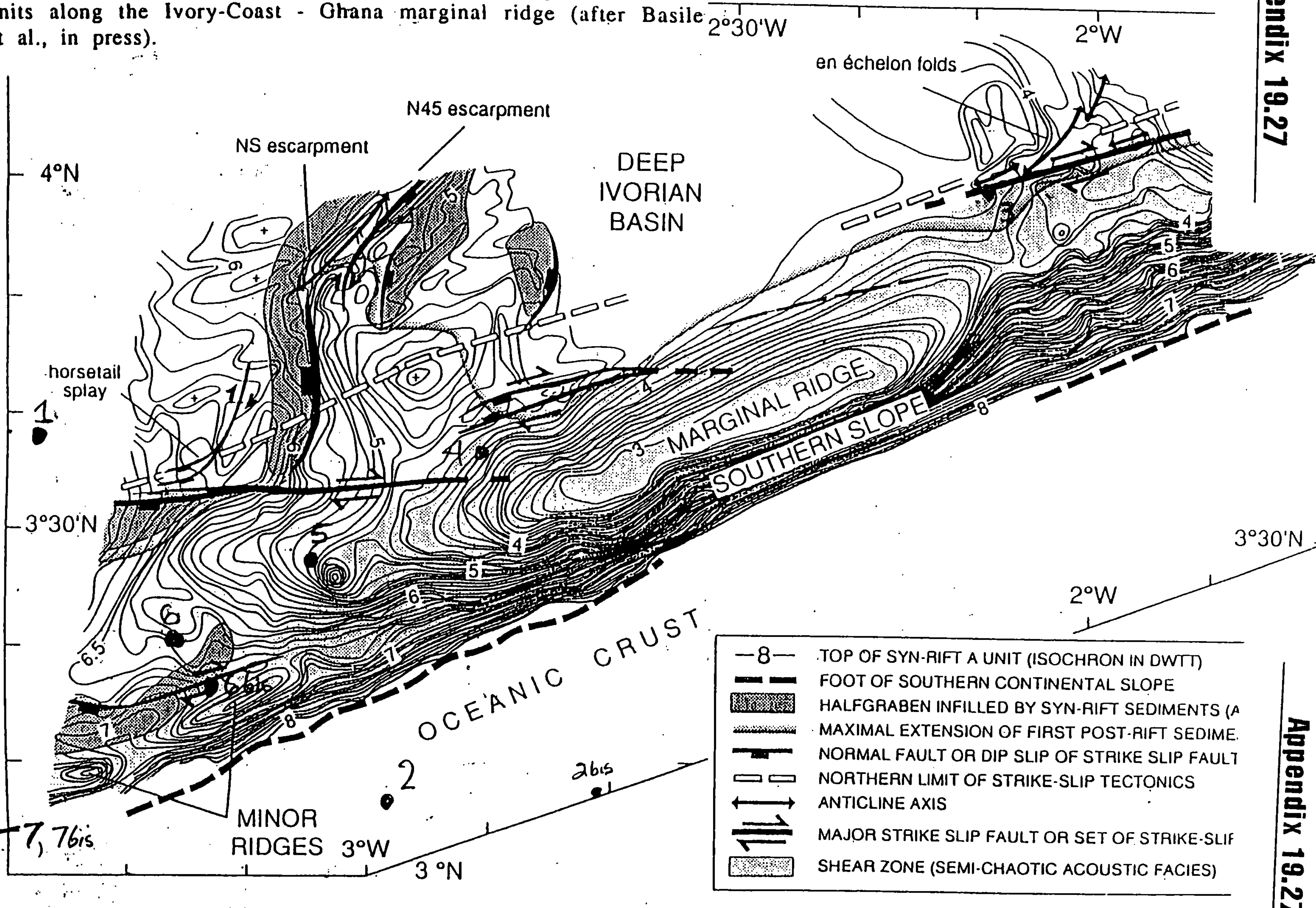
From cont to oc. along strike

Hole	Objective	Water	Seds	Basem.
Transverse				
IG 4	Syntect. sediments. Struct. deformation Basement lithology Marginal ridge history	2000	1000	200
IG 2 bis	Ocean floor so. of transform fault	4935	1200	100
Lateral				
IG 3	Main transform shear zone + ridge evolution	2340	900	-
IG 5	Axis marginal ridge Basement, Syndeformational sequence, post-shear sed cover	3300	8-900	100
IG 6 bis	Nature of marg. ridge (= deformed seds?) History marg. ridge	4650	200	2-300 (def seds) ss, qtz

TECP Questions:

1. Need IG1?
2. Why 2 in marginal ridge?

. 9 : General structural mapping and depth of the top of deformed units along the Ivory-Coast - Ghana marginal ridge (after Basile et al., in press).



Appendix 19.27

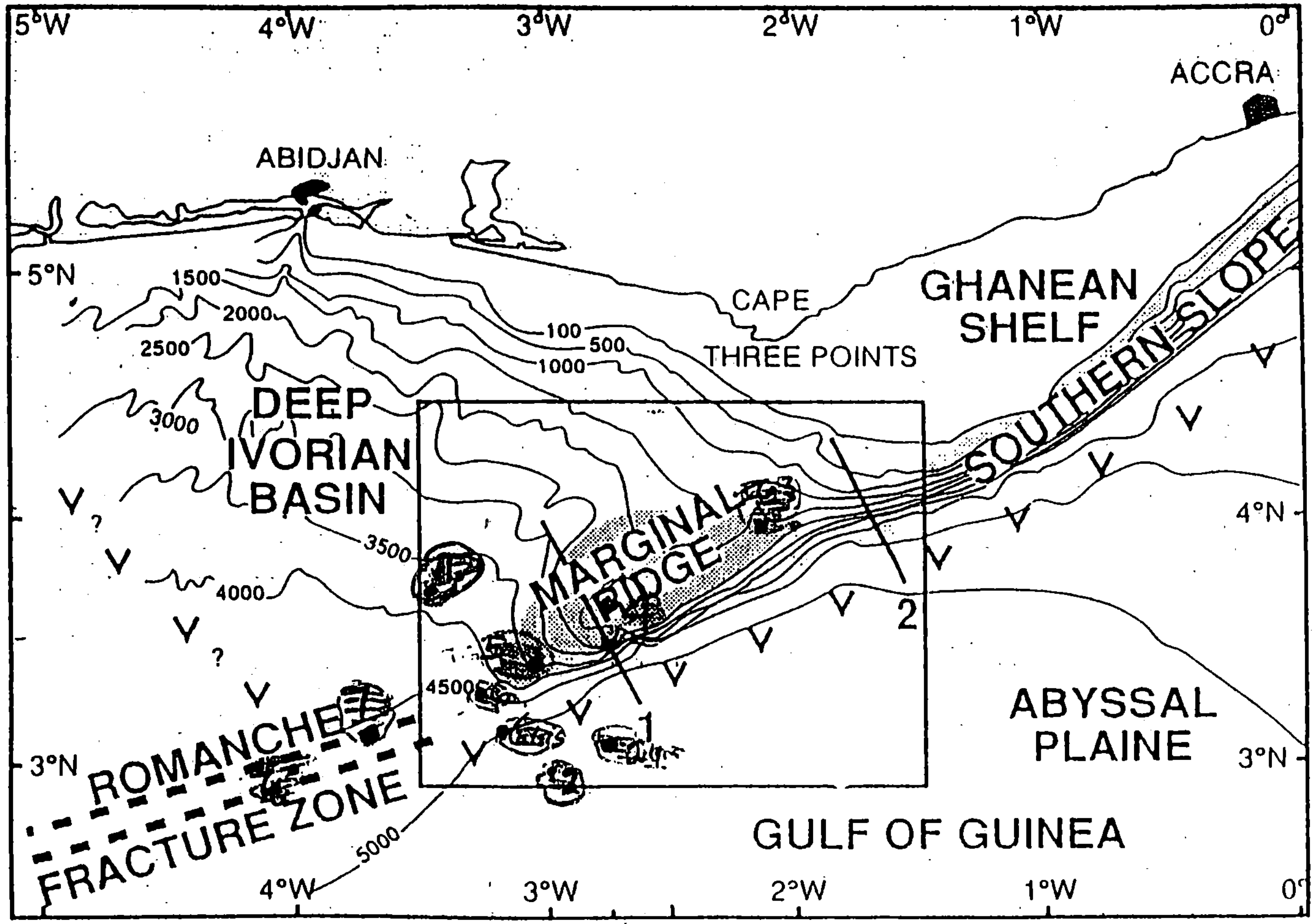
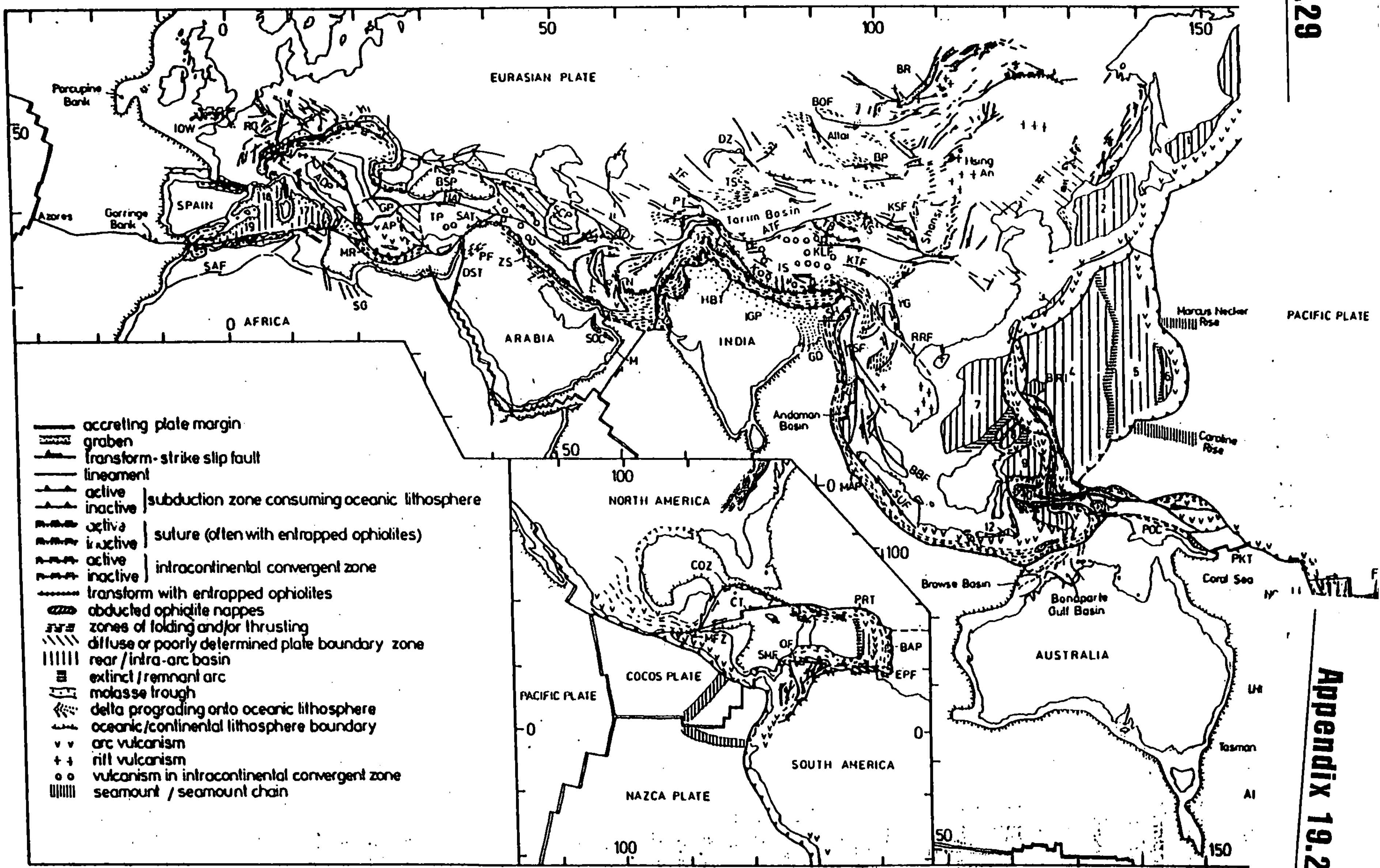


Fig. 3: Main morphostructural domains of the Ivory-coast - Ghana transform margin.

Appendix 19.28



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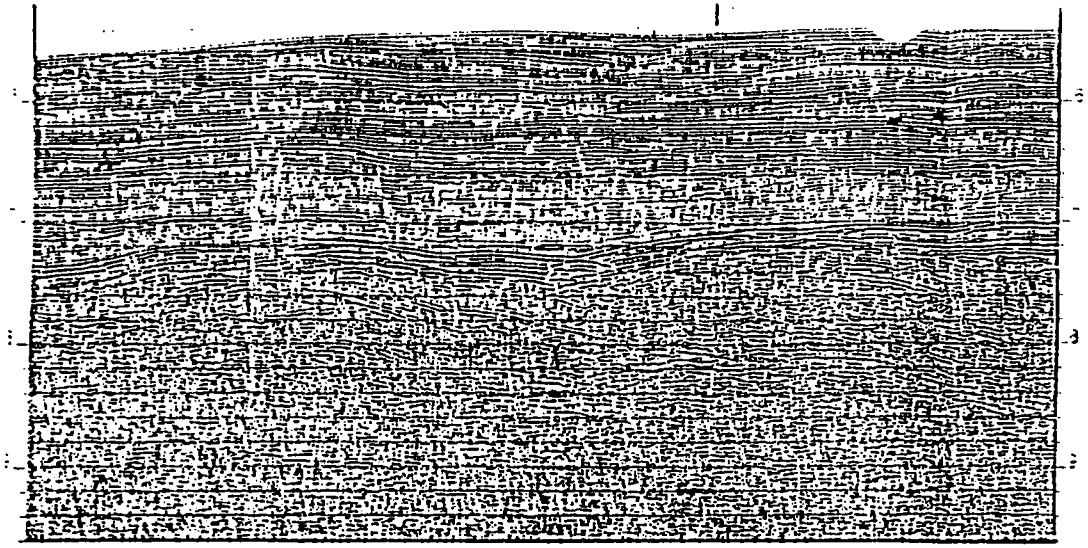
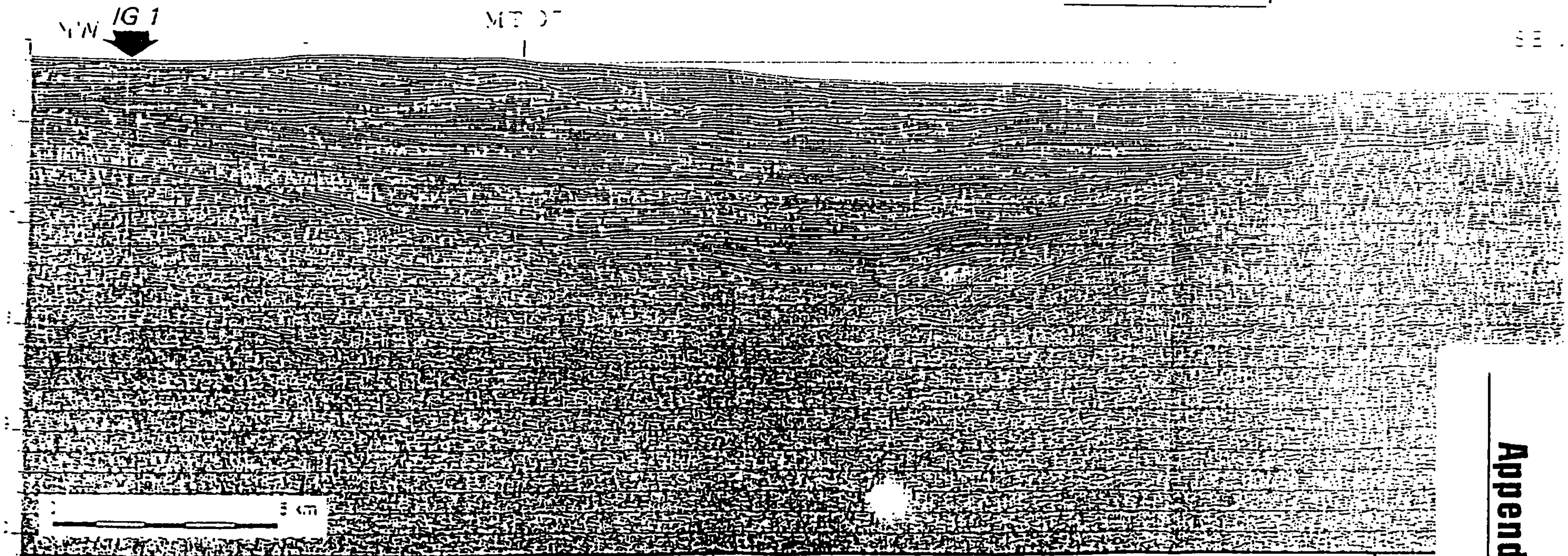
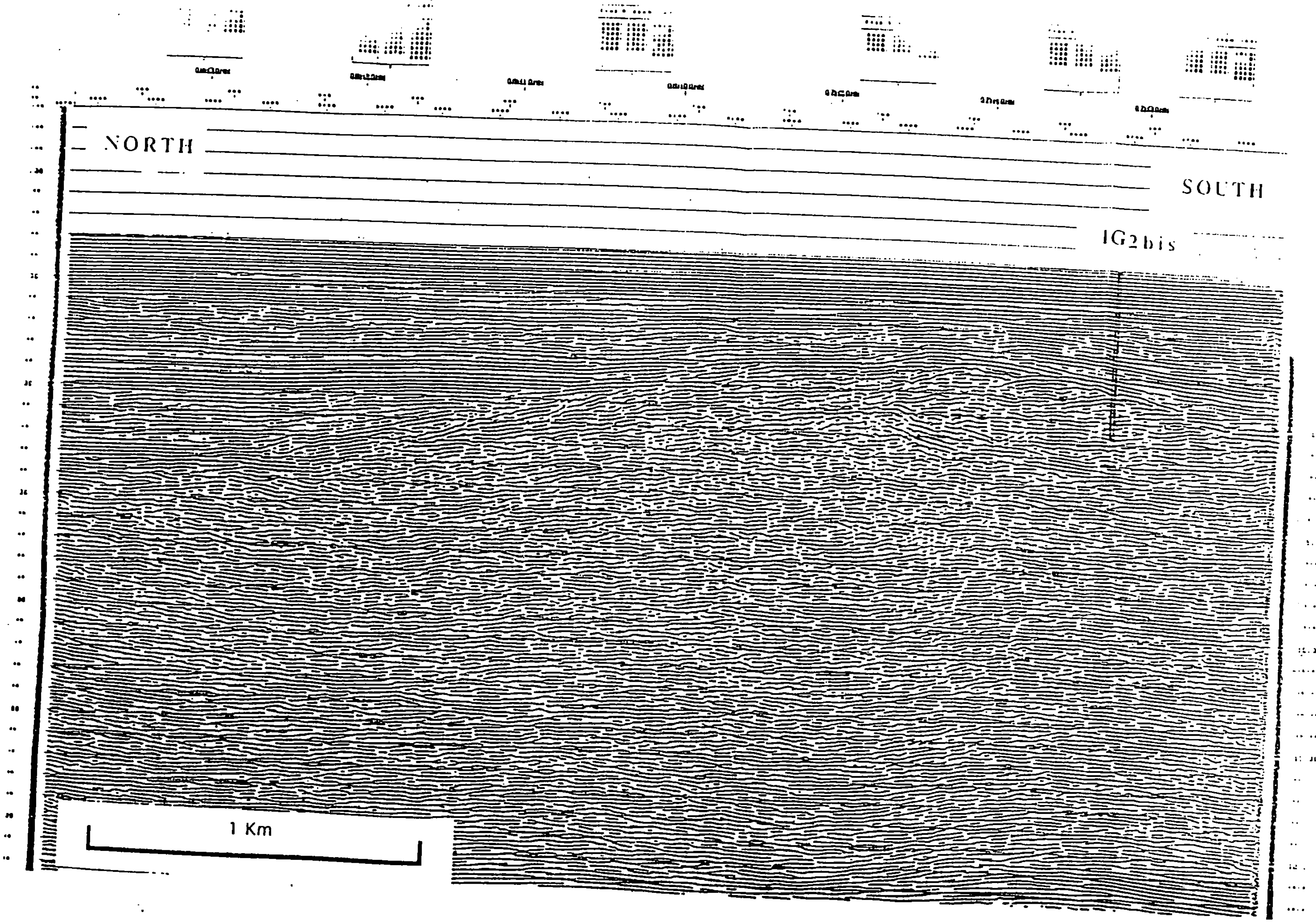


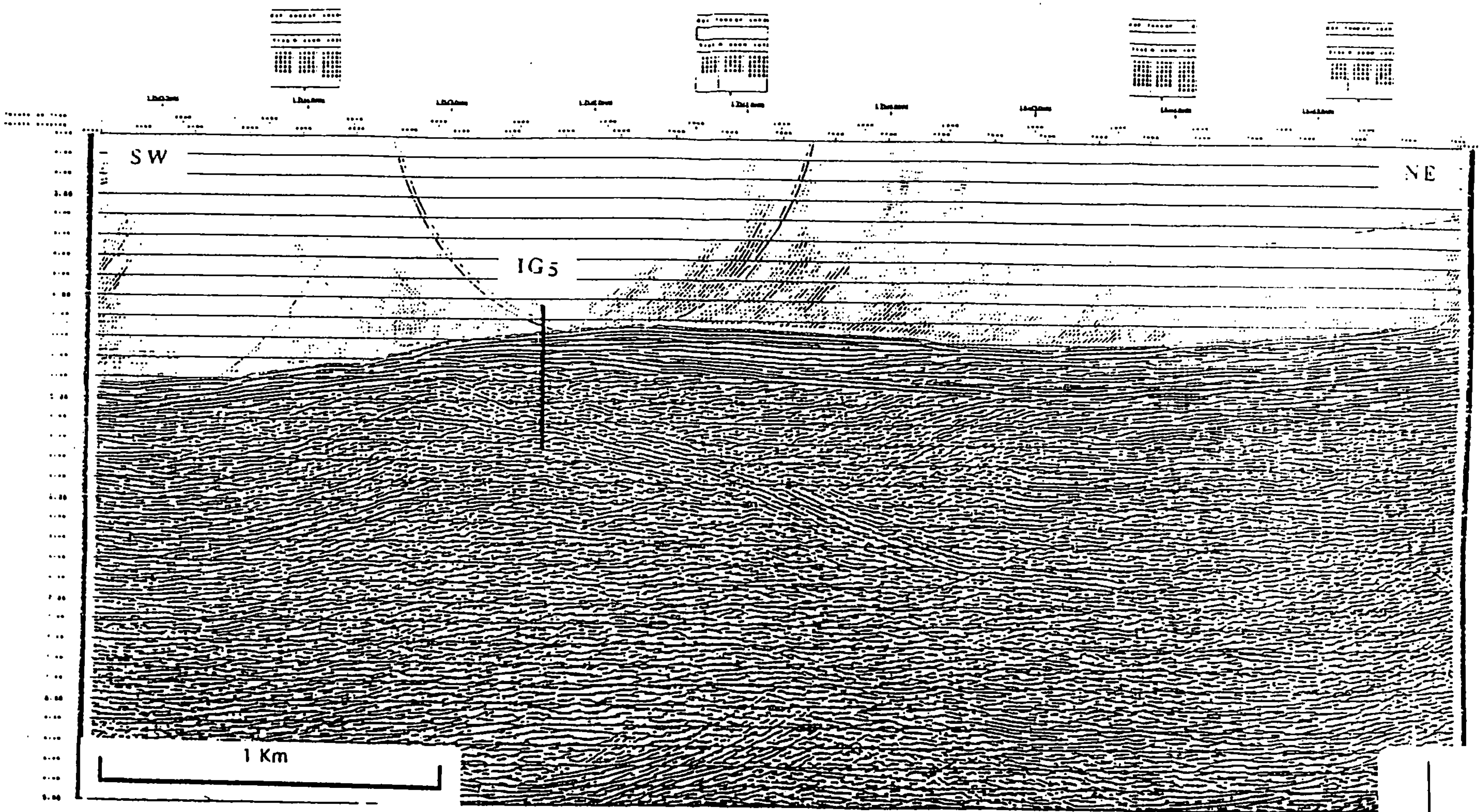


Appendix 19.30

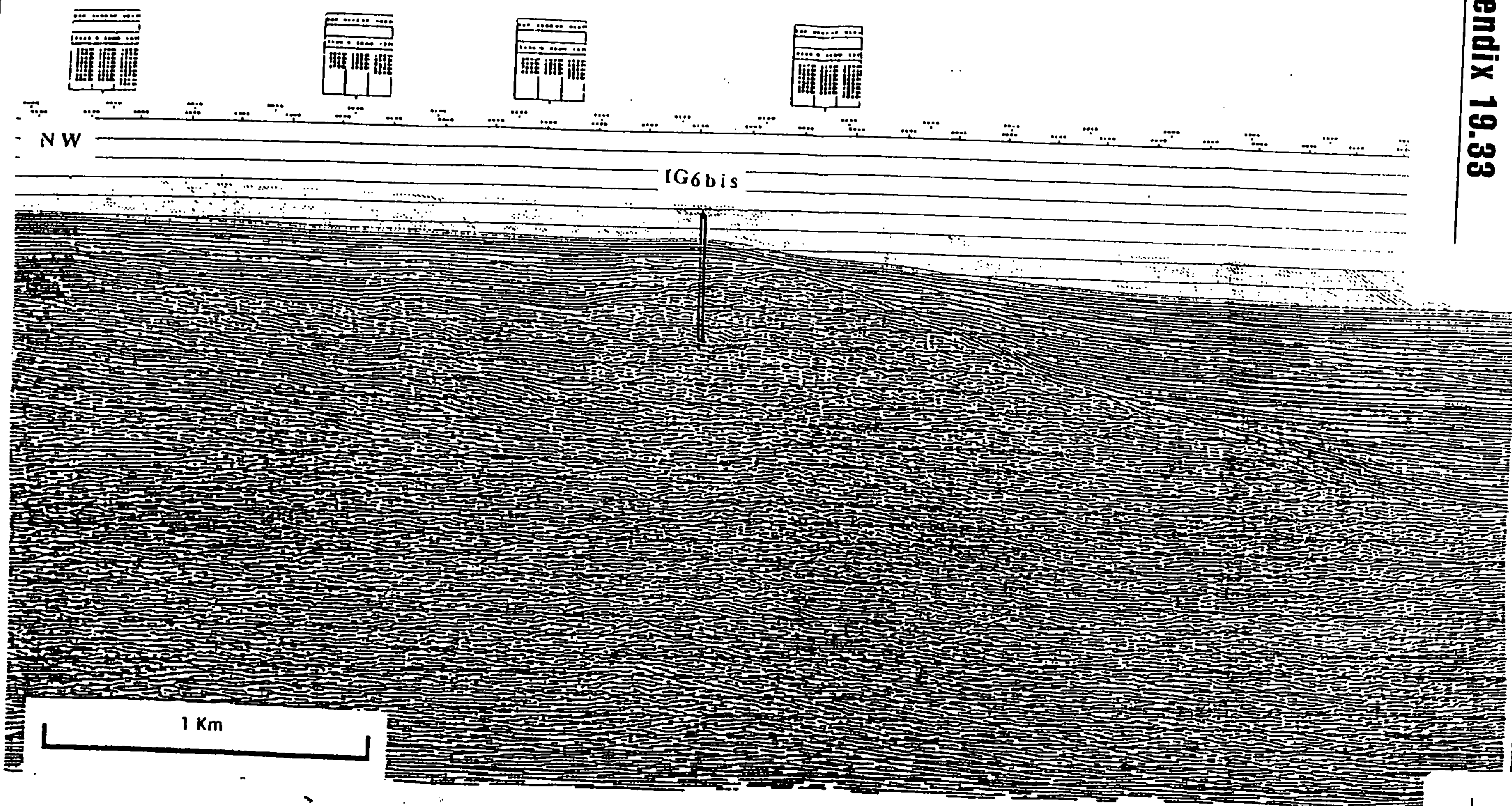
Appendix 19.31



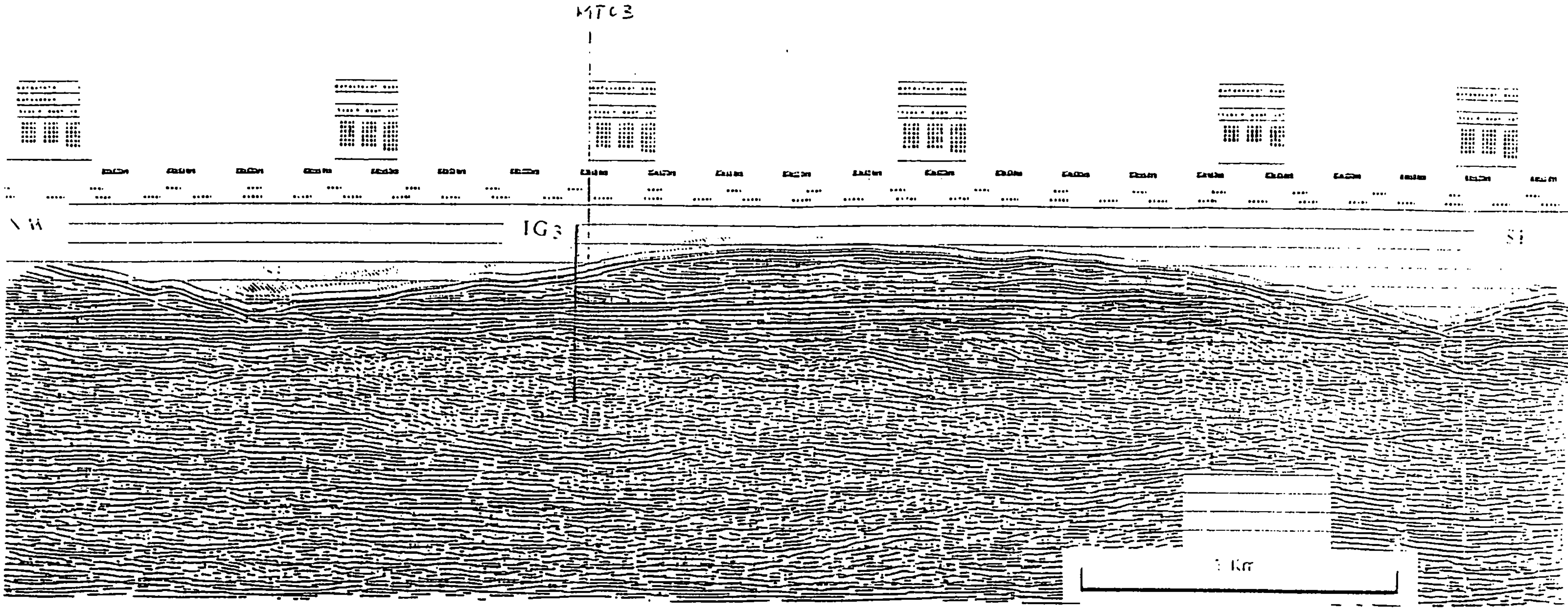
Appendix 19.31



Appendix 19.32

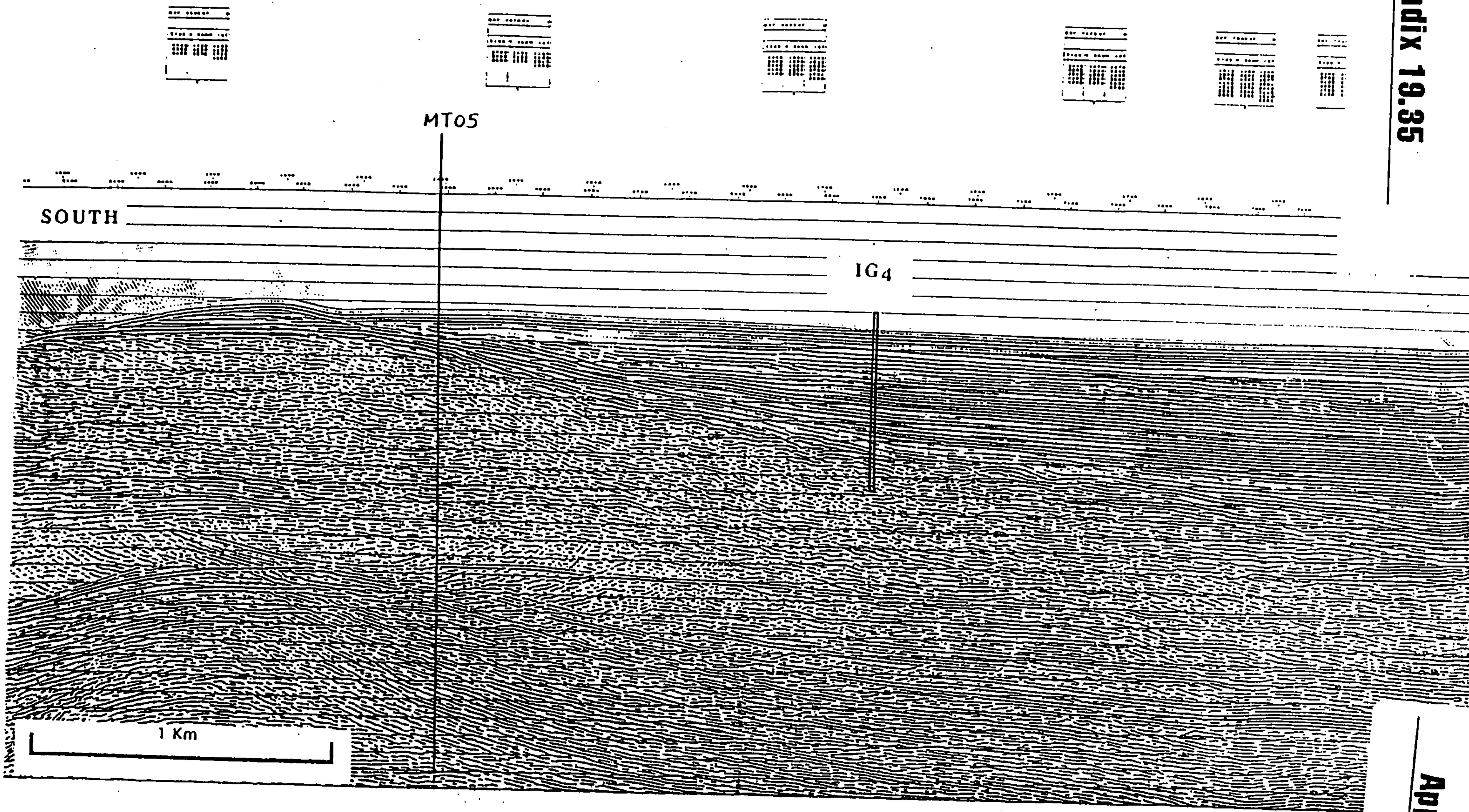


Appendix 19.33



Appendix 19.34

Appendix 19.35



Appendix 19.35

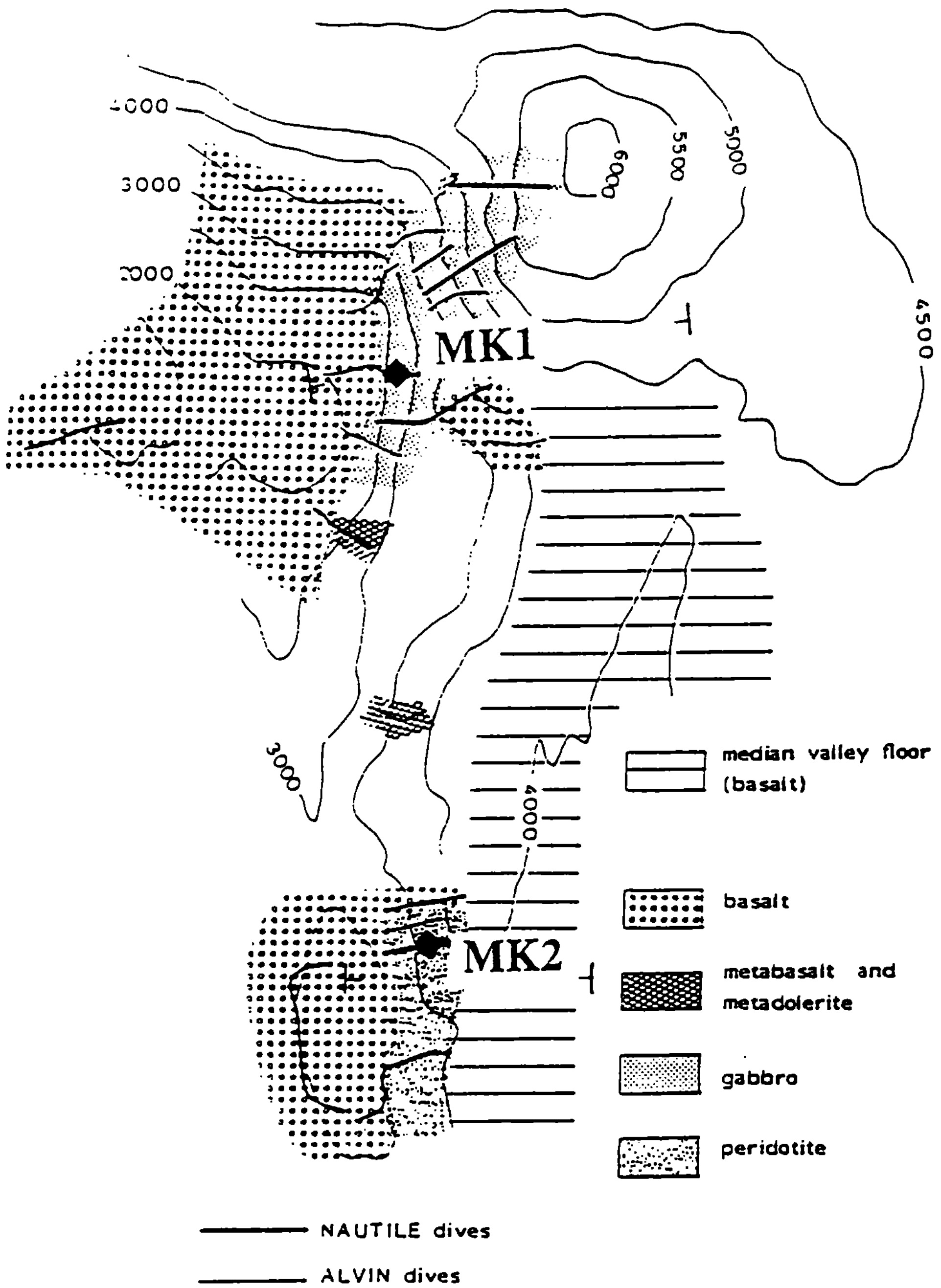
369 Rev 2 Mark

Best documented M.O.R site
2 holes gabbro
peridotite

Good models: magma budget vs extension
Clear
Predictions for holes

(Could serve as model for future
proposals)

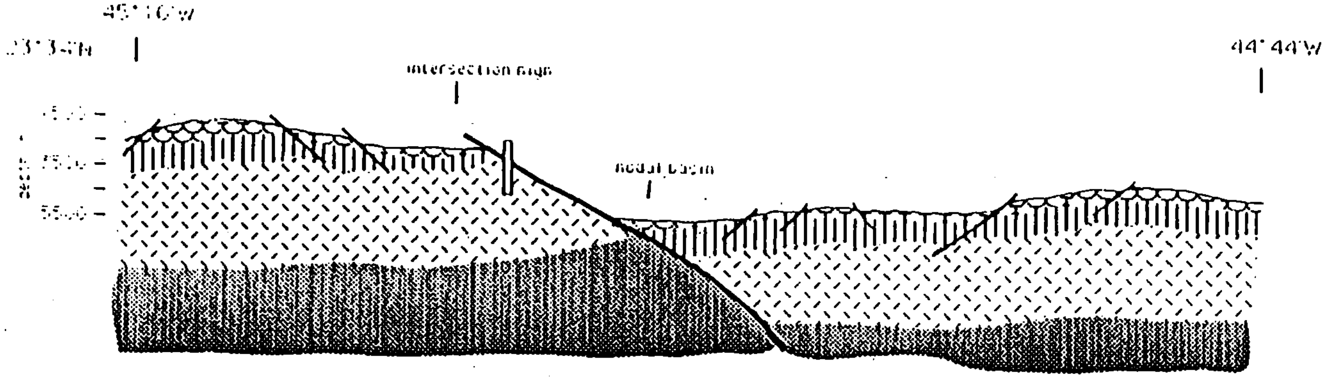
Appendix 19.37

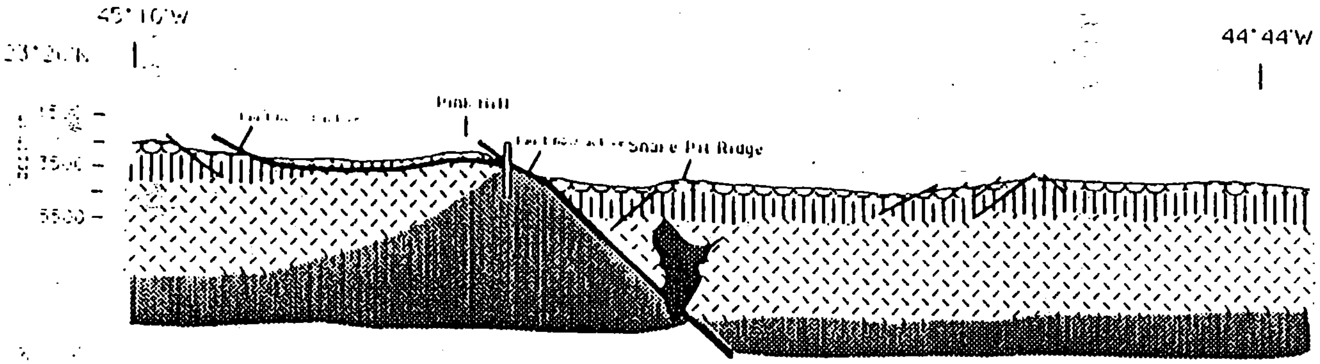


·g. 9. Geological sketch map based on submersible observations of the western rift valley wall in the MARK area, with location of ·e two interpretative cross-sections presented in Fig. 10B. The pattern for metadolerites and metabasalts is also used for tectonic ·xtaposition of metadolerites, metabasalts, basalts, and/or gabbros at a scale too fine to be represented on the map. More detailed ·logical data on the Nautile dives may be found in Figs. 3 and 7. The geological data on the Alvin dives are synthesized after ·rson and Dick, 1983. Deep-towed camera observations support the lateral continuity of the outcrops (Karson and Dick, 1983; Brown and Karson, 1988).

Figure 7 (after mével et al., 1991)

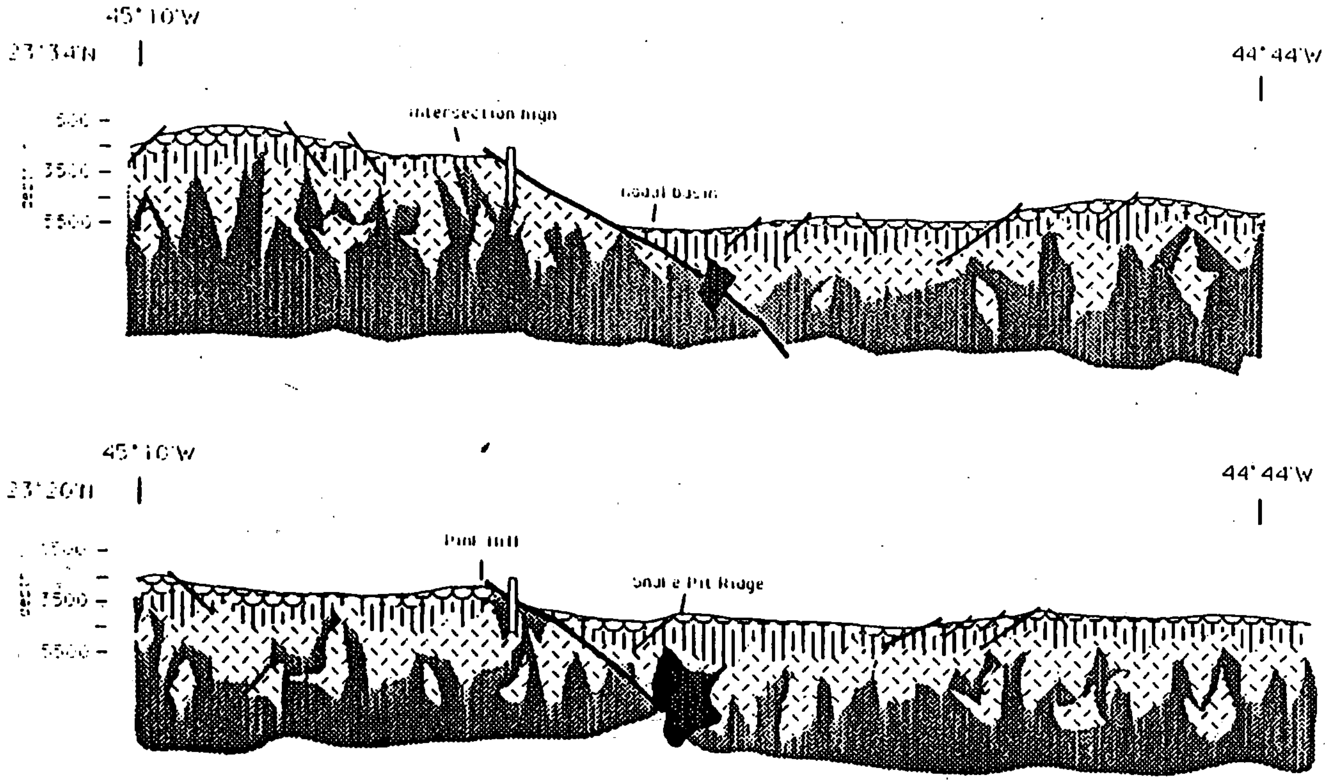
amagmatic spreading following a high magma budget period





After a period during which enough magma was provided to form a continuous "normal" thickness magmatic crust, the ridge became magmatically starved. Spreading has therefore been totally accommodated by lithospheric stretching. Gabbros formed during the magma-rich episode, and mantle rocks, have been tectonically uplifted. Vertical displacement along the western median valley wall master faults is of the order of 3000m at 23°34'N, and of 6000m at 23°20'N. Assuming that these faults have an average 45° dip and accommodate fully the 3cm/yr spreading rate, this corresponds 100 000 to 200 000 years-long amagmatic period.

budget



The magma supply to the ridge consistently been too low for a thickness magmatic crust to ... Spreading has therefore been ... accommodated by lithospheric stretching, leading to the emplacement of mantle peridotites into the uppermost axial lithosphere. Gabbros have crystallized in shortlived discontinuous pockets, locally intrusive into tectonically uplifted mantle rocks. Vertical displacement along the western median valley wall master faults is of the order of 3000m at 23°34'N, and of 1000m at 23°20'N.

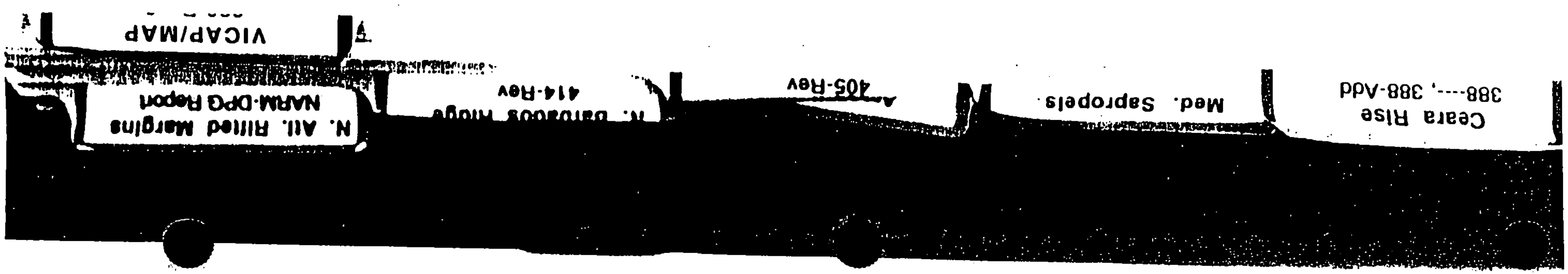
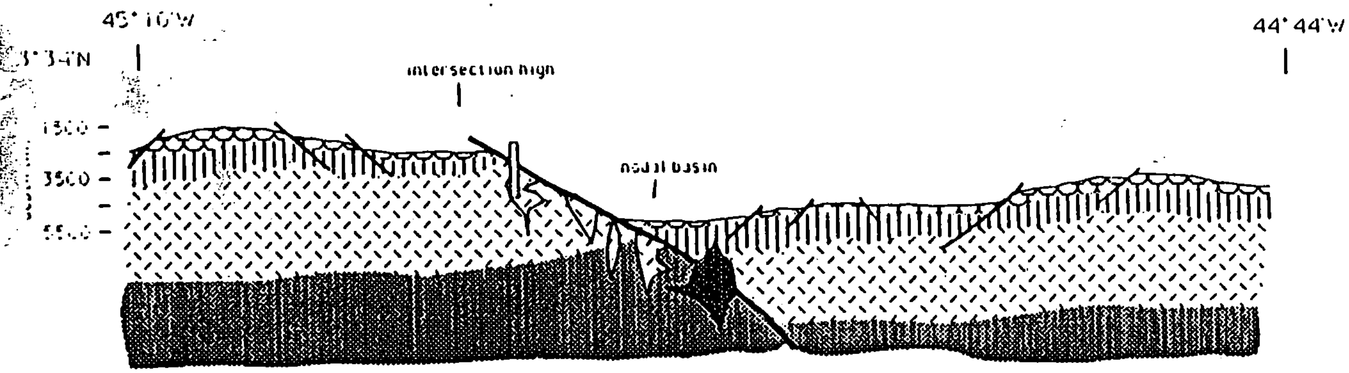
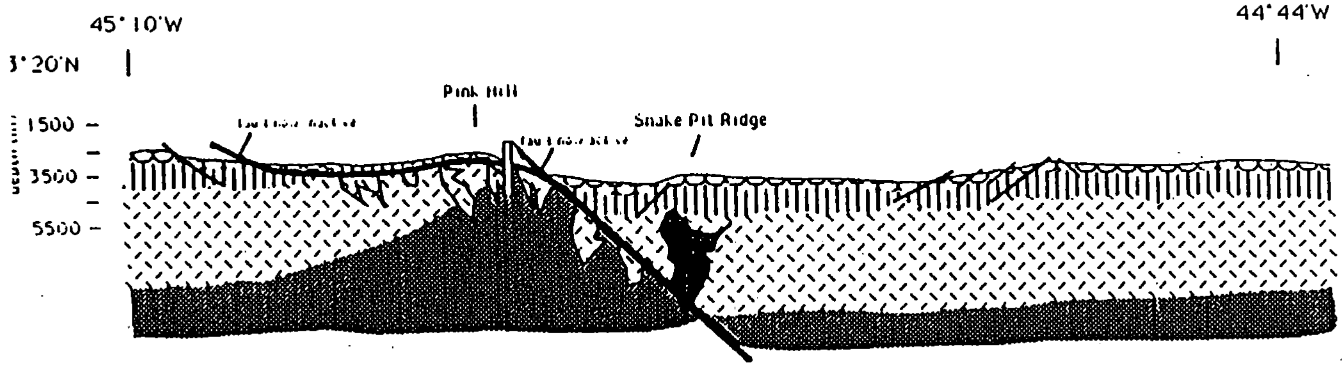


Figure 13 (continued)

CASE 1':
An intermediate case:
low magma budget
following a high magma
budget period





After a period during which enough magma was provided to form a continuous "normal" thickness magm crust, the magma supply decreased. Spreading has since then been parti accommodated by lithospheric stretching. Gabbros formed during magma-rich episode, and mantle have been tectonically uplifted. produced during the low magma episode have crystallized in sh discontinuous pockets, locally in into tectonically uplifted mantle rocks. Vertical displacements along the western median valley wall master fault are of the same order of magnitude as in case 1.

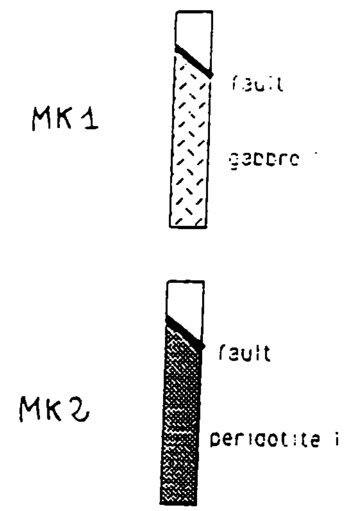
Appendix 19.41

23°20'N

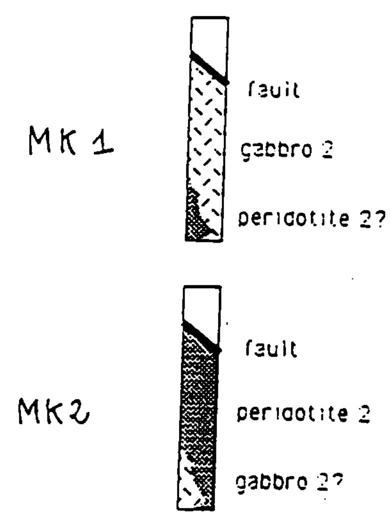
23°34'N

23°20'N

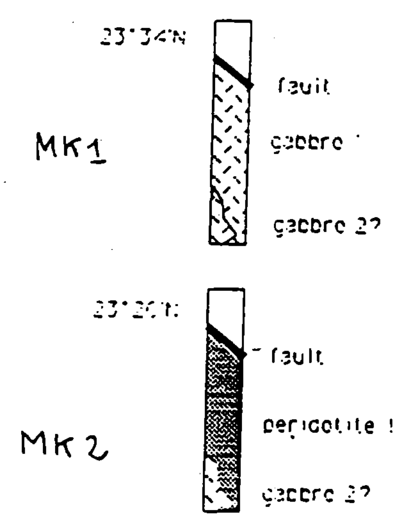
CASE 1:



CASE 2:



CASE 1':



NARM. NON VOLC II.
+ LEG 149

TECP – considerable concern
Support both transects - Symm. vs Asymm

Iberia – Newfoundl

a. Extent of peridotite exposures
Geometry of rifting
Land geology tie

b. Nature of ocean-continent transitio
Nature of basement highs
Oldest ocean crust -
Early rifting history - IAP3
Rift/drift transition

c. Complexity is unavoidable.

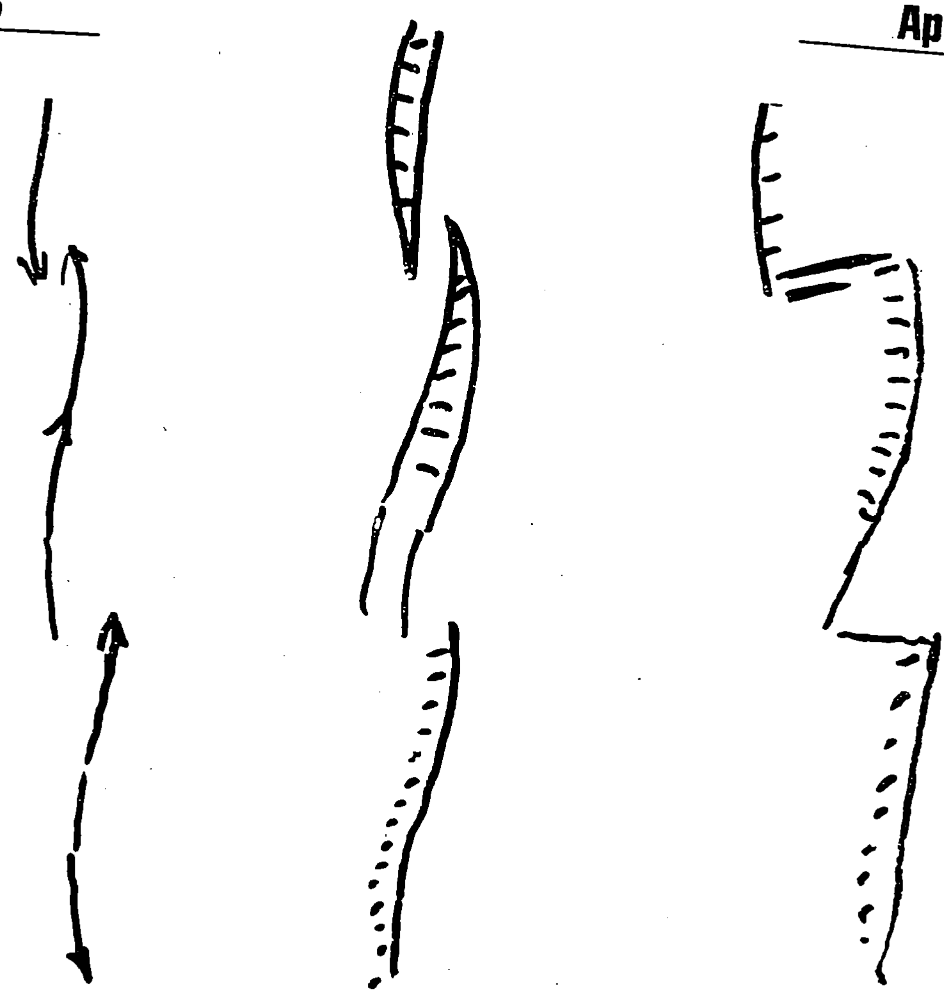
d. Support conjugate approach
Goal - trans-oceanic "balanced" sections

3 Possibilities for Leg II
1. Complete 3 IAP priority sites + GAL 1
2. Complete 3 IAP sites + start NB4
3. Go straight to NB 4
(IAP 1 needs others for proper siting, ∴ Not a possibility)

No. 1 favored + was voted on
No one very happy
Concern about finishing transect.
" [illegible] constituency

Appendix19.43

Appendix19.43



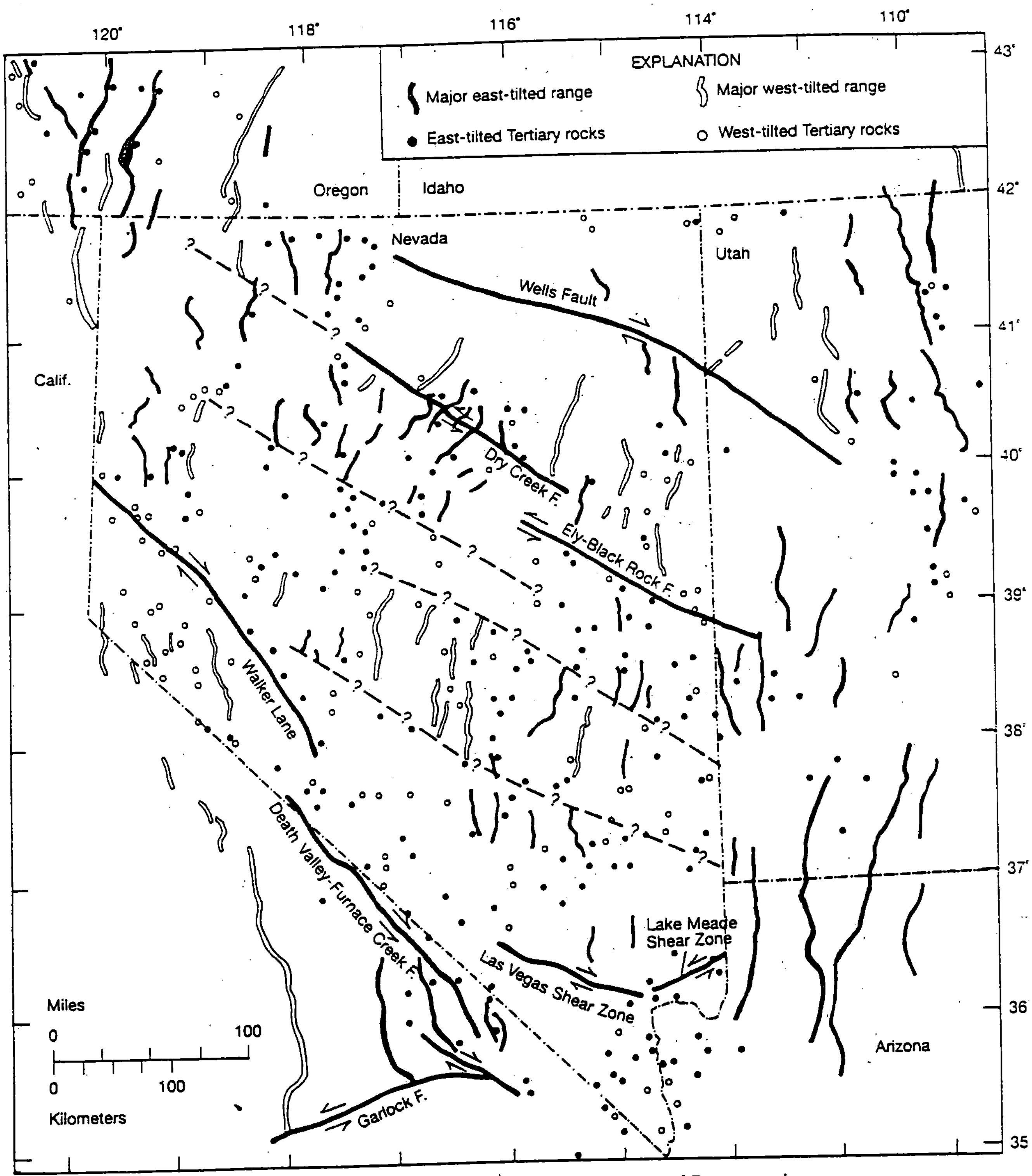


Figure 5.12 Structure of the Great Basin in the Basin and Range province of Nevada and neighboring regions, showing the tilt direction of major ranges and of Tertiary rocks. Strike-slip faults in northeastern Nevada have been identified by the offset of stratigraphic and structural trends. Hypothetical transfer faults, indicated by question marks, are suggested by the possible boundaries of tilt domains and domains of major normal faulting (cf. Figure 5.11).

Appendix 19.45

M DPG
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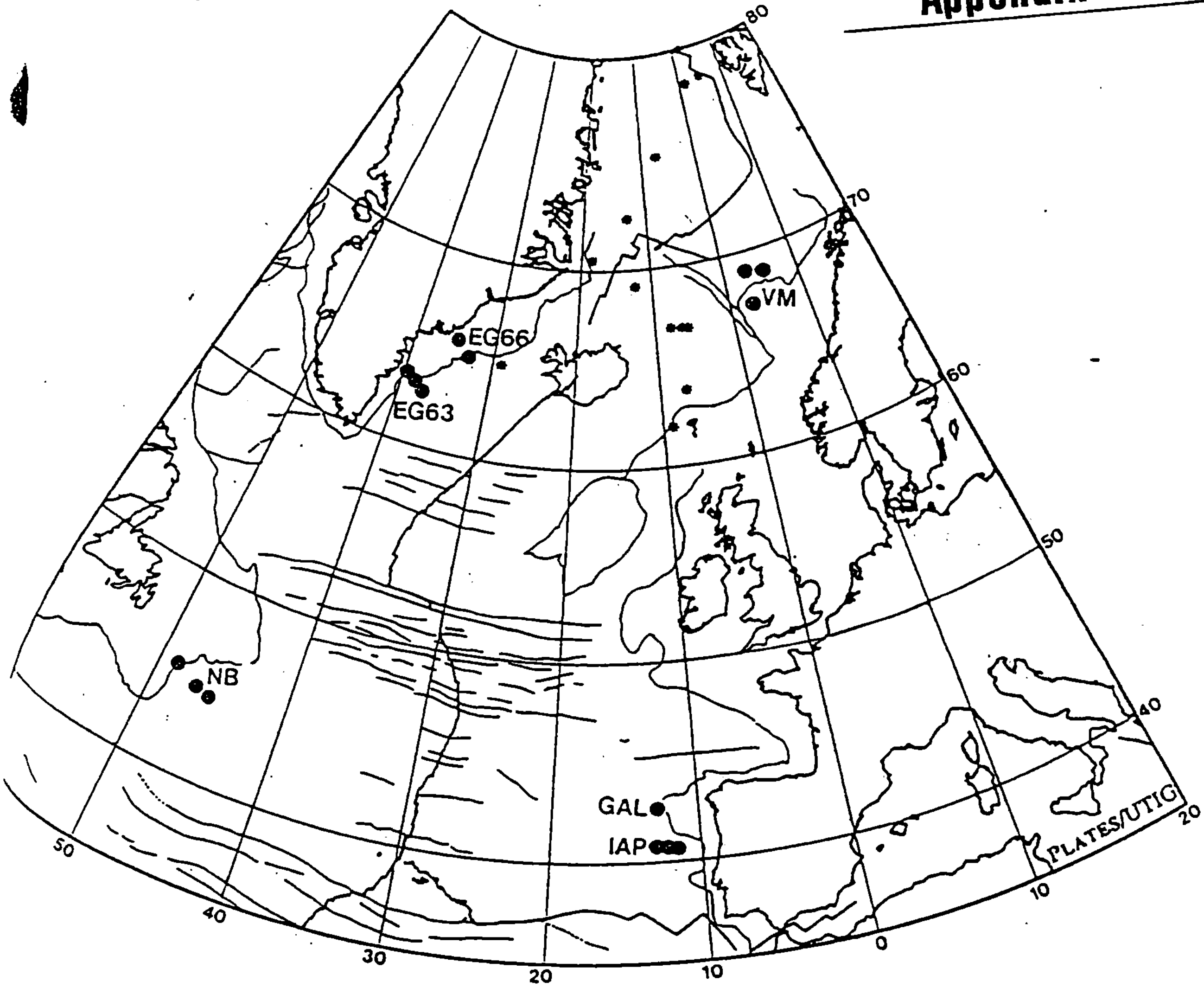


Figure 1.3. Compilation of all high priority drillsites selected by the NARM DPG (filled circles; see Tables 3.2 and 4.2 for detailed information); and all high priority drillsites south of 80°N selected by the NAAG DPG (asterisks). Abbreviations and corresponding proposal numbers are: EG, East Greenland, 310 & 393; GAL, Galicia, 334; IAP, Iberian Abyssal Plain, 365; NB, Newfoundland Basin, 365; VM, Vøring Margin, 358. Continental outlines and mid-ocean ridge axes are indicated by heavy lines; shelf breaks by light lines. Digital map courtesy of PLATES/UTIG (M. Coffin and L Gahagan).

Question of Closeness of
IAP + NB sites to true
conjugate positions.

Very close if not exactly
conjugate
No major transfer structure
Same "compartment" or "domain"
Nevada analogue -
similar history across
transfer structures.

Appendix 19.47

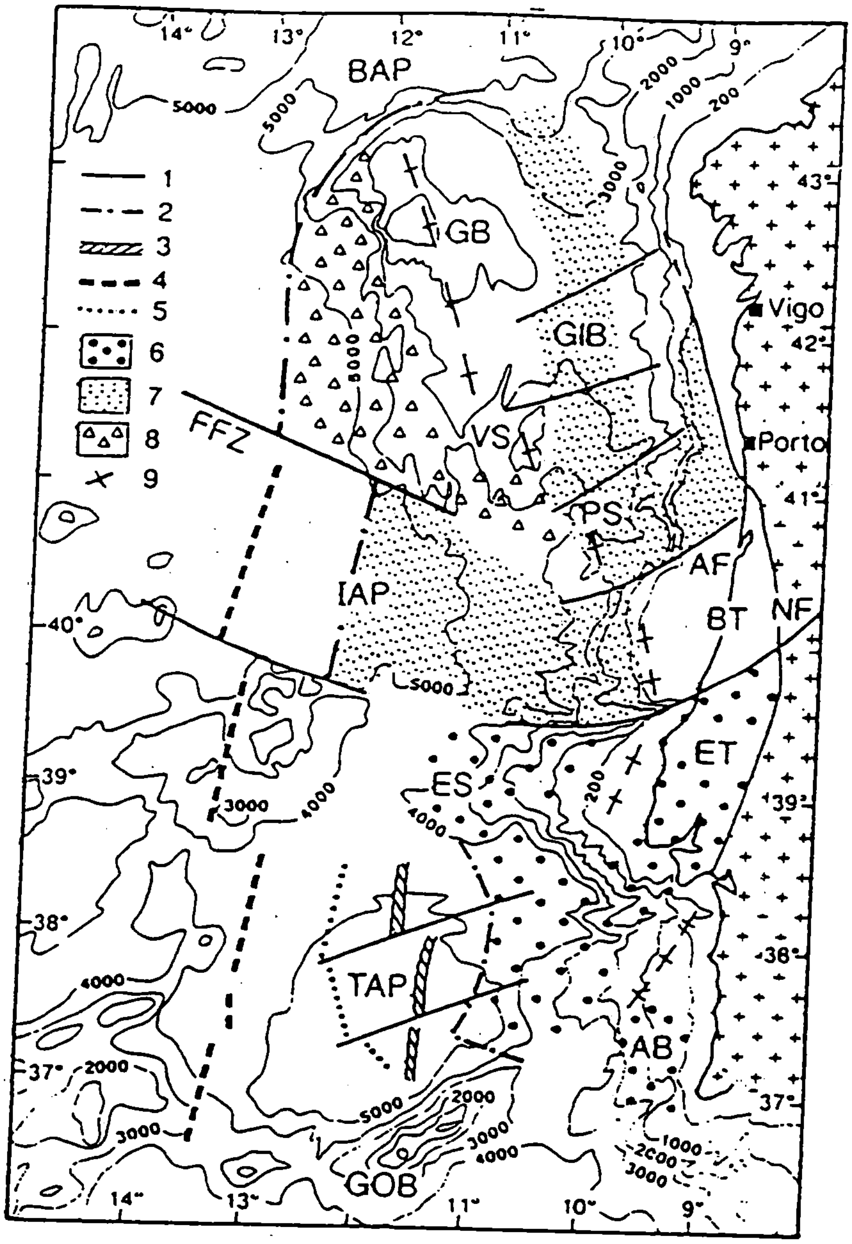


Figure 32 Map of the western Iberian margin to illustrate the evolution of the processes of rifting and oceanic spreading during Late Jurassic-Early Cretaceous times. 1 = Basin bounding transfer and transform zones; 2 = COT; 3 = abandoned spreading center; 4 = J magnetic anomaly; 5 = western boundary of the first oceanic spreading event in the Tagus Abyssal Plain; 6, 7, 8 = continental areas where the main extensional episode is: Oxfordian-Kimmeridgian in age (6), Valanginian in age (7), Hauterivian-Aptian in age (8); 9 = high areas. AB = Alentejo basin; AF = Aveiro Fault; BAP = Biscay Abyssal Plain; BT = Beira Trough; ES = Estremadura Spur; ET = Estremadura Trough; FFZ = Figuera Fault Zone; GB = Galicia Bank; GIB = Galicia Interior Basin; GOB = Gorringe Bank; IAP = Iberia Abyssal Plain; PS = Porto Seamount; TAP = Tagus Abyssal Plain; VS = Vigo Seamount.

Crooked Page

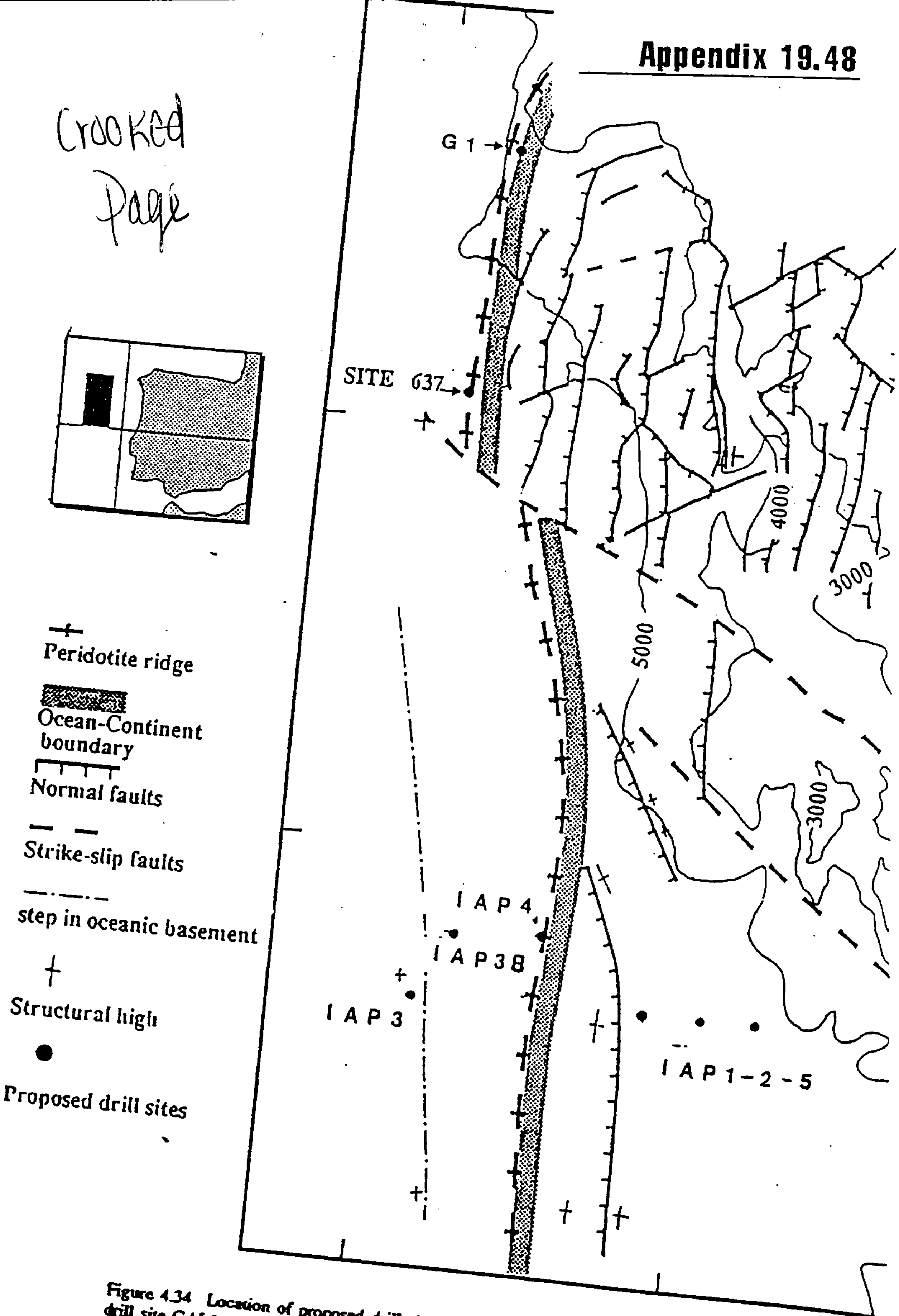
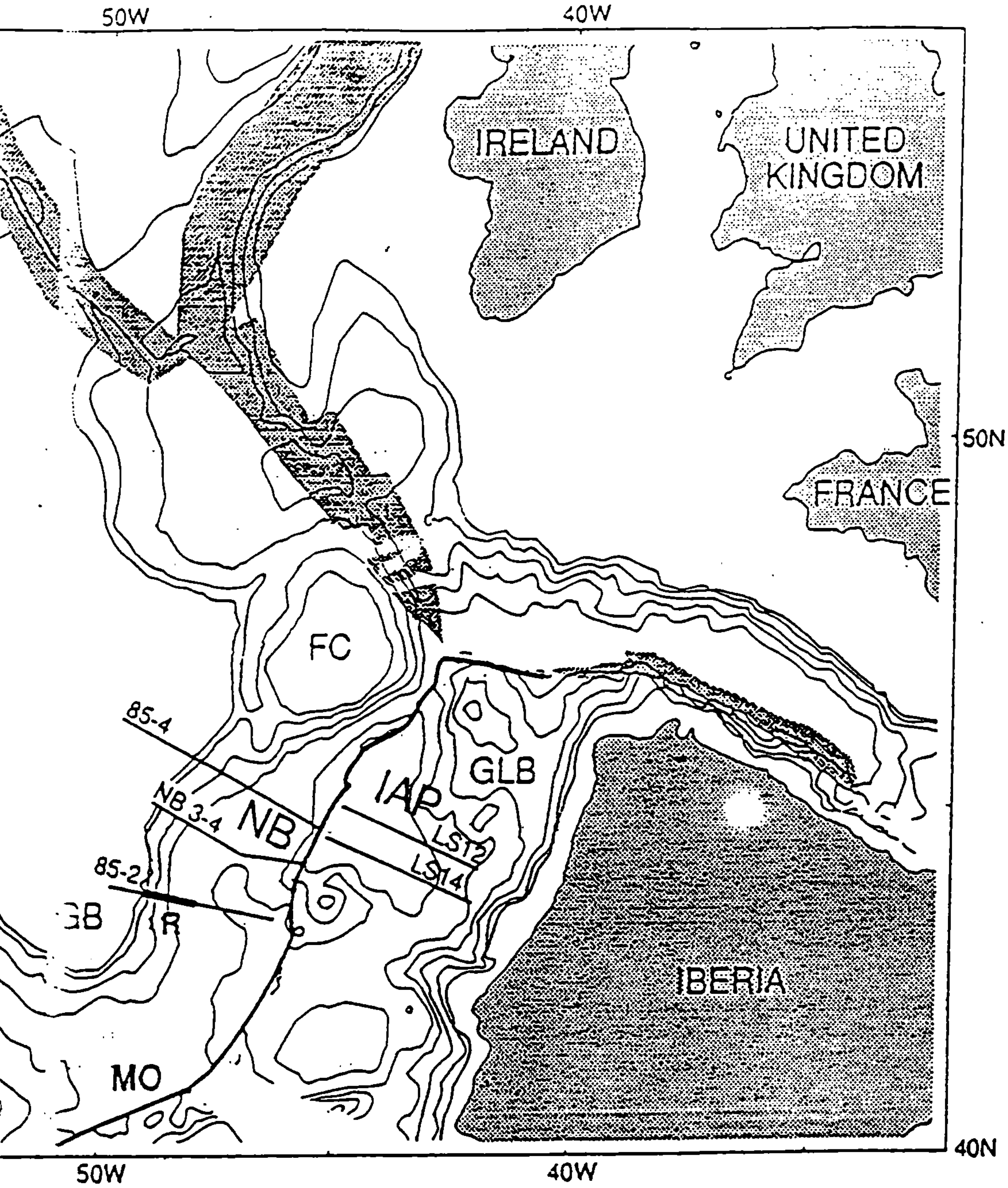


Figure 4.34 Location of proposed drill sites IAP-1 to IAP-5 on the Iberia Abyssal Plain, and of the prc drill site GAL1 (G1) on the Galicia margin. Site 637, where serpentinized peridotite was drilled during L 103, is indicated. Structural data on the Galicia margin after Thonment et al. (1988).

Appendix 19.49



etric reconstruction (at M0 time) of the North Atlantic showing the locations of seismic en considered in discussing the proposed transects. NB - Newfoundland Basin, IAP - , GLB - Galicia Bank, GB - Grand Banks, R - location refraction experiment, FC -

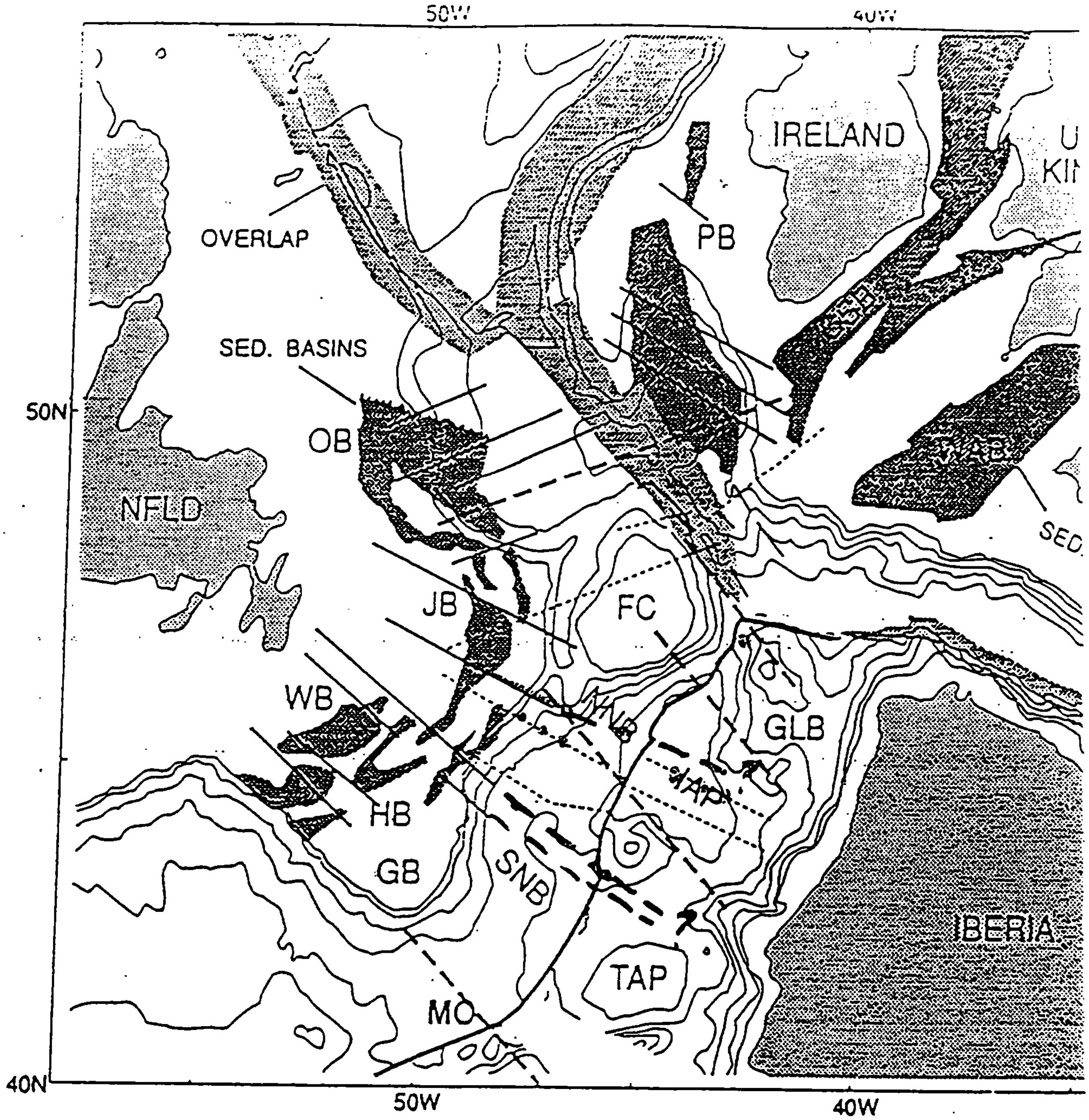


Figure 4.2 Bathymetry reconstruction of the North Atlantic at chron Mo (118 Ma, after Srivastava et al. 1990) showing the outlines of sedimentary basins which lie in this region. Also shown are some of the tectonic trends (thin solid lines) as obtained from compilation of Verhoef and Srivastava (1989), the dire of plate motion (thick dash lines) and the location of seismic lines (dotted lines) from Figure 4.1. NNB - North Newfoundland Basin, IAP - Iberia Abyssal Plain, SNB - South Newfoundland Basin, TAP - Tagus Abyssal Plain, GB - Grand Banks, GLB - Galicia Bank, HB - Horse Shoe Basin, WB - Whale Basin, JB - Jeanne d'Arc Basin, - OB - Orphan Basin, FC - Flemish Cap, PB - Porcupine Basin, CSB - Celtic Sea Bas WAB - Western Approaches Basin.

Appendix 19.51

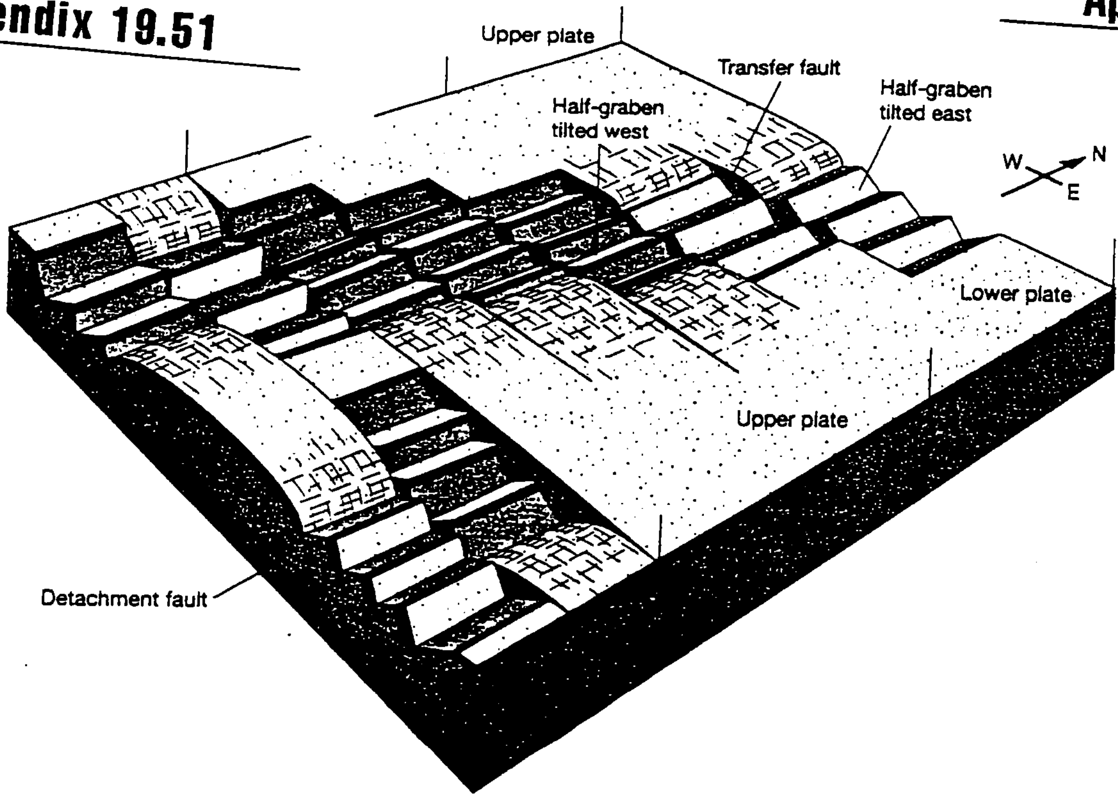


Figure 5.11 Model of the fault geometry in basement rocks of a continental extensional province. Different domains of normal faulting are separated by transfer faults. Some domains, such as the two on the left, may contain sets of oppositely dipping normal faults separated by an unfaulted block.

transfer zone within which deformation is accommodated by folding, faulting, and fracturing. In some cases, these transfer zones may be distinct strike-slip transfer faults. Transfer zones or faults may divide an extensional province into domains distinguished by different amounts of extension, different predominant orientations of faults, or different predominant directions of tilting. A schematic model of the geometry is shown in Figure 5.11.

Many rifted passive continental margins in the world originated as extensional terranes during the plate tectonic breakup of continental masses. Beneath layers of younger sediments, these margins are characterized by systems of normal faults with geometries similar to that shown in Figure 5.11.

In the Great Basin area of the Basin and Range province, several strike-slip faults have been recognized, some in part by the mapping of paleontologic associations (Figure 5.12). Both dextral and sinistral faults occur. These faults may be transfer faults of the type shown in Figure 5.11. The direction of tilting of fault blocks tends to be consistent over large areas, which suggests a structural association at depth and requires some discontinuity between major domains. The boundaries of these tilt domains therefore may be other transfer zones or faults.

In cases of extreme extension, normal faulting effectively strips off the shallower layers of rock to expose rocks that originally were deeper in the crust. This process enables us to examine rocks that were deep enough to undergo ductile faulting. There are, in the Basin and Range province, numerous regions called metamorphic core complexes (Figure 5.10) where the crust has been extended in a roughly east–west direction on major detachment faults by amounts on the order of 100 percent to 400 percent. These faults are characterized by extensive development of mylonite (see Section 4.2). As a result, the metamorphic and plutonic rocks that lie beneath the detachment faults have been brought up to the surface from depths as great as 20 km. In the Whipple Mountains of southeastern California, for example (Figure 5.13), the rocks beneath the detachment fault are extensively mylonitized and have a gently dipping foliation. The detachment fault itself contains mylonitic rocks, which in turn have been deformed by cataclasis, reflecting the change from ductile to brittle deformation as normal faulting brought the deeper rocks up toward the surface and the temperature and pressure decreased.

SGPP Spring Global Ranking 1992

Ref. No.	Proposal	Score	Ranking
----	Generic Gas Hydrates (inc. 355Rev2)	14.2	1
414	N. Barbados Ridge Accret. Prism	12.8	2
405	Amazon Fan	11.5	3
391	Mediterranean Sapropels	10.9	4
059Rev3	Maderia Abyssal Plain	10.7	5
409	Santa Barbara Basin	8.9	6
330	Mediterranean Ridge	7.7	7
388	Ceara Rise	7.5	8
354Rev	Benguela Current	7.2	9
DPG	Sedimented Ridges II	7.1	10
404	N. Atlantic Sediment Drifts	6.5	11
361	TAG Hydrothermalism	6.2	12
412	Bahamas Sea Level Transect	6.1	13
DPG	Cascadia II	5.9	14
337	New Zealand Sea Level	5.8	15
360	Valu Fa Sulfides	5.2	16

SGPP FY94 Prospectus Ranking 1992

Ref. No.	Proposal	Score	Ranking
405-Rev	Amazon Fan	9.09	1
414-Rev	N. Barbados Ridge	8.00	2
391-Rev	Mediterranean Sapropels	7.67	3
380-Rev3/ 059-Rev3	VICAP/MAP	6.50	4
361-Rev2	TAG Hydrothermal System	6.16	5
388/388-Add	Ceara Rise	5.66	6
369-Rev2	MARK Lithosphere	3.58	7
323Rev2	Alboran Basin	3.33	8
346-Rev3	E. Eq. Atl. Transform	2.21	9
NARM-DPG	N. Atlantic Rifted Margins	1.42	10

Appendix 20.1

Fan Drilling Objectives

(1) Determine stratigraphy to date major fan units

(2) Determine lithology & facies of acoustic fan units & determine relation to external controls (sea level) or internal processes (channel avulsion)

(3) Test validity of Vail-Exxon conceptual model of sequence stratigraphy wrt predicted deep-water system tracks

(4.) Sample proximal levee sediments - record of equatorial land climate

(5.) Sample distal levees & condensed sections - record of surface circulation patterns in W. Equatorial Atlantic

(6) Determine overall response of Equatorial Atlantic (fan, land climate, surface circulation pattern) to glacial-interglacial cycles and other cycles in climate, sea level and Andean uplift.

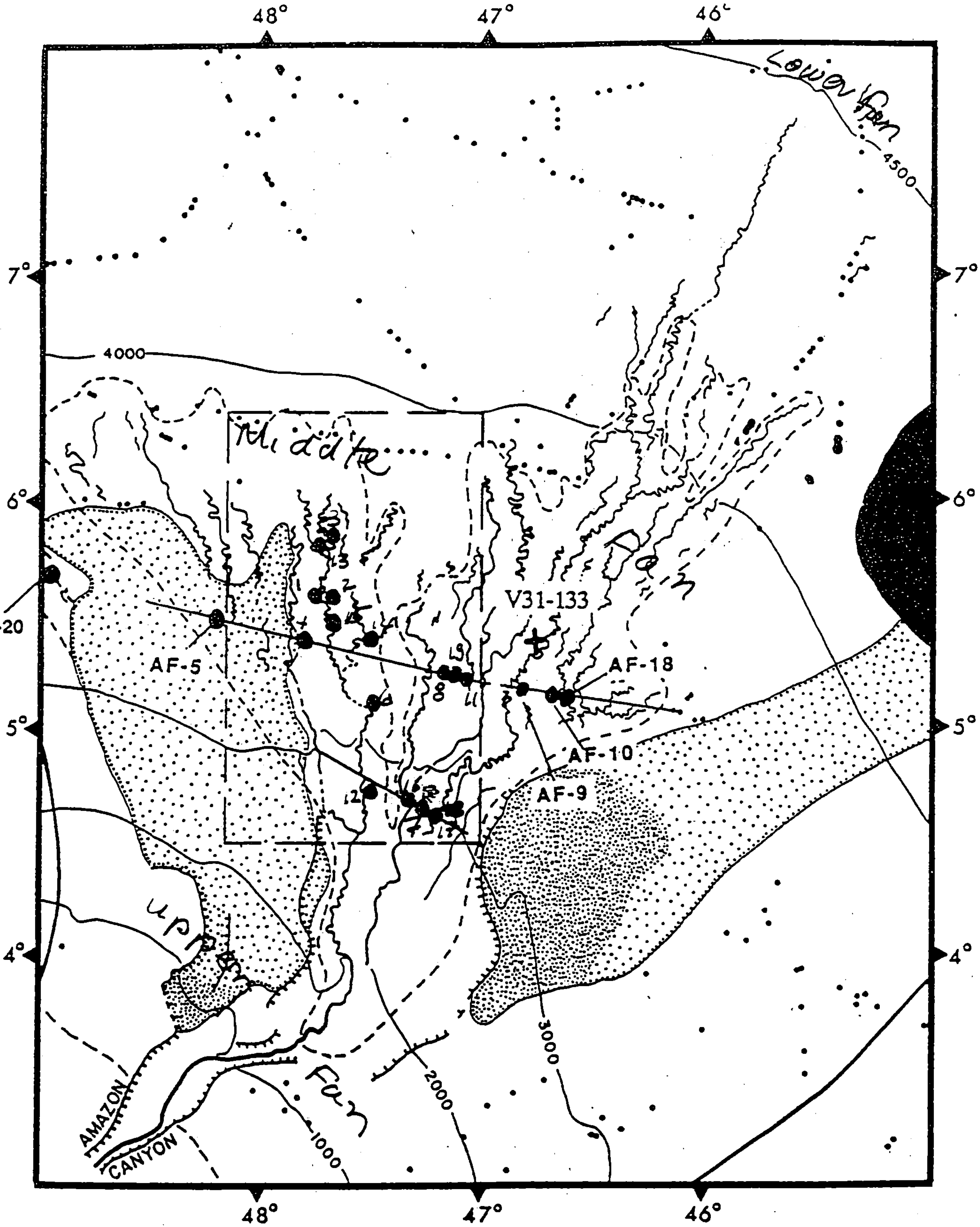


Figure 16. Map of the Amazon fan showing the locations of proposed drill sites (large dots) with respect to surface morphology and bathymetry. The dashed box is shown in more detail in Fig. 17.

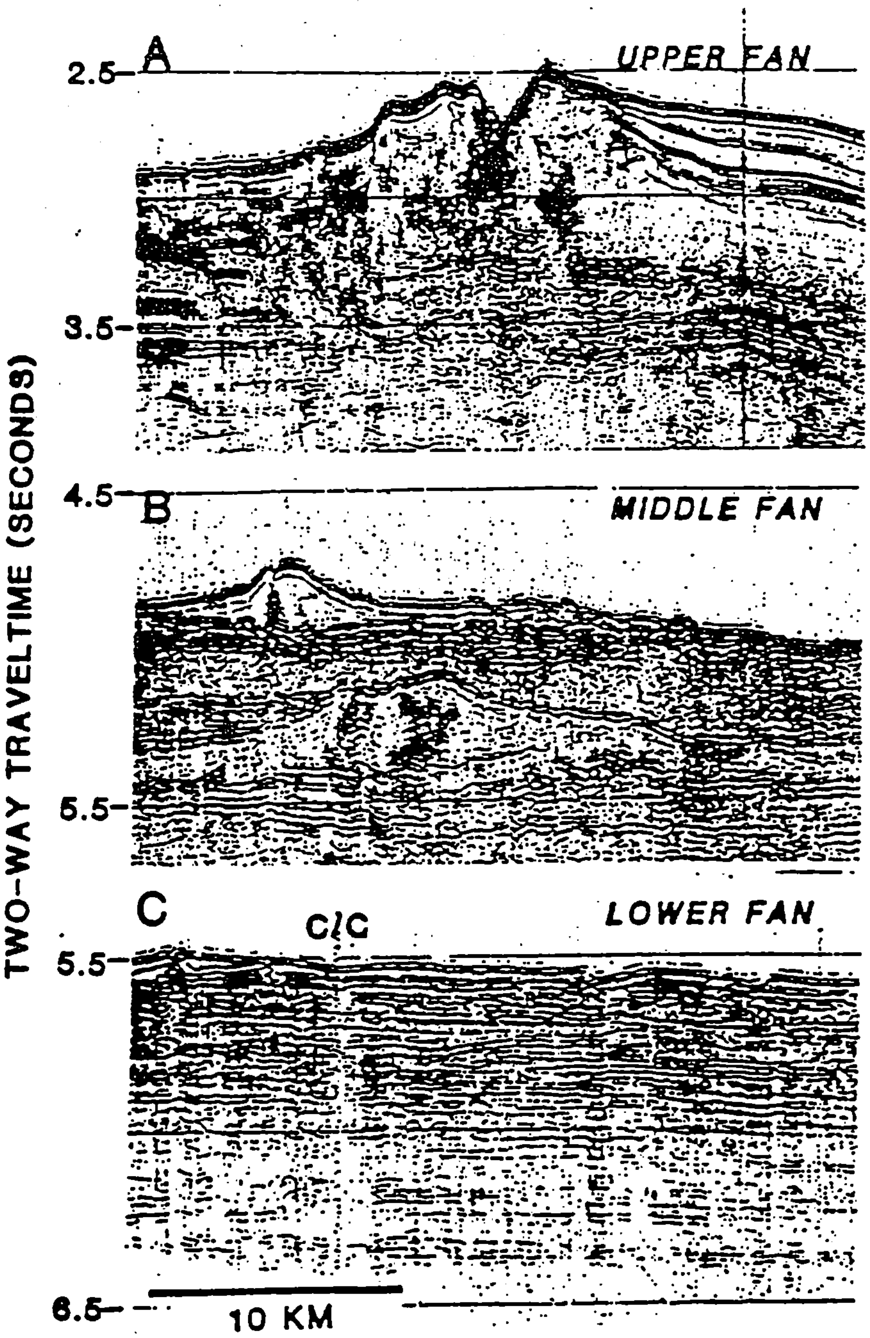


Figure 2. Representative watergun seismic-reflection profiles from the most recent channel on the Amazon fan. (A) Upper fan at 1875 m water depth. (B) Middle fan at 3550 m. (C) Lower fan at 4125 m (c/c marks course change). The channel shows small levees where it is crossed near the left side of Profile C, but no levee relief where it is crossed near the center of Profile C. Vertical Exaggeration (V.E.) = 13. Acoustic facies are well defined and well resolved on these high-resolution profiles.

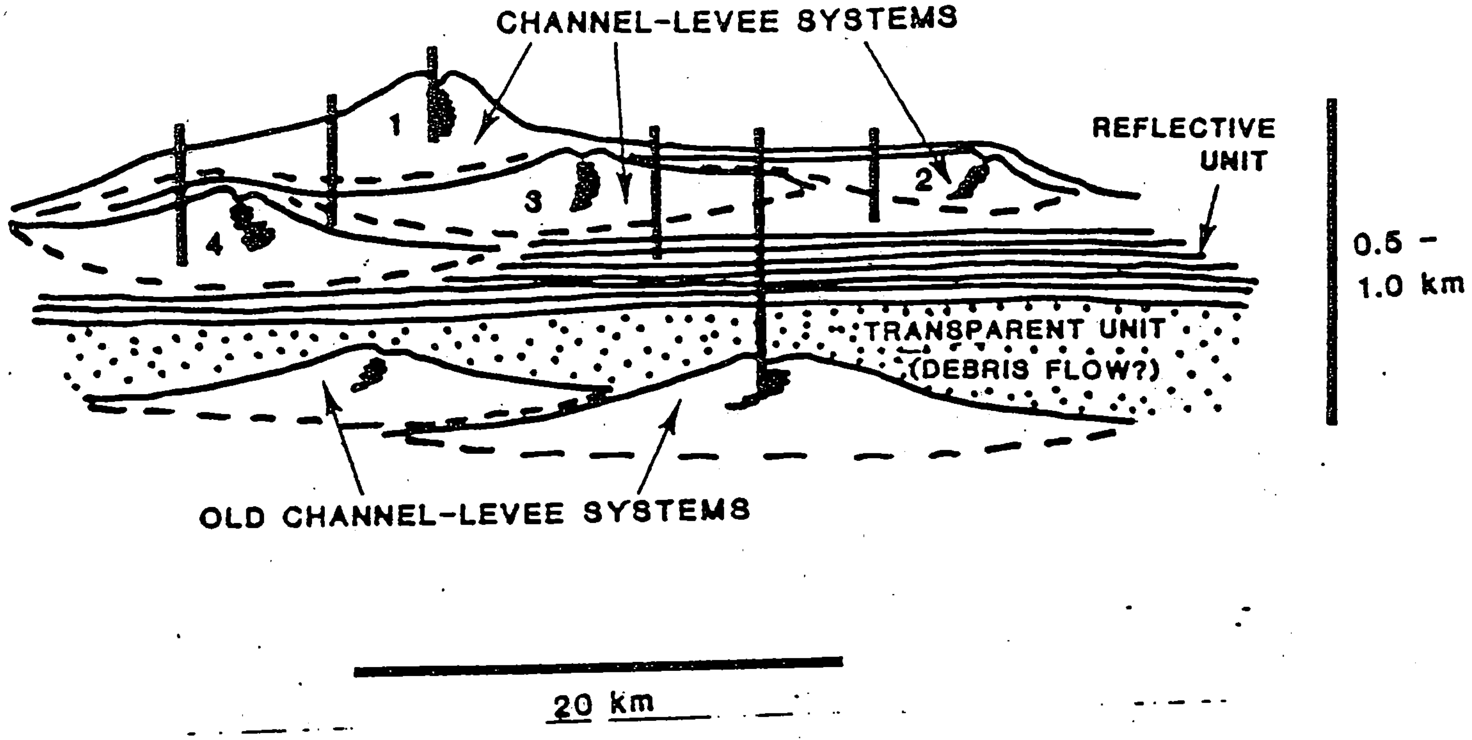


Figure 8. Cartoon showing stratigraphic relationships of middle-fan channel-levee systems and acoustic facies observed on the Amazon fan. Black vertical lines show hypothetical APC/XCB coring strategy. Sites penetrating channel-levee systems of the upper (modern) levee complex will provide a continuous stratigraphy and depositional history for the fan. Deeper penetration sites will sample older, now buried channel-levee systems as well as deeper acoustic facies (transparent and reflective) between levee complexes.

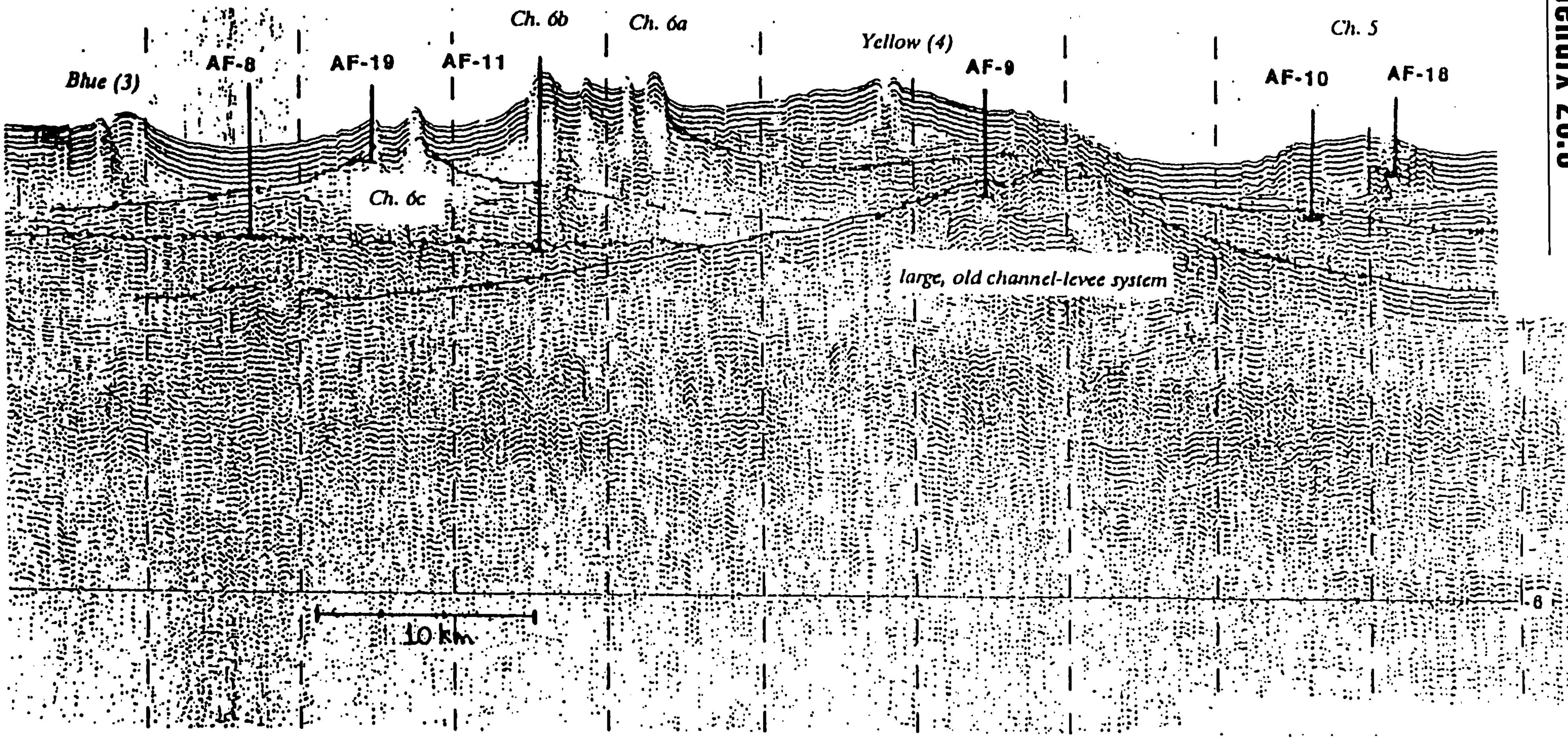
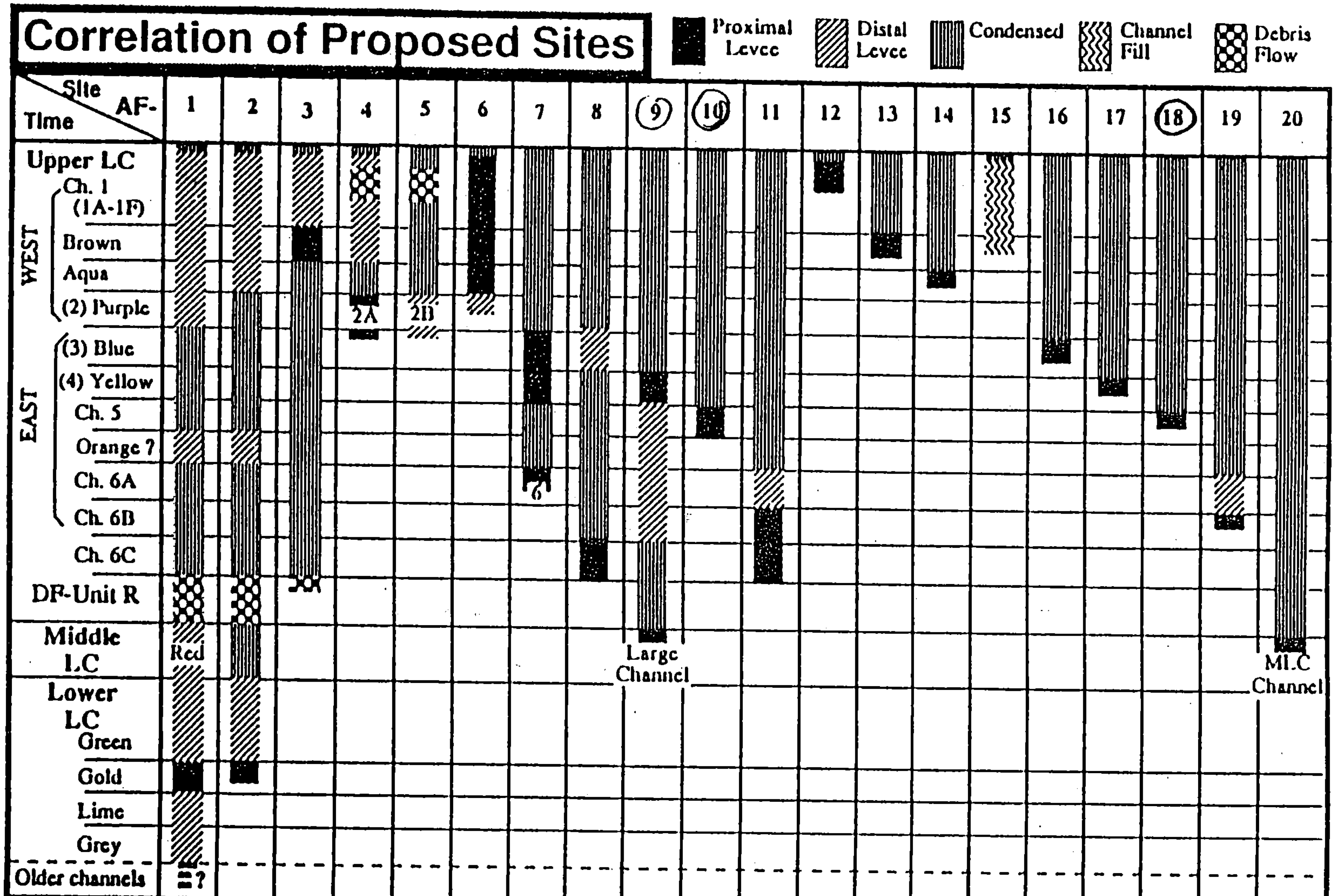


Figure 26. Interpreted unprocessed 40 cu. in. airgun seismic profile in the vicinity of sites AF-9, AF-10, AF-11, AF-18 and AF-19. AF-8, AF-9 and AF-11 sample the sediments of systems 6C, 6A and 6B, respectively, and overlying levee systems. AF-9 also penetrates into an extremely large levee that may be quite old. We expect that some hemipeliagic sediments will be preserved at the upper surface of this large, buried system. AF-18 and AF-19 sample the hemipelagic sediments that deposit on top of abandoned levees.

Appendix 20.5



	AF-1	AF-2	AF-3	AF-4	AF-5	AF-6	AF-7	AF-8	AF-9	AF-10	AF-11	AF-12	AF-13	AF-14	AF-15	AF-16	AF-17	AF-18	AF-19	AF-20
Depth (m)	3570	3588	3685	3450	3390	3180	2845	3520	3409	3500	3384	2790	3710	3488	3415	2810	2780	3475	3450	3364
Length (m)	568	369	226	115	344	301	320	226	226	207	568	100	100	100	100	100	100	100	100	198
Priority	1	1	1	1	1	1	1	2	1	1	2	1	2	2	1	1	1	1	3	1

Figure 18. Schematic illustration of the overall relationships between proposed drill sites and the acoustic stratigraphy of the Amazon fan. Detailed profiles (Figs. 19-26) show the precise locations between selected sites and seismic profiles.

Appendix 20.6

Appendix 20.7

Table 3 Estimated Drill Times for Amazon Fan Drill Holes

Site ID	Pri-ority	Latitude Deg	Latitude Min	Longitude Deg	Longitude Min	Water Depth (m)	Subb. Time (sec)	Hole Depth (m)	Total Depth (m)	Hole Time (d)	Log Time (d)
AF - 1	1	5	37.6	-47	-45.1	3570	0.60	568	4138	6.4	1.4
AF - 2	1	5	38.0	-47	-40.2	3588	0.40	369	3957	3.9	1.3
AF - 3	1	5	56.1	-47	-45.3	3685	0.25	226	3911	2.8	1.2
AF - 4	1	5	21.4	-47	-49.9	3450	0.13	115	3565	1.8	0.0
AF - 5	1	5	22.5	-48	-1.5	3390	0.38	344	3734	3.6	1.3
AF - 6	1	5	8.6	-47	-31.4	3180	0.33	301	3481	3.1	1.2
AF - 7	1	4	37.5	-47	-15.2	2845	0.35	320	3165	3.1	1.2
AF - 8	2	5	14.4	-47	-9.3	3520	0.25	226	3746	2.7	1.2
AF - 9	1	5	10.4	-46	-48.6	3409	0.25	226	3635	2.7	1.2
AF - 10	1	5	8.6	-46	-38.3	3500	0.23	207	3707	2.6	1.2
AF - 11	2	5	12.8	-47	-2.0	3384	0.60	568	3952	5.7	1.4
AF - 12	1	4	44.4	-47	-30.0	2790	0.11	100	2890	1.5	0.0
AF - 13	2	5	56.1	-47	-44.6	3710	0.11	100	3810	1.8	0.0
AF - 14	2	5	25.6	-47	-32.0	3488	0.11	100	3588	1.7	0.0
AF - 15	1	5	29.1	-47	-40.8	3415	0.11	100	3515	1.7	0.0
AF - 16	1	4	39.6	-47	-18.8	2810	0.11	100	2910	1.5	0.0
AF - 17	1	4	35.2	-47	-11.4	2780	0.11	100	2880	1.5	0.0
AF - 18	3	5	8.4	-46	-36.2	3475	0.11	100	3575	1.7	0.0
AF - 19	1	5	13.5	-47	-6.1	3450	0.11	100	3550	1.7	0.0
AF - 20	1	5	42.5	-49	-4.3	3364	0.22	198	3562	2.4	1.2

Totals (priority 1 sites only)

Length of core (m)	3148
Drilling time (days)	40.3
Logging time (days)	11.1
Steaming time (days)	7.1
Total Time (days)	58.5

Notes:

1) All holes double APC to 100 m, XCB to 400 m, then RCB
2) Steaming time includes start/return in Barbados
3) Sites occupied in clockwise order, starting with AF-3
4) Logging includes the quad tool and geochemical combinations on all holes deeper than 150 m subbottom

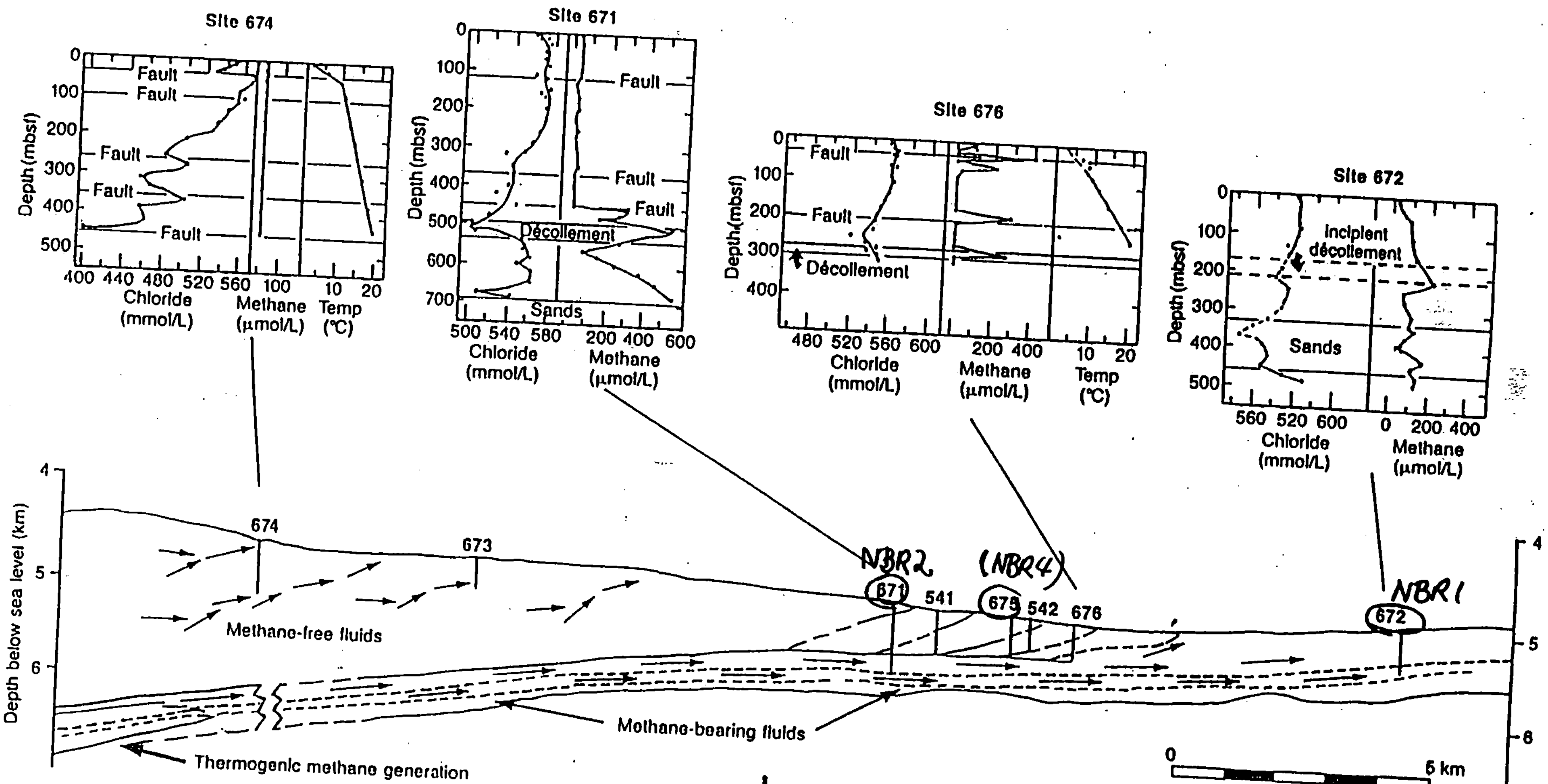


Figure 2. Plots of methane and chloride concentrations in pore waters, and temperature gradients from selected sites in Leg 110 area. Note that methane anomalies are restricted to intervals below the decollement zone, defining a methane-bearing fluid realm. The virtual absence of methane in the accretionary prism defines the methane-free realm. Isotopic composition of carbon in methane from the decolleme[illegible] zones suggests a t[illegible]genic (deep) source.

Appendix 20.9

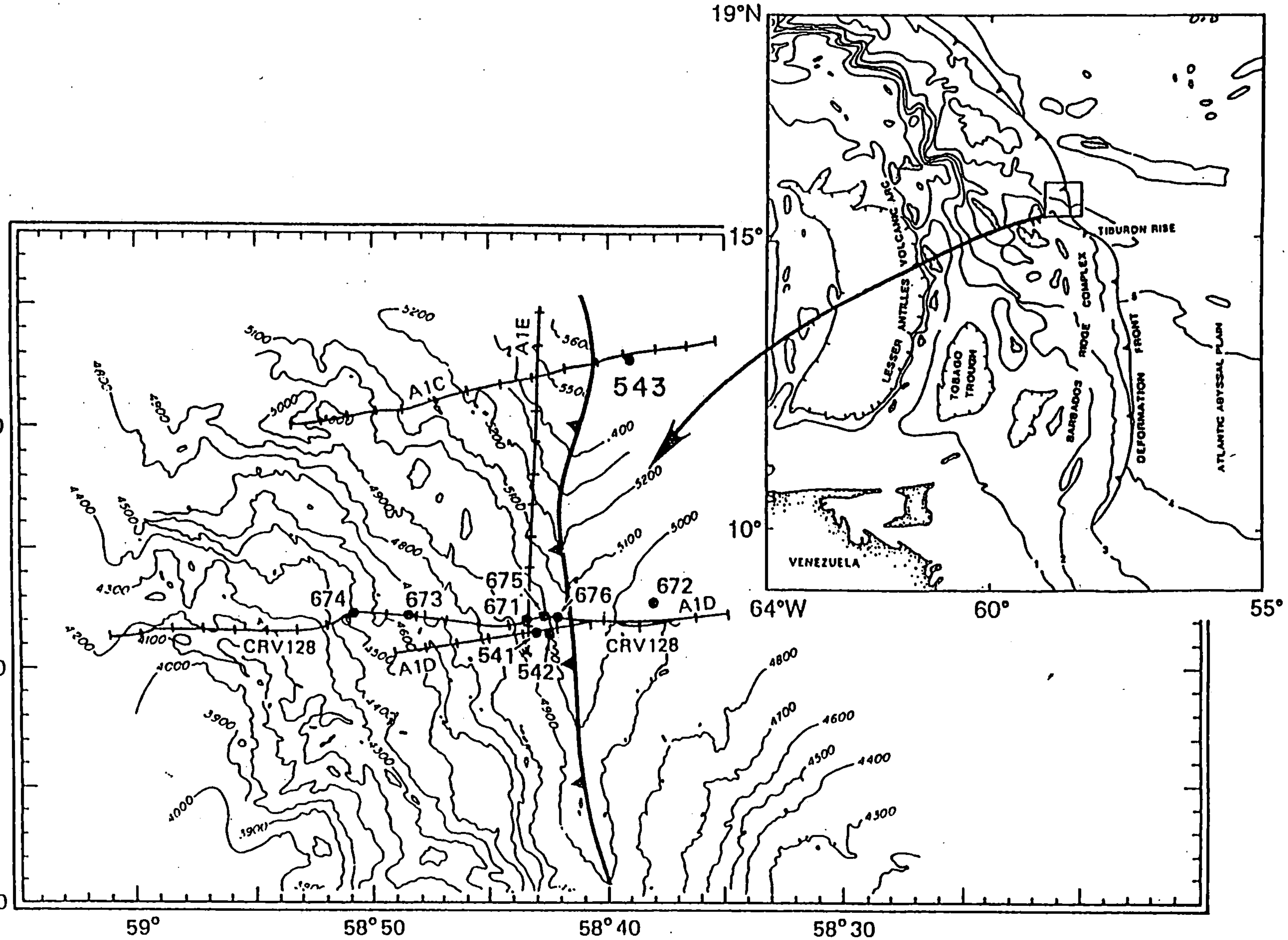
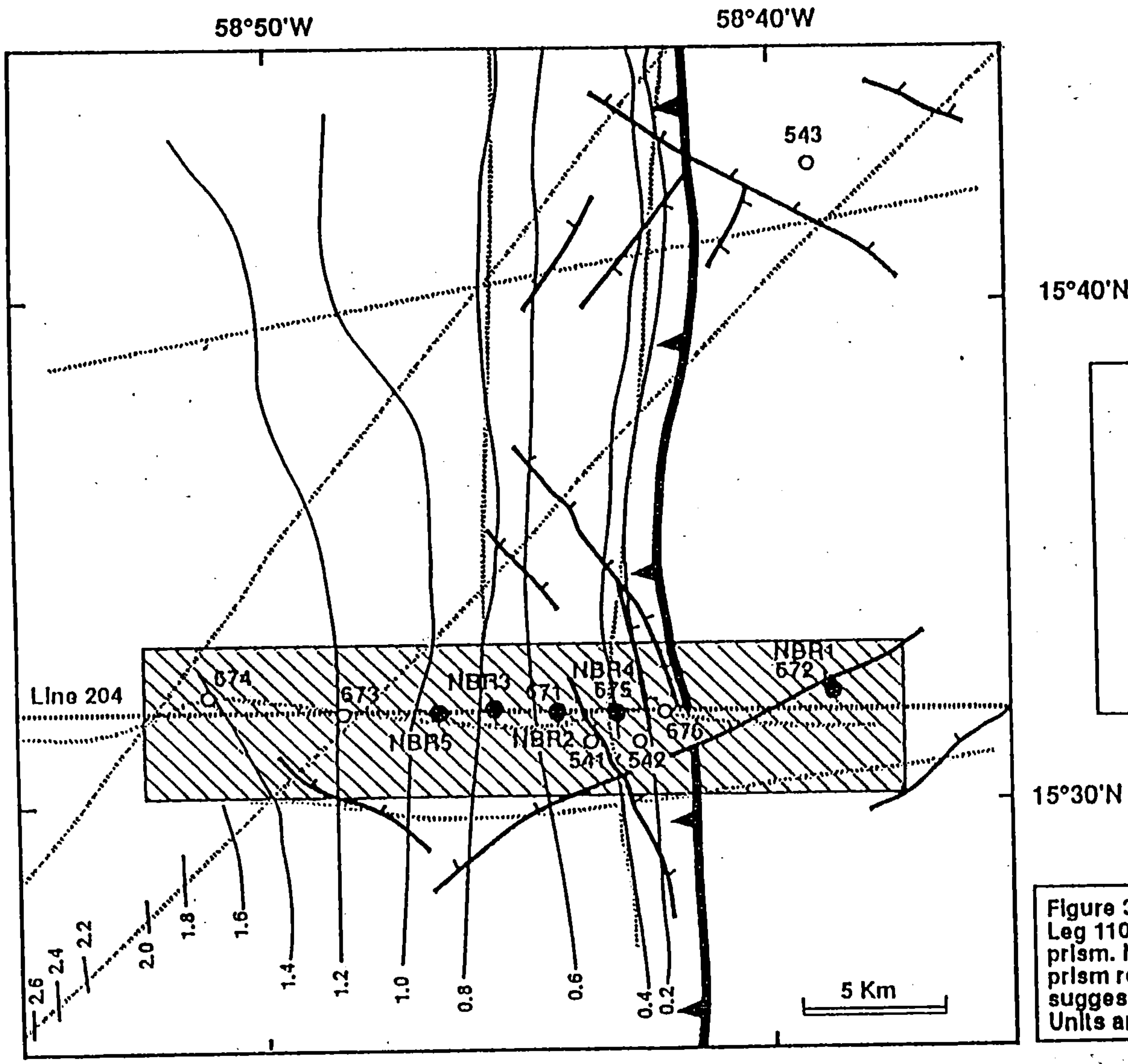


Figure 1. Top-right: Lesser Antilles margin, general location map (contour intervals in kilometers). Bottom-left: Location of ODP Leg 110 Sites 671 through 676 on a Seabeam bathymetric map with location of multichannel seismic profiles and DSDP sites (Contour Interval, 100 m).



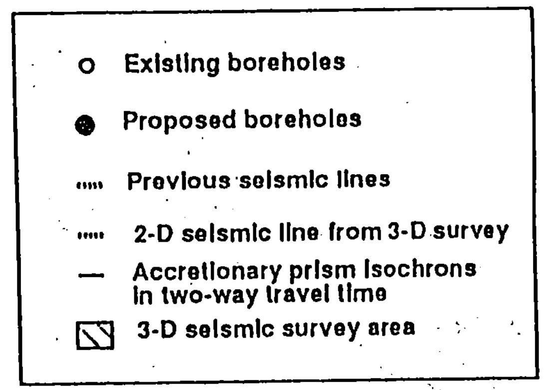


Figure 3. Detailed location map of Leg 78A and Leg 110 Sites showing thickness of accretionary prism. Note that the isochrons of the accretionary prism roughly parallel the deformation front, suggesting fluid flow would be predominatly updip. Units are in seconds, two-way travel time.

Appendix 20.11

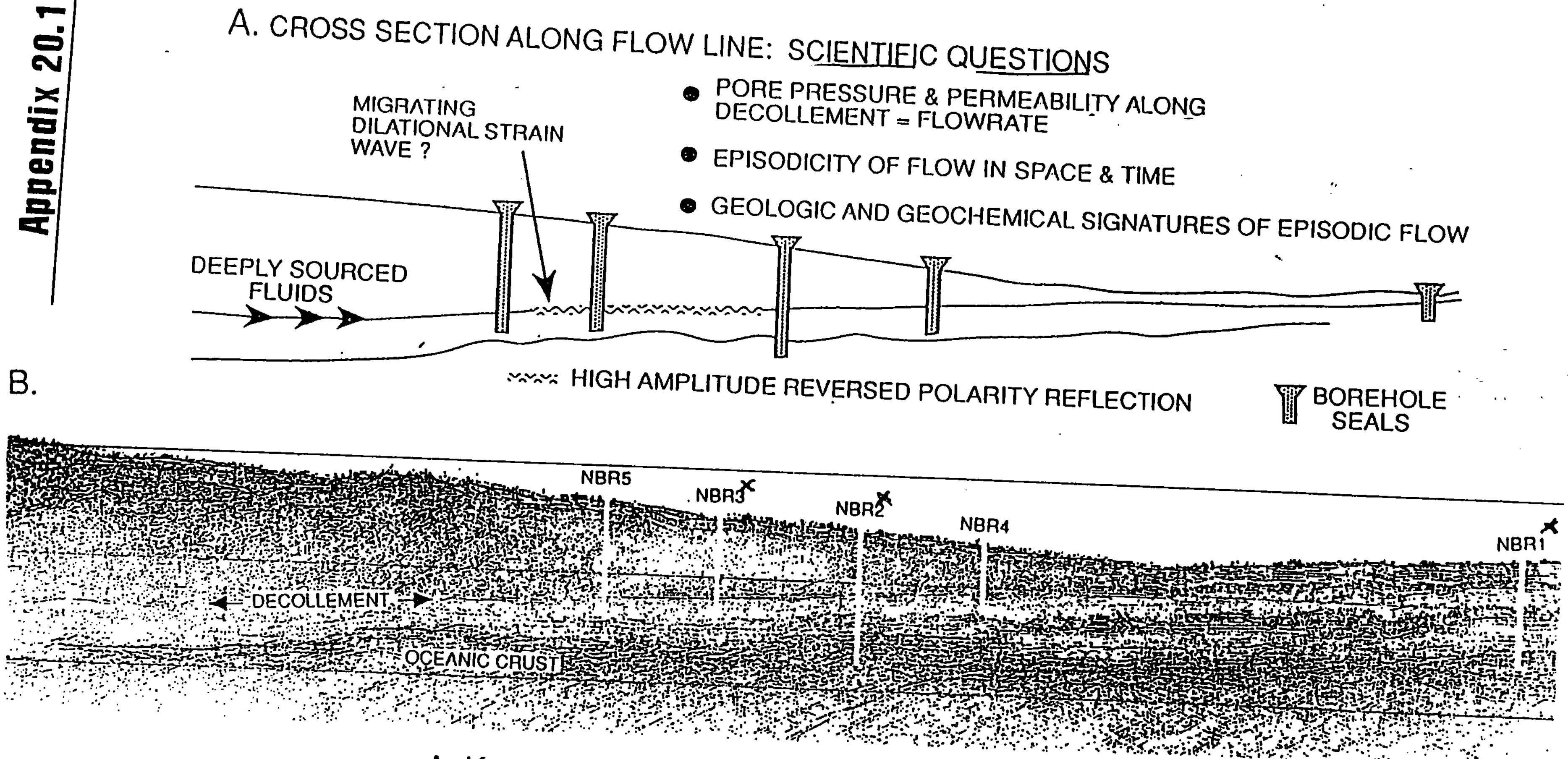


Figure 4. A. Key scientific questions of proposed drilling.

B. Seismic line 204 from 3-D survey with site locations.

Site	Water Depth	Tot Pen
NBR1	5477m	800 m
NBR2	4890 m	950m
NBR3	4755 m	820m
NBR4	4965 m	570 m
NBR5	4852 m	960 m

Appendix 20.11

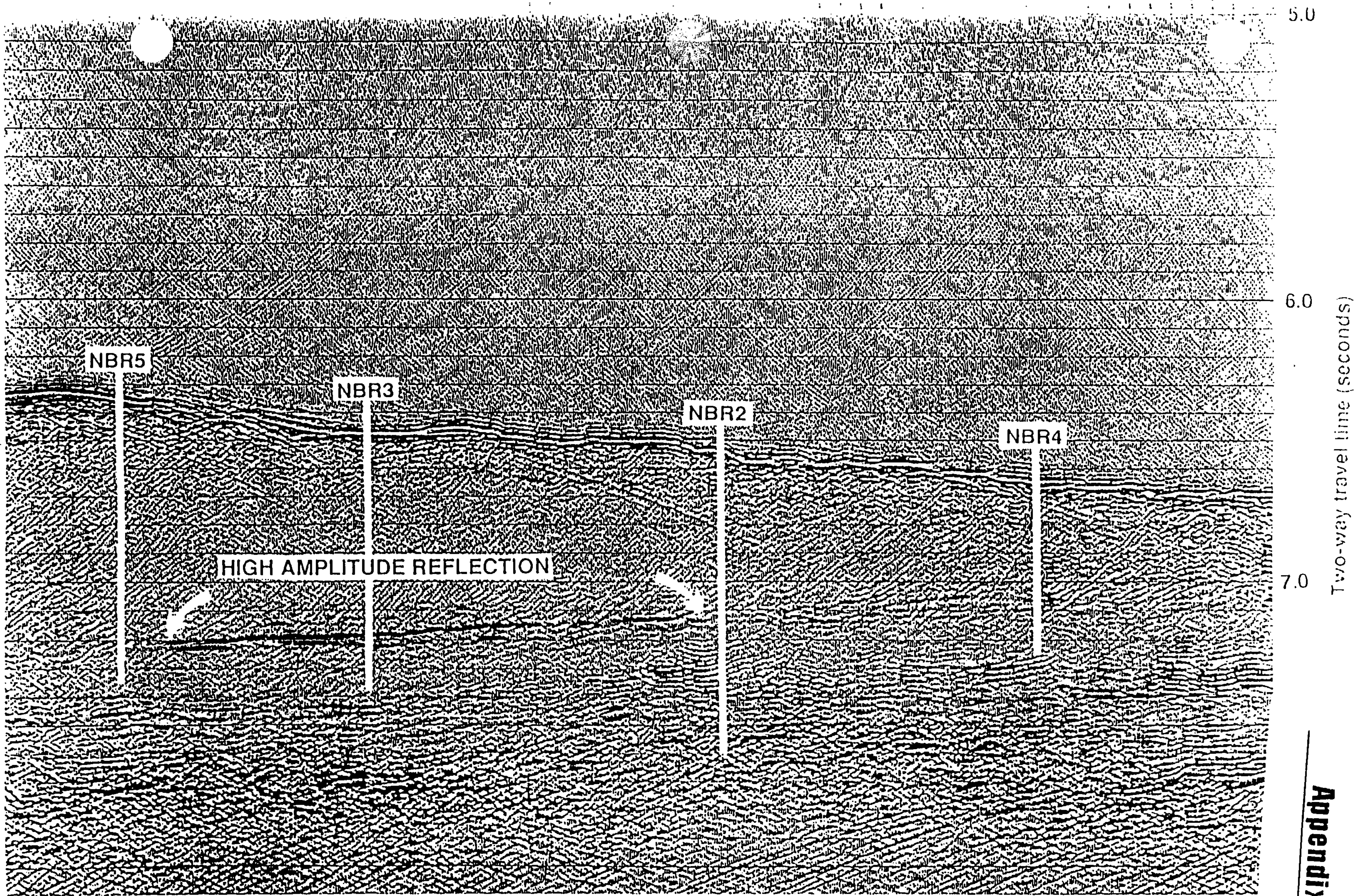


Figure 6. Detail of seismic line 204 from 3-D survey showing projected locations of Sites NBR 2-5. lote how Sites NBR 2,3 & 5 limit the high am ude reversed polarity reflection of the decollement and would potentiallv record the migration of this probable fluid pulse.

Appendix 20.12

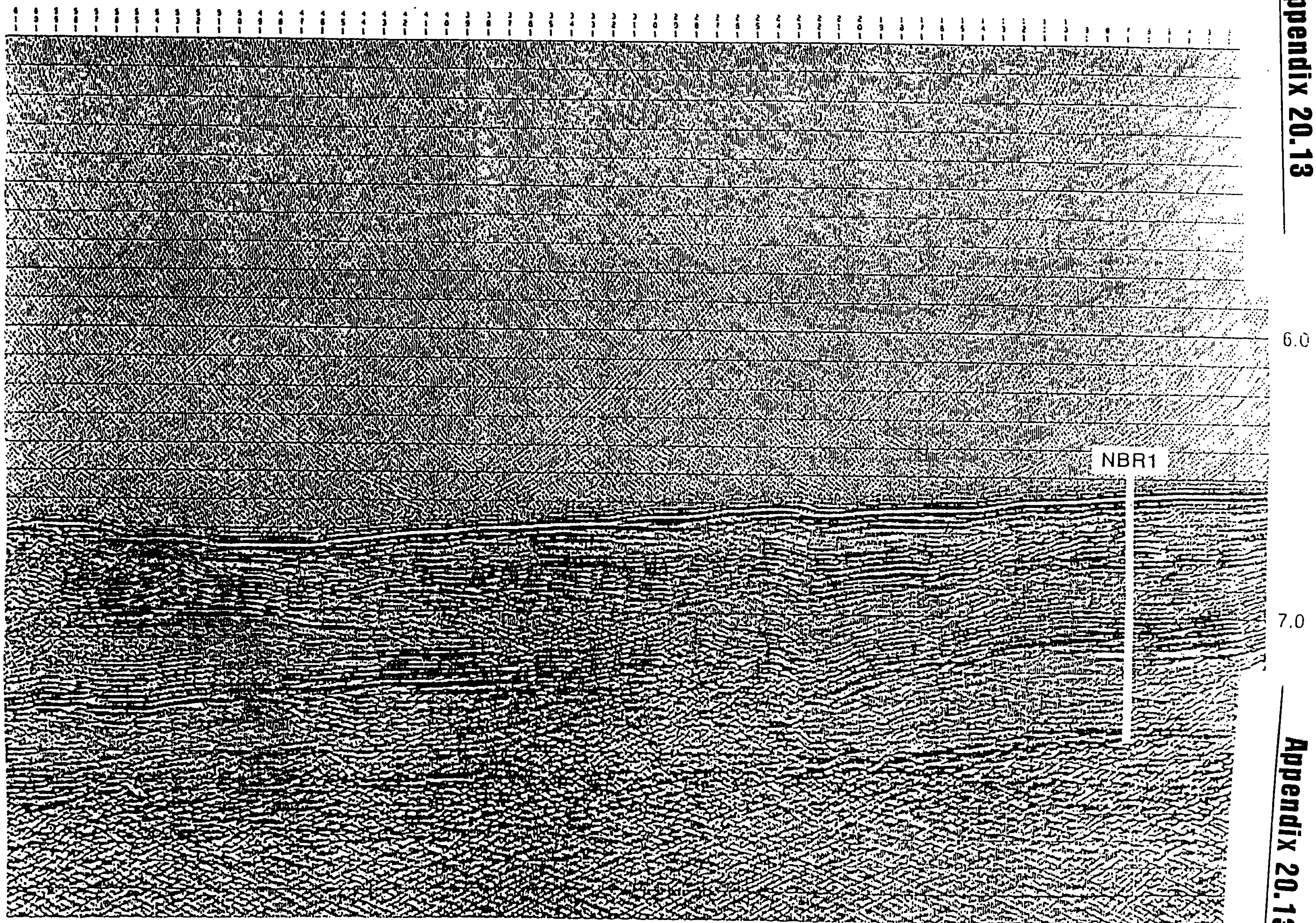
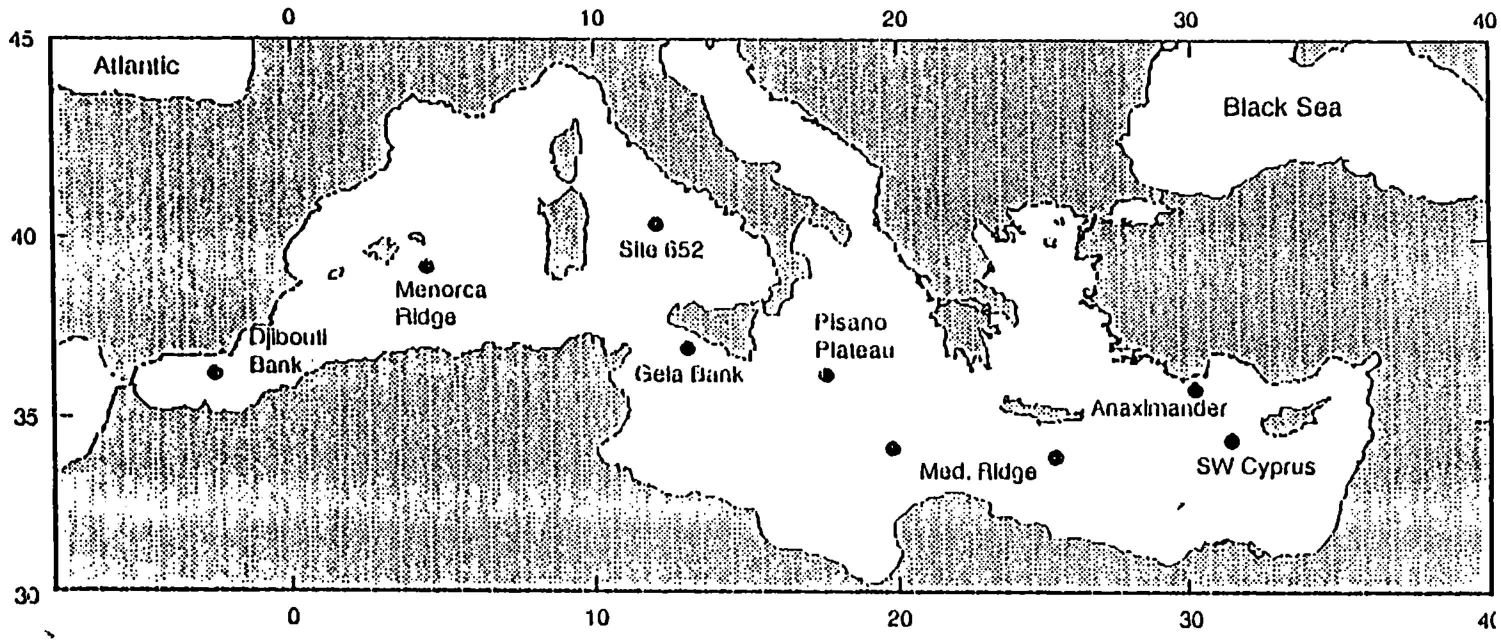


Figure 7. Detail of seismic line 204 from 3-D survey showing projected location of Site NBR 1.

Appendix 20.13

Figure 5: Site Locations in the Mediterranean Sea proposed for Sapropel Drilling



Appendix 20.14

OHP SPRING 1992 GLOBAL RANKING

1.	388/388-Add CEARA RISE	(4)	0.98
2.	NAAG - II	....	0.84
3.	415 + 403-Rev CARIBBEAN K/T + 415-REV, 403-Rev 2		0.77
4.	354-Rev ANGOLA/NAMIBIA/BENGULA 354-Add	(3)	0.74
5.	253-REV ANCESTRAL PACIFIC note: needs DCS-type capabilities	(5)	0.71
6.	386-REV CALIFORNIA CURRENT 386-REV 2, 422	(8)	0.68
7.	404/406 LATE NEOGENE NORTH ATLANTIC		0.54
8.	412 BAHAMAS TRANSECT		0.50
9.	BERING SEA (CERAC) + SHIRSOU RIDGE (390)	(7)	0.43
10.	337 EXXON SEALEVEL TEST, N ZEALAND		0.40
11.	347 CENOZOIC S-EQUATORIAL ATLANTIC 347-Add	(6)	0.38
12.	363-Add NR1-3 PALEO RECORD		0.28
13.	345/345-Add WEST FLORIDA MARGIN	(9)	0.23
14.	338 NE AUSTRALIA, MARION PLATEAU 338-Add		0.10

FALL 1992 -Add, -Rev
SPRING 1991 ranking

(NOTE: 1. NAAG-DPG → Leg 151
2. 348/348-Add → Leg 150)

OHP FALL 1992 AEPP RANKING

OBJECTIVES

	FRACTION AVAILABLE POINTS
1. 388/388-Add CEARA RISE	1.00
2. 391- REV MEDITERRANEAN SAPROPELS ... WITH DEFICIENCIES....	0.57
3. 405- Rev AMAZON FAN	0.53
4. 323- Rev3 ALBORAN SEA	0.49
5. 380- Rev3 MAP Leg	0.41
6. NARM-DPG Non-volcanic II	0.39
7. 380- Rev3 VICAP Leg	0.11

OF SECONDARY OHP INTEREST

OF NO OHP INTEREST (NOT RANKED):

346-Rev3 E Eq Atlantic transform
361- Rev2 TAG
369- Rev2 MARK
414- Rev Northern Barbados Ridge
NARM-DPG Volcanic Leg II

RANKED BY OTHER PANEL(S)

330-Rev Med Ridge 2° → none

Appendix 21.2

ISAN SAPROPELS

391 / 391-Add 2° interest to OHP, not ranked with deficiencies

391-Rev high priority thematic objectives, with major deficiencies

updated by mid- October Trieste workshop

POTENTIALLY SCIENTIFICALLY EXCITING,

but not ready in terms of....

scientific justification

site selection; readiness

responsiveness to prior reviews

Drilling Strategy

Selection of sites that yield sedimentary sections needed to reconstruct the palaeoceanographic evolution of Mediterranean environment since the early Pliocene has to fulfill five requirements:

- Stratigraphic continuity: The sedimentary sections at targeted sites have to be complete, continuously deposited, undisturbed, hemipelagic and pelagic, removed from lateral input and shielded from the occasionally drastic effects of submarine karstification and tectonics of the Mediterranean.

- Resolution: The sections must be thin enough to ensure complete recovery by HPC/APC technology; they must be datable by isotopic, palaeontological, and chronostratigraphic methods.

- Palaeoceanographic transect: The drill sites must cover the entire Mediterranean basin at key locations in order to permit evaluation of palaeoceanographic, palaeochemical, and palaeontological zonality and teleconnections in the entire basin. Given a common stratigraphic frame, changes in the physical and chemical environment must be discernible and the origin of change must be visible (e.g. changes in temperature, salinity, bottom-water oxygenation, productivity).

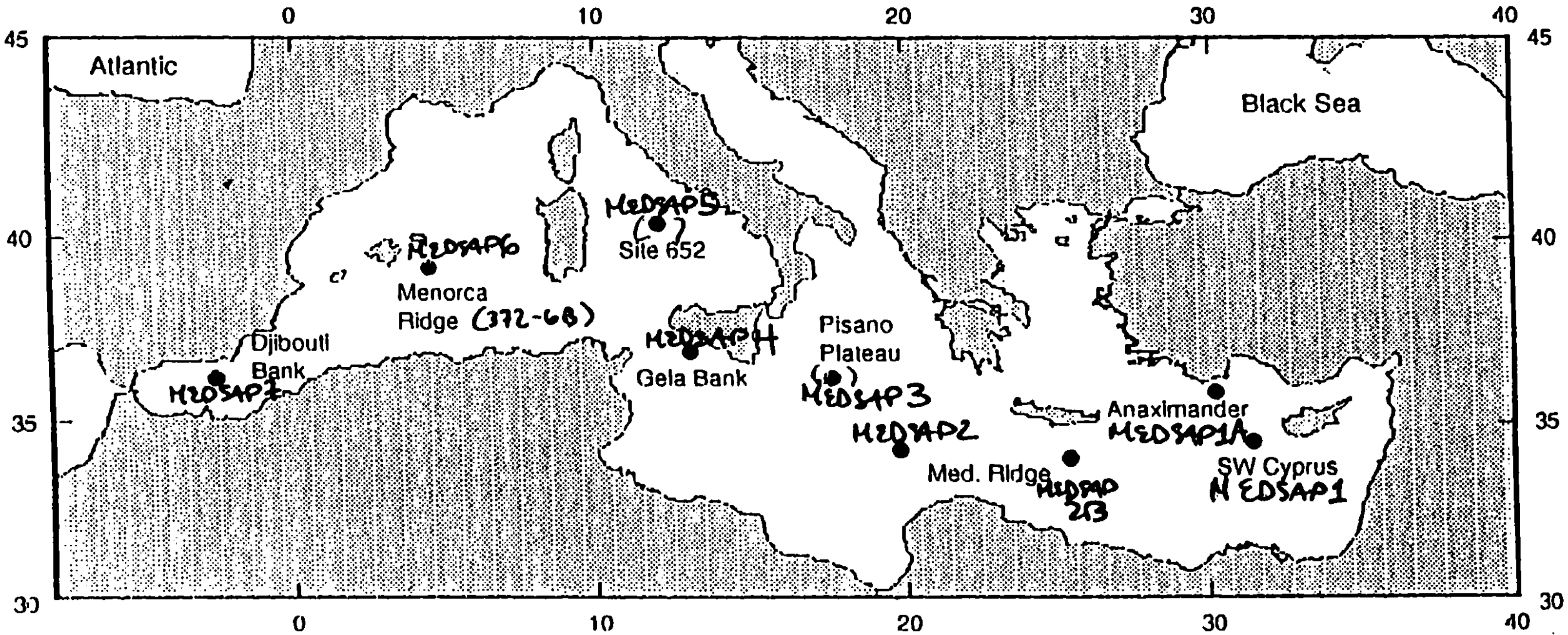
- Water depth: Drill sites must lie in water depths crucial for the evaluation of intermediate water mass distributions.

- Land-sea correlation: Where possible, the drill sites should be in the vicinity of land exposures of the same age to ensure valid comparison of the effects of diagenesis and tectonics on the sedimentary facies.

Appendix 21.4

391-Rev 7 sites

Figure 5: Site Locations in the Mediterranean Sea proposed for Sapropel Drilling



MEDSAP 1 SW Cyprus/Anaximander Seamount
2 Med. ridge (West)
[3 Calabrian Ridge/Pisano Plateau]
4 Sicily Channell/Gela Bank
[5 Tyrrhenian Sea/Reoccup. DSDP 652] possible biostrat. site
6 Menorca Ridge (6B - Reoccup. DSDP 372)
7 Alboran Sea

↳ proposal 418

Appendix 21.4

Strengths of Proposal

1) Addresses fundamental question: the origin of sapropels.

2) The Mediterranean is a significant environmental monitor which will always yield useful information.

3) Powerful list of proponents who, if involved in such a leg, could not but produce valuable results.

4) Leg would take place against a backdrop of much previous work, marine and otherwise, in and around the Mediterranean Basin.

5) Could be coupled with the Mediterranean Ridge Proposal to make one drilling leg.

Appendix 21.6

Weaknesses of Proposal

There is nothing in the proposal to show how the proponents will distinguish between sapropels produced by enhanced preservation and elevated productivity.

Whether Mediterranean sapropels are relevant to an understanding of Cretaceous black shales - as the proponents claim - is debatable.

The low-resolution seismic (none presented for Site 3) locally shows chaotic reflections and also reveals (Site 7) potential problems with slumping. Location of some sites may need rethinking.

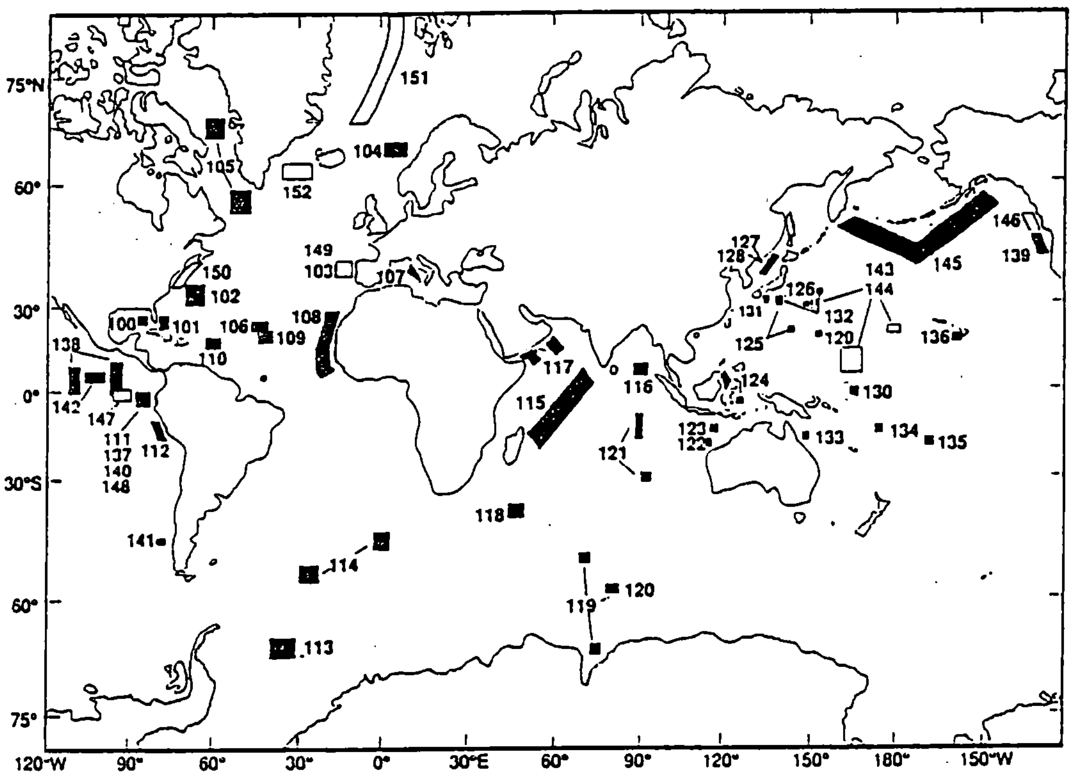
What material exists already in core or at outcrop? Is the *Resolution* the right tool to recover sapropels?

STRATEGY: BATHYMETRIC TRANSE

⇒ surface carbonate prod'y (site above lysocline)
+ profiles of carbonate dissolution intensity, water mass chemistry, distribution, circulation

The Ocean Drilling Program (ODP) is an ıternational partnership of scientists and research ·nstitutions organized to :xplore the structure and ...ory of the Earth beneath the ocean basins.

ODP's ship, *JOIDES Resolution*, is currently :ompleting operations in :.e western Pacific Ocean ..nd is scheduled to begin drilling in the northern Atlantic Ocean in April ·)3. The ship will remain the North Atlantic until April 1994 when it will ·ʳ v the direction of h. ıked proposals in the Atlantic Ocean and adjacent seas and the ·:stern Pacific" (PCOM 4- :· Plan). A more detailed ·rations schedule will be available in early 1993.



JOIDES Resolution cruise locations, Legs 100 through 152.

ODP EXAMPLES

LEG 108: EASTERN EQUATORIAL ATLANTIC

LEG 113: MAUD RISE, SUBANTARCTIC REGION

LEG 115: MADINGLEY RISE, EQUATORIAL INDIAN OCEAN

LEG 117: OWEN RIDGE, ARABIAN SEA

LEG 130: ONTONG JAVA PLATEAU, WESTERN EQUATORIAL PACIFIC

LEG 145: NORTH PACIFIC TRANSECT

DSDP Leg. 72, 74

Appendix 21.8

WHY CEARA RISE?

- Western equatorial Atlantic
  deep water NADW/~~AABW~~
  surface
- depth transect
- history of high sedimentation rates

PREVIOUS DRILLING ~

DSDP 354 ~4000 m water depth,
spot-cored
No chert, unlithified, isotope evidence

KEY NEOGENE + PALEOGENE TARGET

PROPOSAL HISTORY

- solicited as part of (Neogene) depth transect strategy
- 592 #1 in global ranking,

  591 #4 (top 2 scheduled, site survey needed)
- NSF-funded Maurice Ewing site survey Aug-Sept 1992

  ⇒ MATURE DRILLING STRATEGY

  PRESENTED AT FALL OHP MEETING

SCIENTIFICALLY WELL-JUSTIFIED and

MATURE, PRIME TARGET

Appendix 21.10

MAJOR SCIENTIFIC OBJECTIVES

DEEP WATER CHEMISTRY ; CIRCULATION

history of deep water flow (NADW, AABW) in Atlantic during Cenozoic

relationship of deep water circulation, chemistry, and earth's climate

CARBONATE PRODUCTION ; DISSOLUTION

history of carbonate production; dissolution in equatorial Atlantic during Cenozoic

relationship to deep water circulation and to climate

TROPICAL SURFACE WATER RECORDS

$\delta^{13}C$ of nutrient-depleted surface waters

surface-deep nutrient contrast

low latitude temperature records

Ceara Rise Proposed Sites

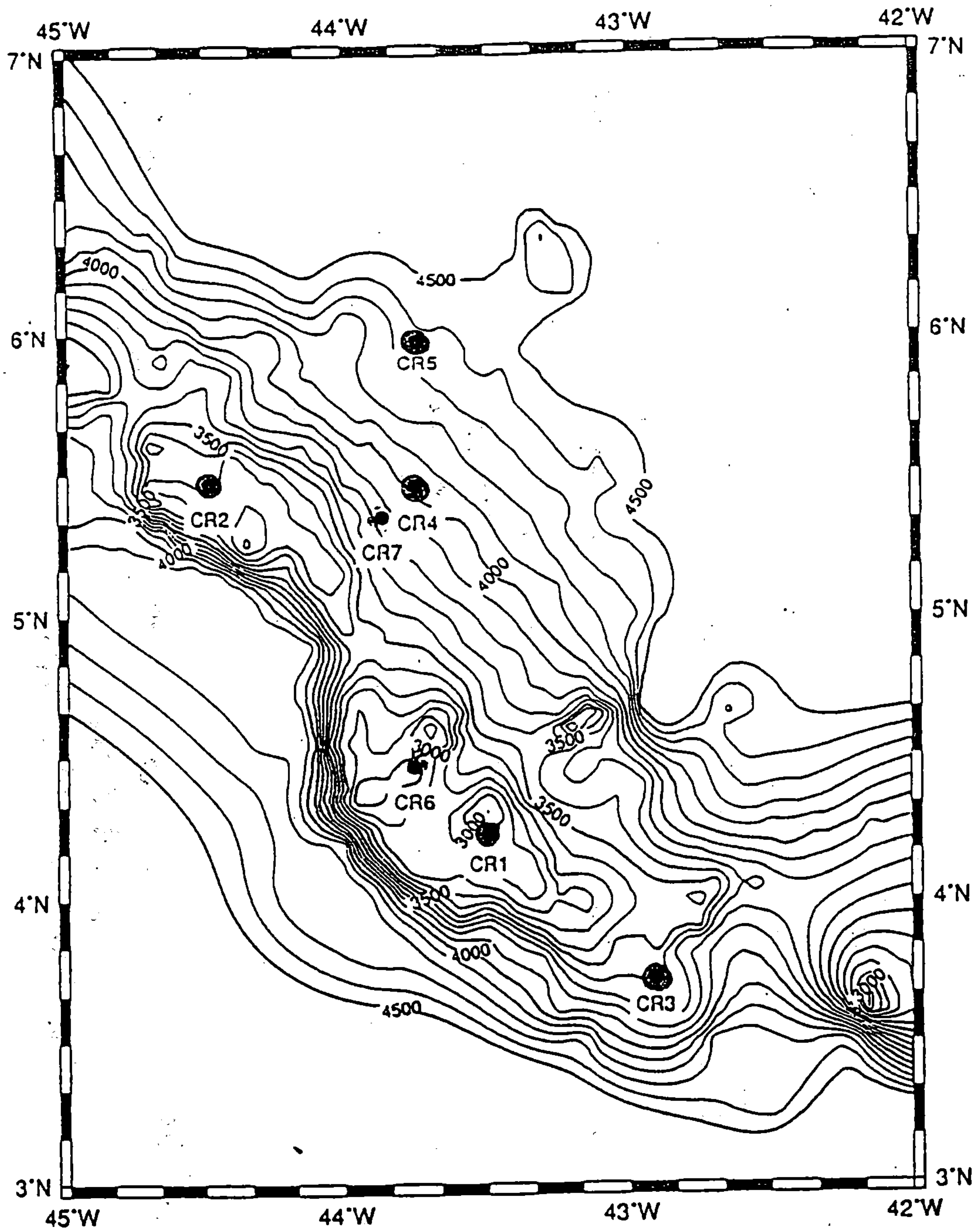


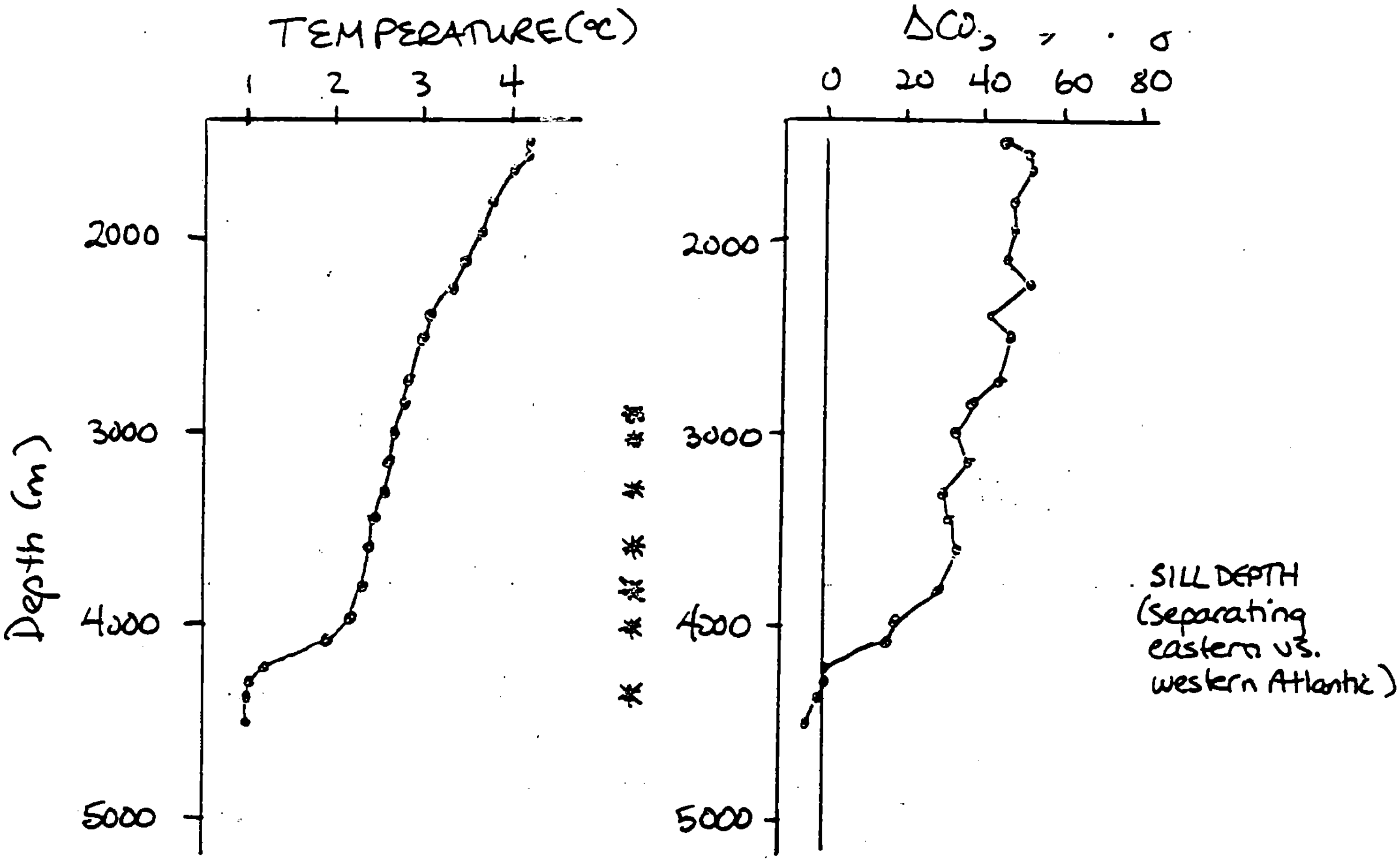
Figure 10. Location of seven coring and drilling targets for Ceara Rise.

DRILLING STRATEGY

Table 1. Locations and depths for the proposed Ceara Rise bathymetric transect. The sites labeled Deep will be used for reconstructions of deep water circulation, chemistry, and carbonate accumulation. The sites labeled Surface will be used for surface water temperature, chemistry, and productivity reconstructions. All sites will be offset, triple APC cored to refusal. Four sites will be double XCB cored to refusal and one site will be rotary cored to basement. The priorities are based on the success of deep drilling in the Paleogene sections. Should sediment recovery in the Paleogene be poor, more Neogene drill sites should be attempted during the cruise. This decision cannot be made until drilling on the JOIDES Resolution occurs and sediment recovery is evaluated.

Name	Latitude(N)	Longitude (W)	Depth (m)	Penetration (m)	Goal	Coring	Priority
CR1	4°13.79′	43°27.94′	3037	1300	Paleogene Surface, Deep	APC, XCB, RCB	1
CR2	5°27.84′	44°28.93′	3317	250	Neogene Surface, Deep	APC	1
CR3	3°43.18′	42°54.60′	3602	825	Paleogene Surface, Deep	APC, XCB	1
CR4	5°27.26′	43°44.98′	4018	825	Paleogene Deep	APC, XCB	1
CR5	5°58.57′	43°44.40′	4373	825	Paleogene Deep	APC, XCB	1
CR6	4°28.02′	43°45.33′	2901	825	Neogene Deep	APC, XCB	2
CR7	5°20.78′	43°51.92′	3853	825	Neogene Deep	APC, XCB	2

WESTERN EQUATORIAL



GEOSECS 42 (Broecker & Takahashi, 1978)

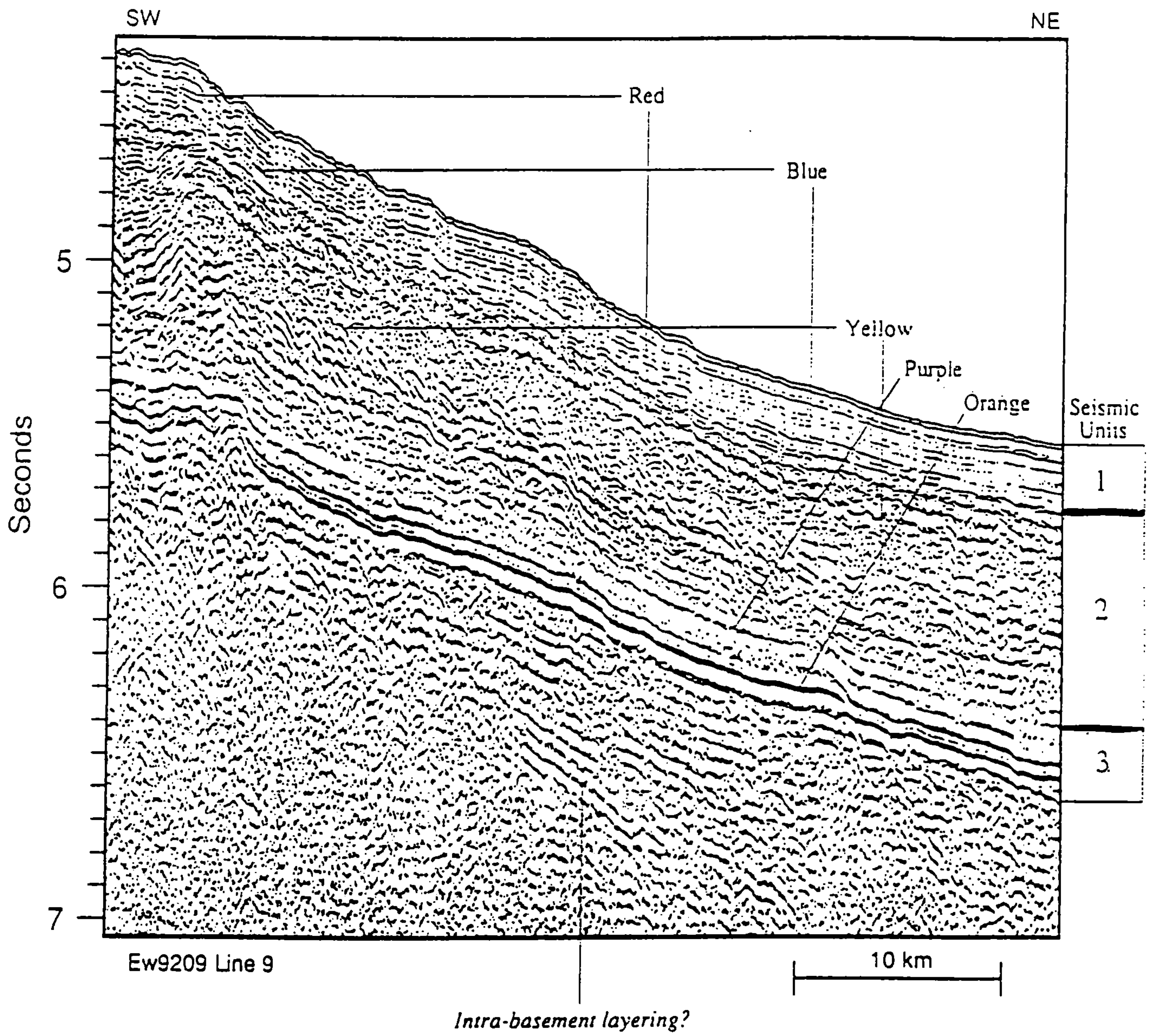


Figure 7. Typical seismic section for the NE slopes of Ceara Rise. The three mappable seismic units are found in varying thickness on the entire rise. In no location did we observe erosional hiatuses that created windows to deeper drilling objectives.

SITE SELECTION to optimize
- minimum distance btwnd
- significant depth separa
- minimum downslope reworking

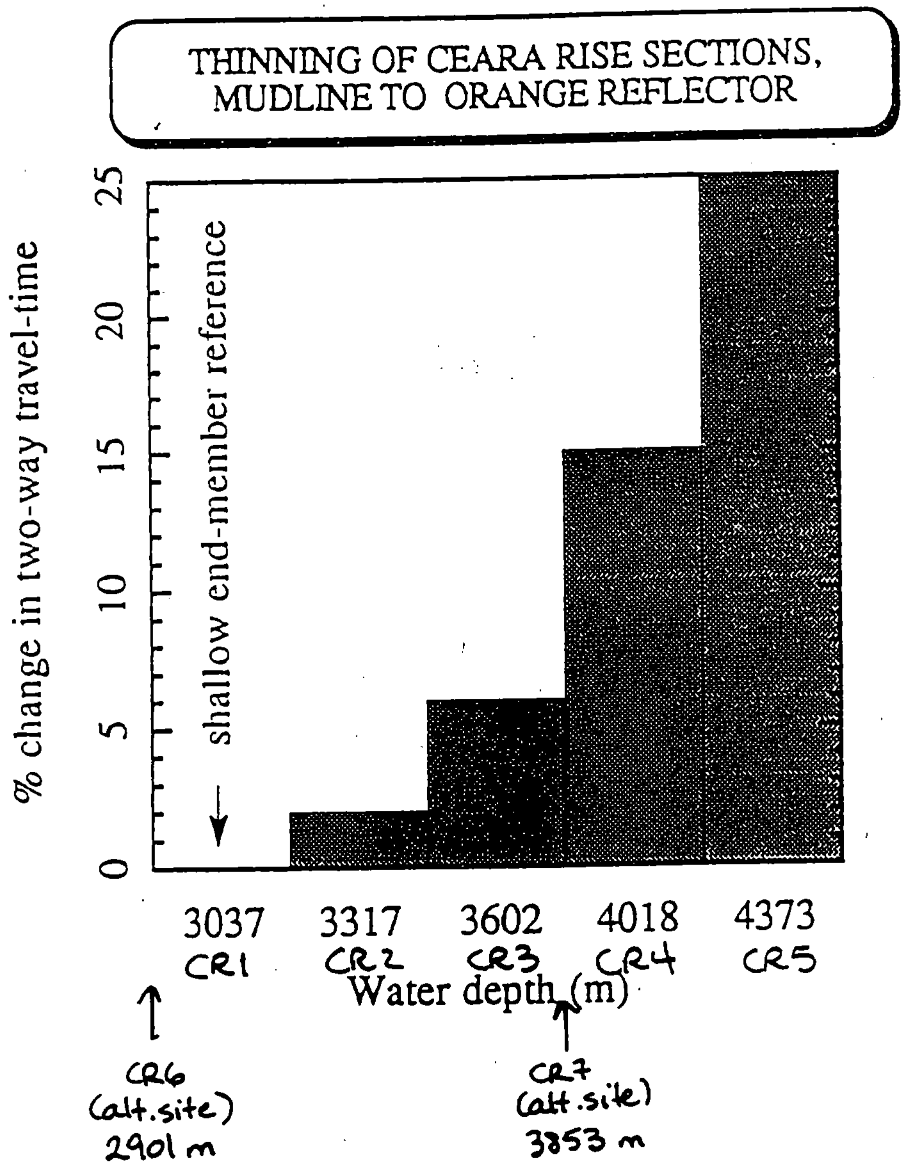


Figure 11. Thinning of sedimentary section with respect to the shallow coring location CR1. In the deepest location (CR5) more than 25% of the sediment appears to be missing, probably as a result of carbonate dissolution. This relationship suggests that down-slope reworking has not been a major problem in the locations we have chosen for drilling.

CR1 ~1350 m
CR5 ~950 m

SPRING 1992 RA

Appendix 22.0

		Proposal #
1	Return to 504B	410
2	Hess Deep	375
*3	MARK	369
*4	TAG	361
5	735B, A II FZ	300
5	Sedimented Ridges II	DPG
7	EPR II	DPG
*8	Vema FZ	376/382
*9	NARM Volcanic	DPG

* Atlantic Proposals

RANKING OF PROPOSALS IN THE FY'94 PR(

Rankings of proposals for the FY-94 drilling schedu... ...

Rank	Proposal	Avg. Vote
1	MARK	7.53
2	TAG	7.07
3	NARM Volcanic Leg 2	6.00
4	Vema Site VE-3	5.07
5	VICAP/MAP	4.50
6	N. Barbados Ridge	4.33
7	Equatorial Atlantic Transform	2.73
8	Alboran Sea	1.73

Nominations have been made for potential Co-Chief Scientists for the top ranked legs. Other notes related to this ranking:

1) TAG: LITHP strongly supports the instrumentation of the TAG drill holes, but does not wish to see drilling delayed. LITHP hopes that interested groups could be informed as soon as possible if TAG is scheduled for drilling so that active experiments can be planned to utilize the drilling.

2) CORK at Hole 395A: LITHP views this project as sufficiently important to include it in drilling plans for the near future. There are two possibilities:
   a) if there are problems with Leg 150, Hole 395A could be CORKed with the remaining time
   b) make either TAG or MARK a 58-day leg to include 60 hours of logging and deployment of CORK at Hole 395A. LITHP is willing to give up one day of drilling at either site (needed to keep the leg to 58 days) in order to complete this project.

3) NARM Volcanic Leg 2: If EG63 Sites 1 and 2 have been completed, this leg should drill on the Voring Margin. If EG63 Sites 1 and 2 are not finished, this Leg should complete them and then, if time, EG63-3 and -4 should be drilled.

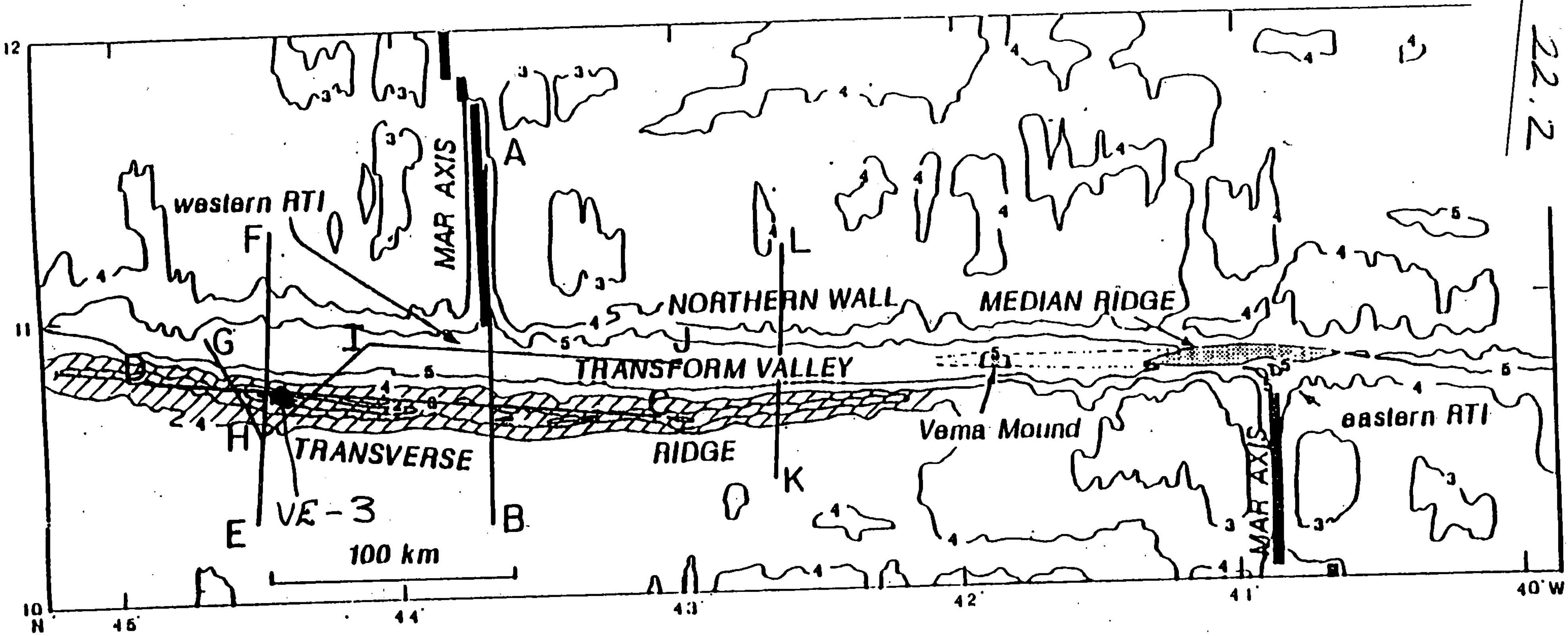


Figure 1. Tracks of the seismic reflection profiles carried out in August 1992 at the Vema FZ. Figure 2 shows a small portion of track C-D on the crest of the transverse ridge.

Appendix

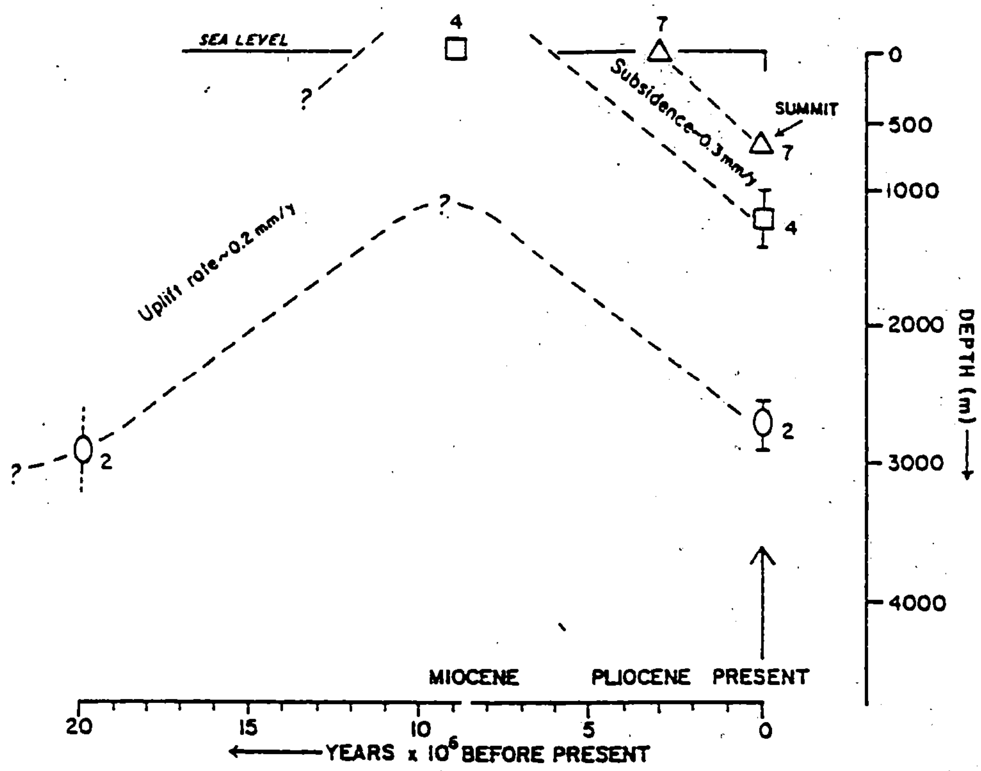


Fig. 7. Schematic interpretation of Miocene–Pliocene movements of the crustal block on the southern side of the Vema transform, based on the study of limestones recovered at three different levels on the uplifted block.

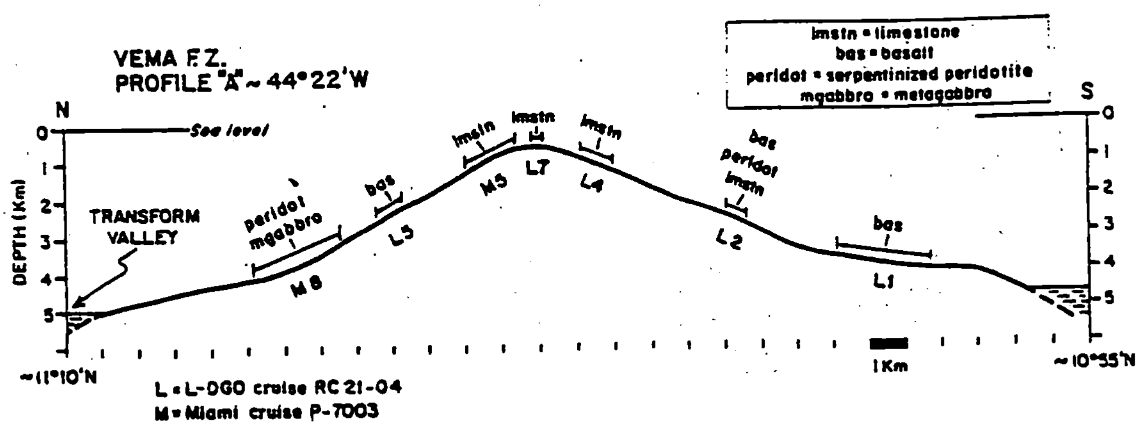


Fig. 3. North–south topographic profile (along section A in Fig. 1) across the shallowest part of the anomalous crustal block on the southern side of the Vema transform. No vertical exaggeration. Rock types recovered along this profile are indicated, including the limestones discussed in this paper.

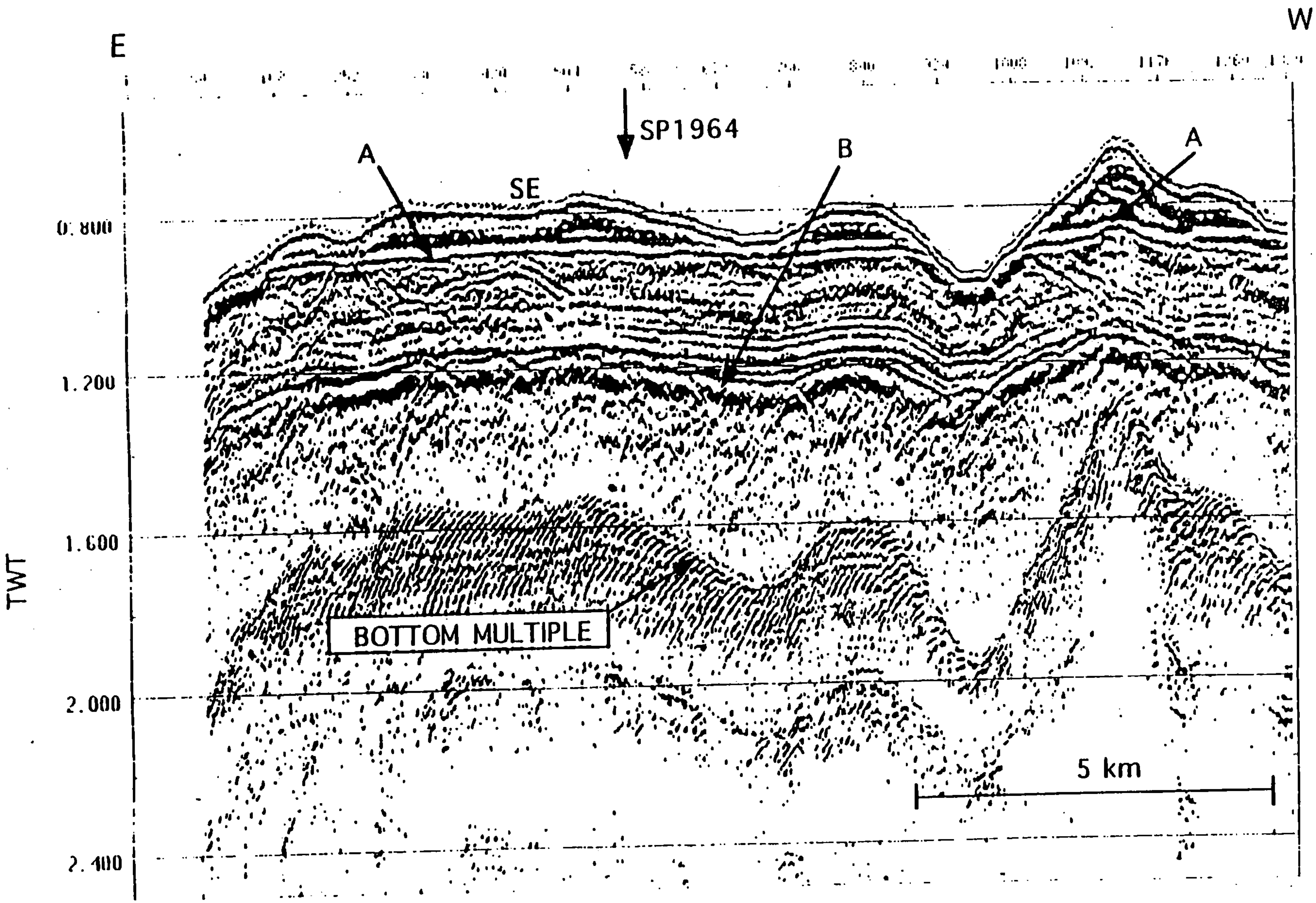


FIGURE 2 : Preliminary stack of line VEMA-02 around the summit of the transverse ridge of the Vema F.Z. Reflection B marks the interface between the limestone unit and the top of the oceanic crust. Reflection A correspond to a discontinuity within the limestone unit and SF denote the seafloor. The arrow at CDP 576 indicate the location of shot point (SP) 1964 of Figure 3.

Appendix 22.4

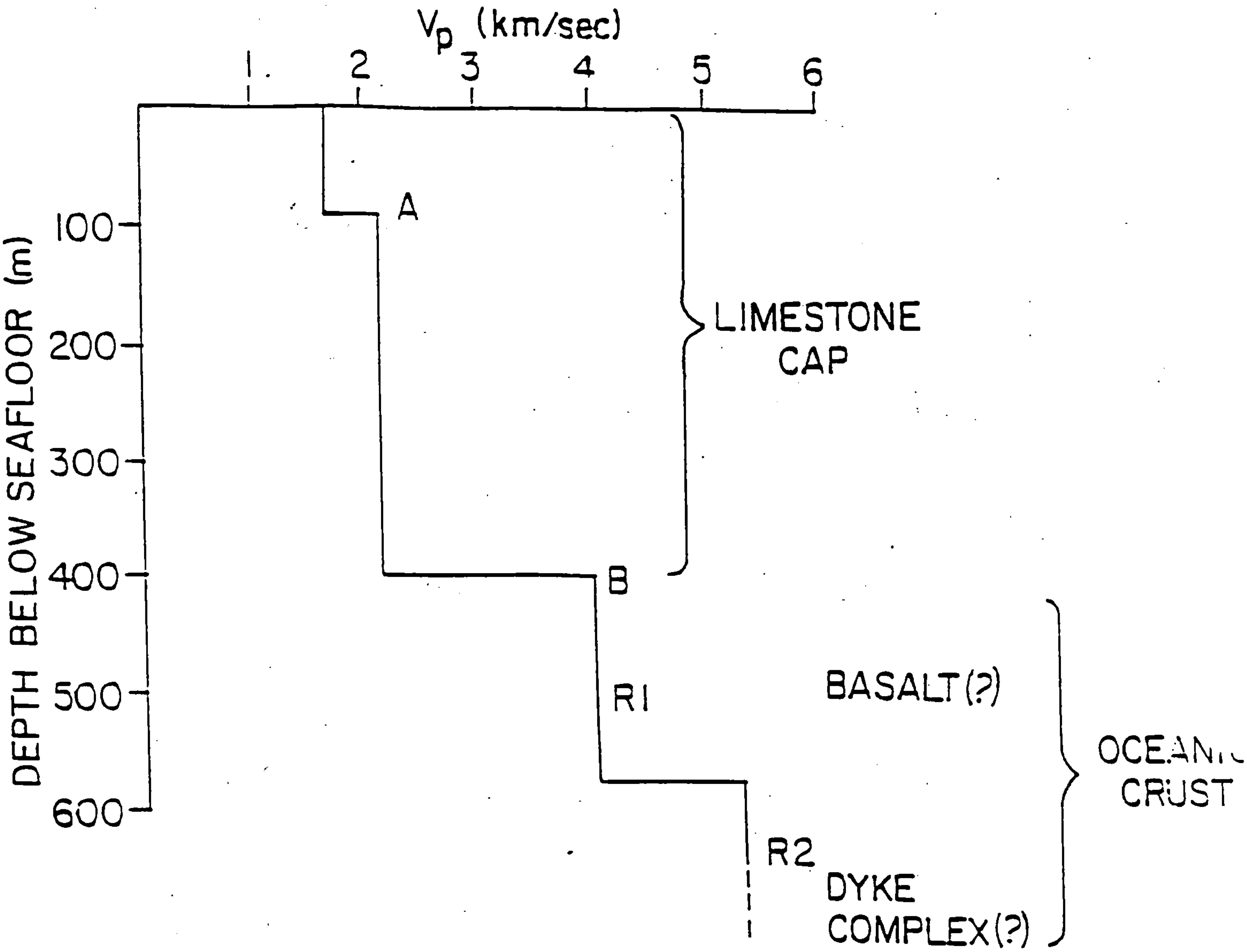


Figure 4. Velocity/depth function for shotpoint 1964 (Figures 2 and 3) on the crest of the Vema transverse ridge. Water depth is 595 m; V_W = 1.475 km/sec.

Appendix 22.6

ING : GENERATION OF OCEANIC LITHOSPHERE AT SLOW SPREADING CENTERS

Scientific Objective + Thematic Panel Theme

To understand :

- the magmatic processes which govern the formation of oceanic crust ;
- the tectonic processes associated with emplacement of new material + with lithosphere extension ;

by looking at processes in the lower crust + upper mantle.

SUCH STUDIES ARE FUNDAMENTALLY STRATIGRAPHIC!

∴ Need LONG, CONTINUOUS SECTIONS OF LOWER CRUST and UPPER MANTLE from both slow- and fast-spreading regimes

MARK Region

Characteristics that make this an excellent place to study generation of non-plume crust in a slow-spreading environment :

- plutonic exposures in median valley walls
- very well surveyed
- probable low magma supply
- low degrees of partial melting
- N-type MORB chemistry

Appendix 22.7

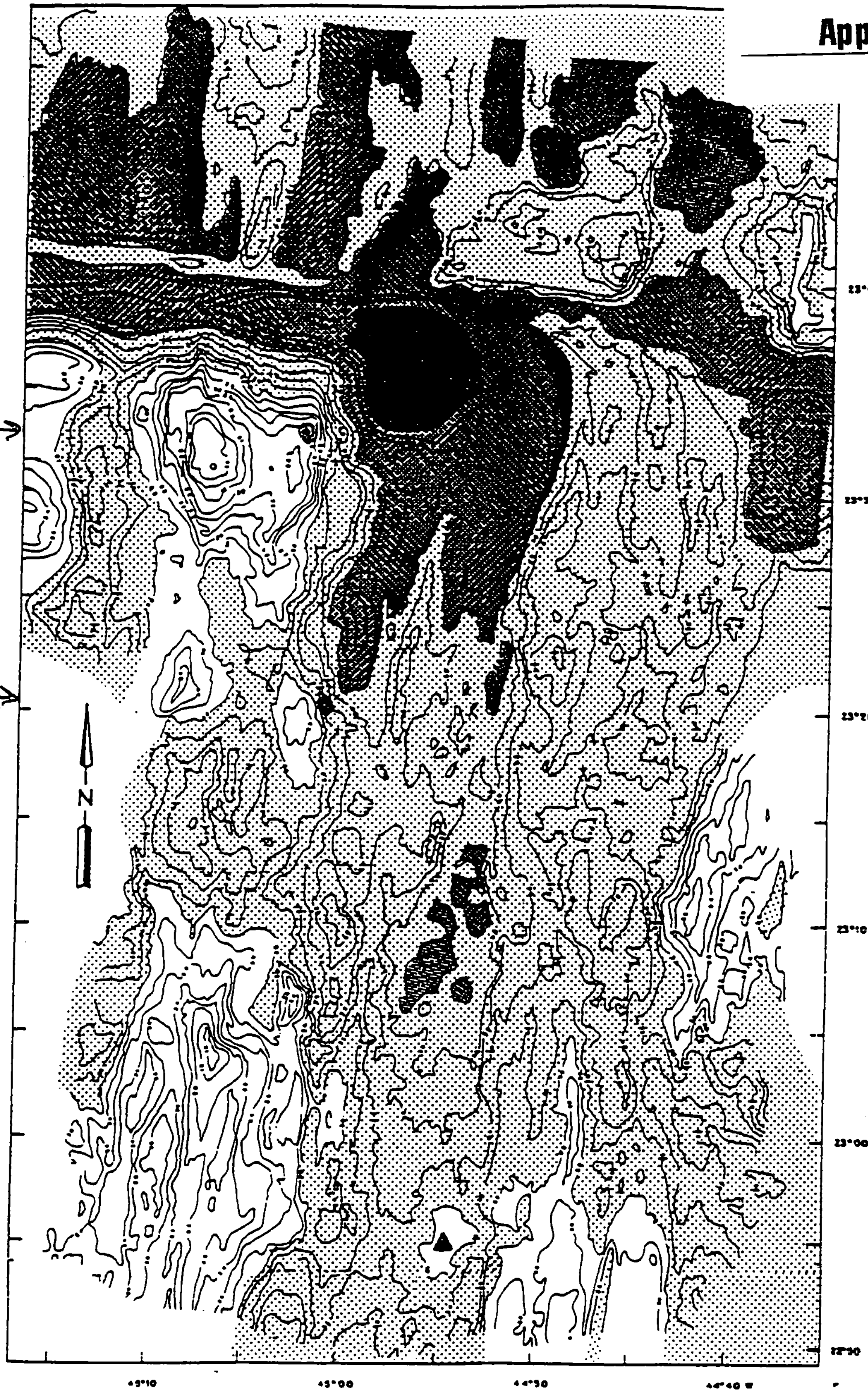


Figure I-4. Generalized SEA BEAM bathymetric map of the MARK Area. Black - >5000 m; shaded - >4000 m; stippled - >3000 m; and unpatterned - <3000 m. Note decrease in depth of the median valley floor southward from the KFZ intersection. A regional topographic high occurs at 22°55'N (black triangle).

Appendix 22.8

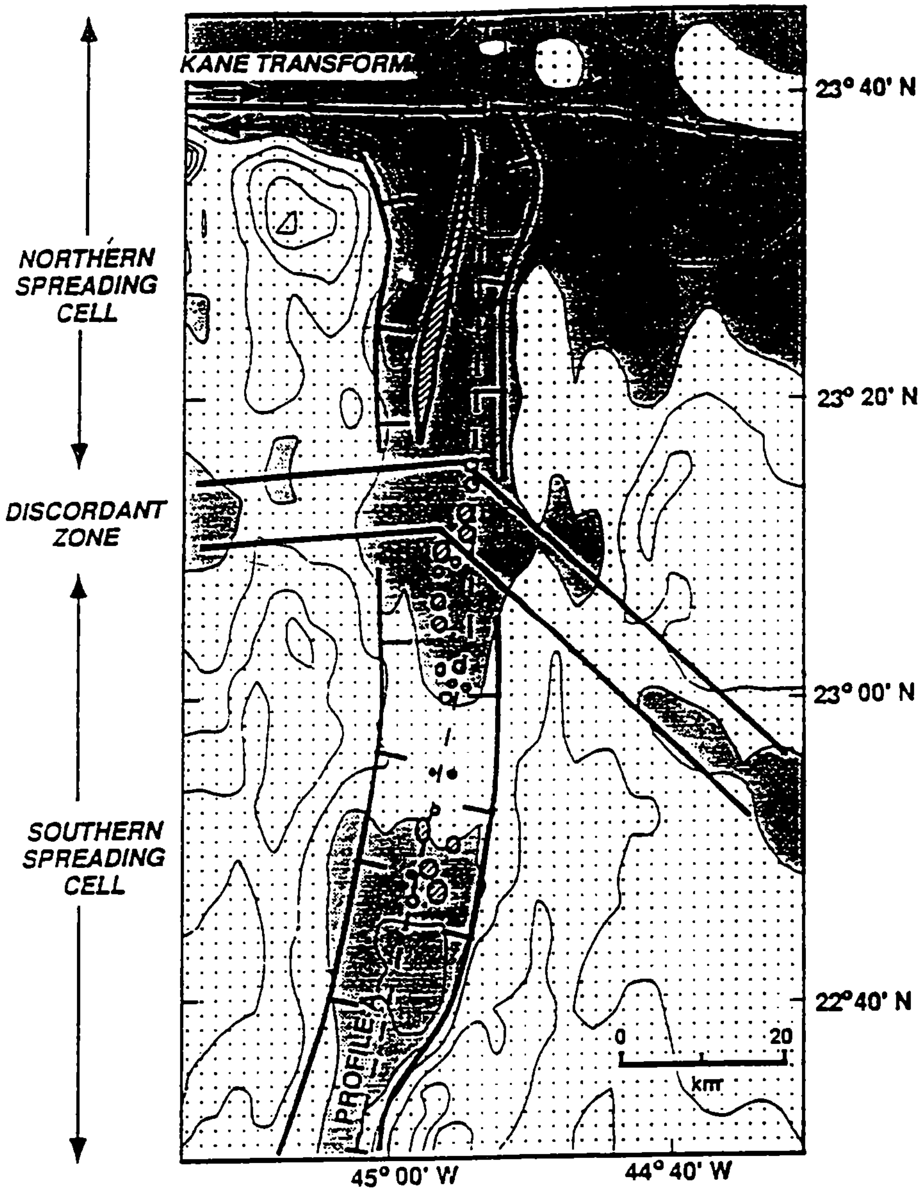
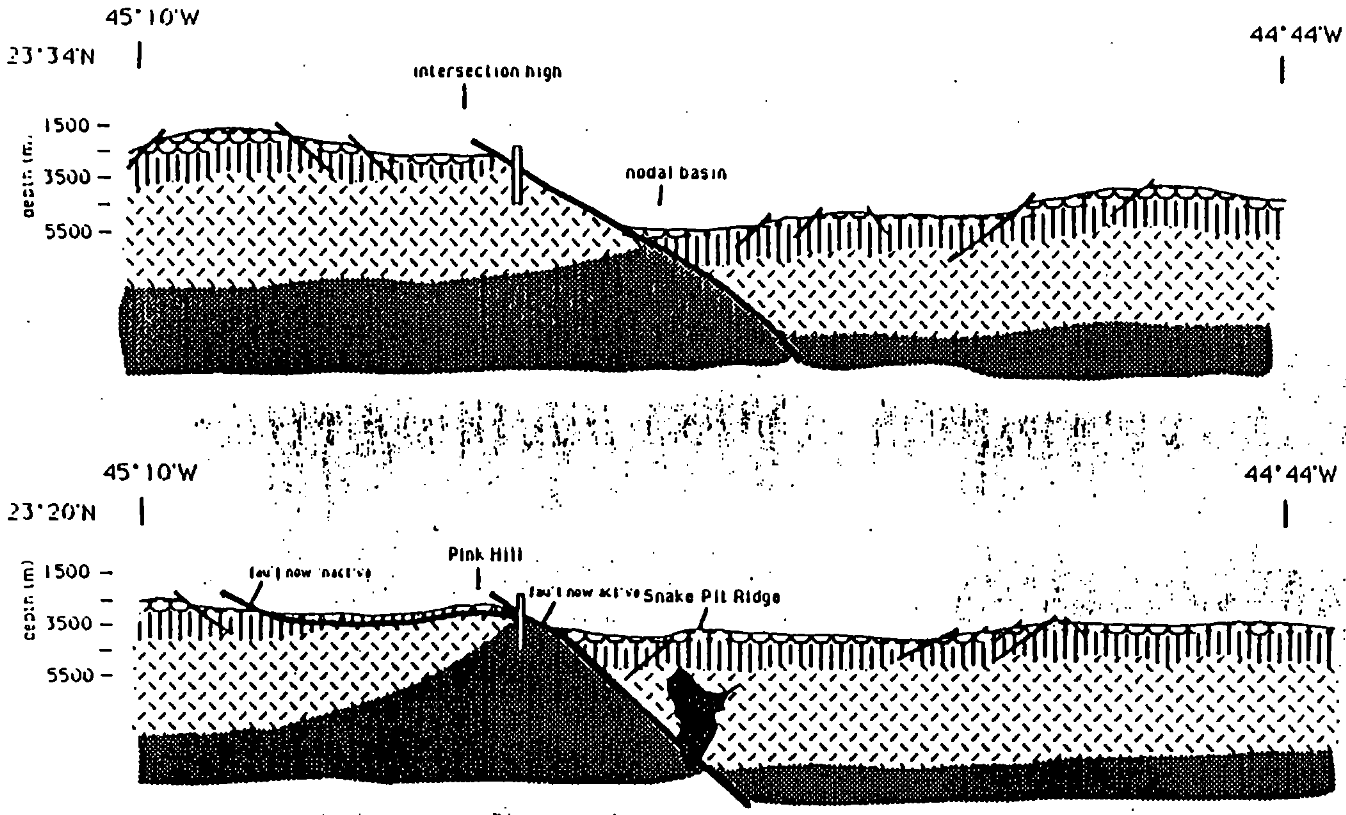


Figure 6 : Simplified bathymetric and tectonic map of the MARK area contoured at 500 m with depths >3500m shaded. The mid-Atlantic ridge is composed of two distincts preading segments that are separated by a non tranform offset. The walls of the inner rift valley are shown by the ticked. bold line ; volcanic contructional features within the rift valley are indicated by diagonal lines. After Morris and Detrick, 1991.

Figure 13

CASE 1: amagmatic spreading following a high magma budget period

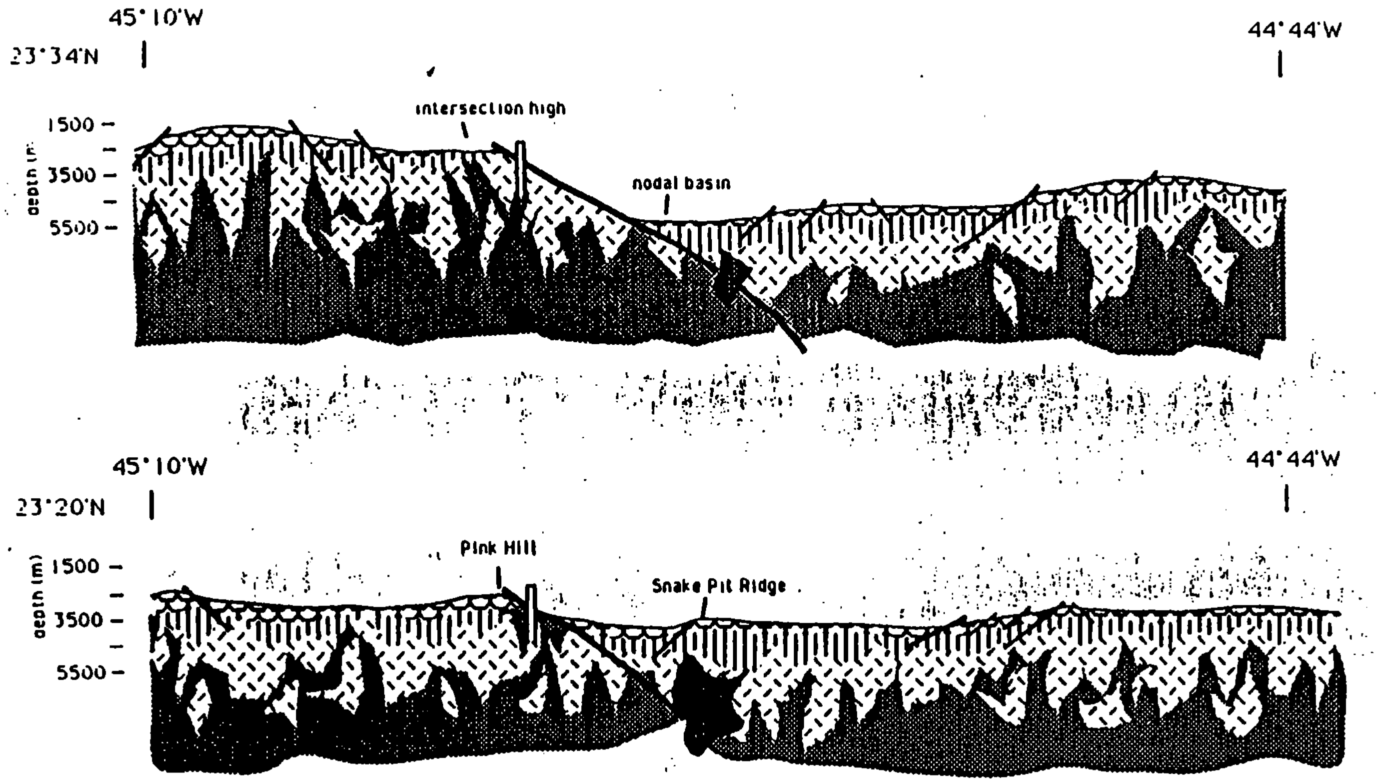


After a period during which enough magma was provided to form a continuous "normal" thickness magmatic crust, the ridge became magmatically starved. Spreading has therefore been totally accommodated by lithospheric stretching. Gabbros formed during the magma-rich episode, and mantle rocks, have been tectonically uplifted. Vertical displacement along the western median valley wall master faults is of the order of 3000m at 23°34'N, and of 6000m at 23°20'N. Assuming that these fau average 45° dip and accommodat 3cm/yr spreading rate, this corr 100 000 to 200 000 years-long a period.

Appendix 22.9

Figure 13 (Continued)

CASE
consist
low m
bud



The magma supply to the ridge axis has consistently been too low for a "normal" thickness magmatic crust to be formed. Spreading has therefore been partially accommodated by lithospheric stretching, leading to the emplacement of mantle peridotites into the uppermost axial lithosphere. Gabbros have crystallized in shortlived discontinuous pockets, locally intrusive into tectonically uplifted mantle rocks. Vertical displacement along the western median valley wall master f... order of 3000m at 23°34'N, ... at 23°20'N.

Appendix 22.10

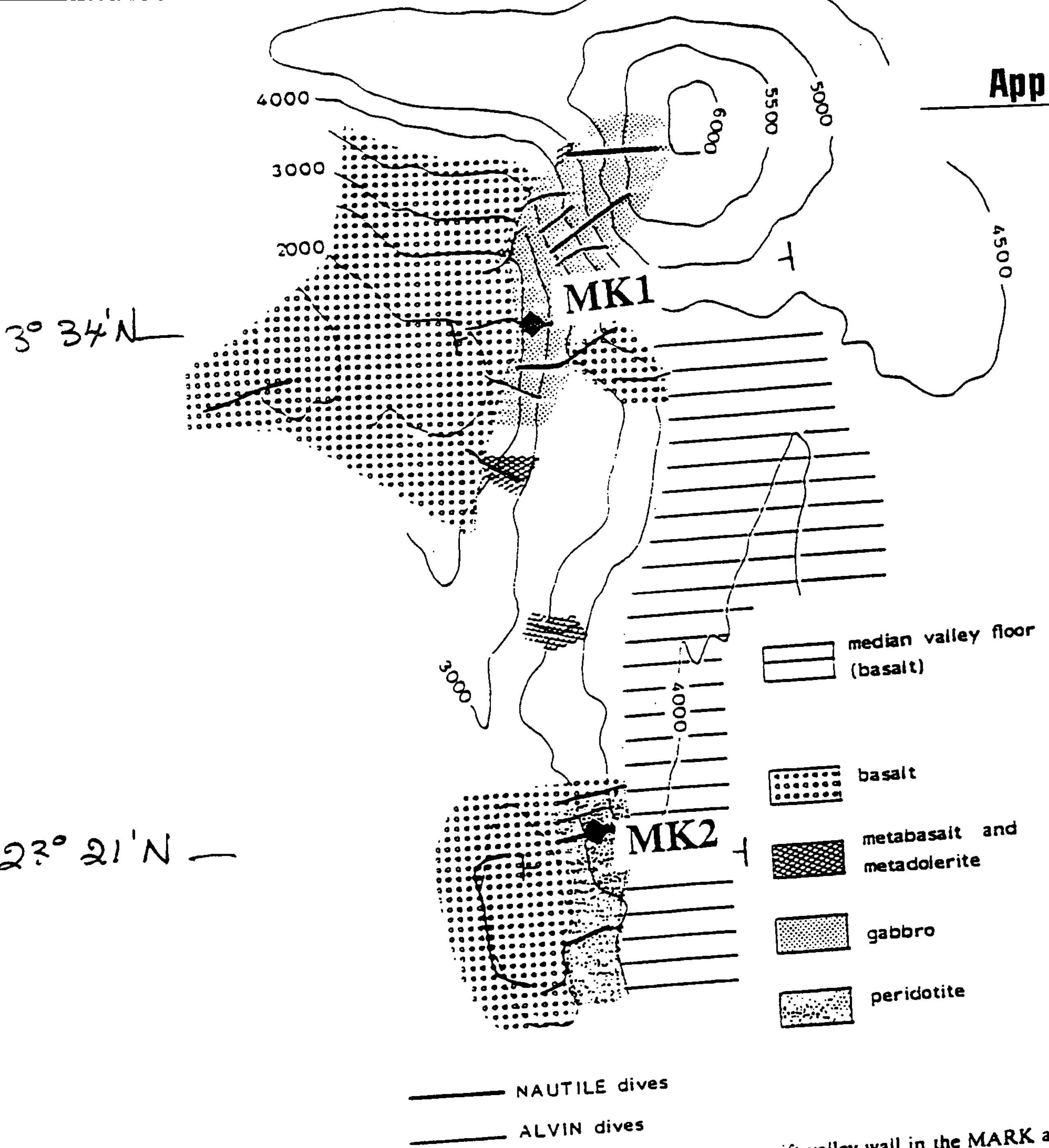


Fig. 9. Geological sketch map based on submersible observations of the western rift valley wall in the MARK area, with location of the two interpretative cross-sections presented in Fig. 10B. The pattern for metadolerites and metabasalts is also used for tectonic juxtaposition of metadolerites, metabasalts, basalts, and/or gabbros at a scale too fine to be represented on the map. More detailed geological data on the Nautile dives may be found in Figs. 3 and 7. The geological data on the Alvin dives are synthesized after Karson and Dick, 1983. Deep-towed camera observations support the lateral continuity of the outcrops (Karson and Dick, 1983; Brown and Karson, 1988).

Figure 7 (after mével et al., 1991)

SITE MK 1 — Gabbro section

Drilling depth : 500 - 1000 m.
Water depth : 2500 m

Objectives

1. To determine the basic structure, composition, and alteration state of the lower crust

2. To investigate the generation + evolution of basalts at mid-ocean ridges: e.g.
   - nature of parental magma
   - periodicity of magma input
   - fractionation + mixing events within subaxial magma chambers
   - melt migration paths within the cumulates
   - cumulate processes and magma chamber processes

3. To investigate structural characteristics of the lower crust: e.g.
   - structural style and orientation and downcore variability
   - how strain is localized
   - variations in deformation: its nature + extent
   - mechanisms of fluid penetration + its relation to ductile structures
   - the physical properties of the lower crust

4. To investigate the nature of a master fault:
   - the orientation + thickness of shear zone
   - the degree of fabric + seismic anisotropy in shear zone rocks
   - the role of detachments as fluid conduits
   - " " " " in exposing plutonics.
   - alteration of shear zone rocks.

SITE MK 2 — Paridotita sec

Appendix 22.13

Drilling depth : 500 - 1000 m

Water depth : 3500 m.

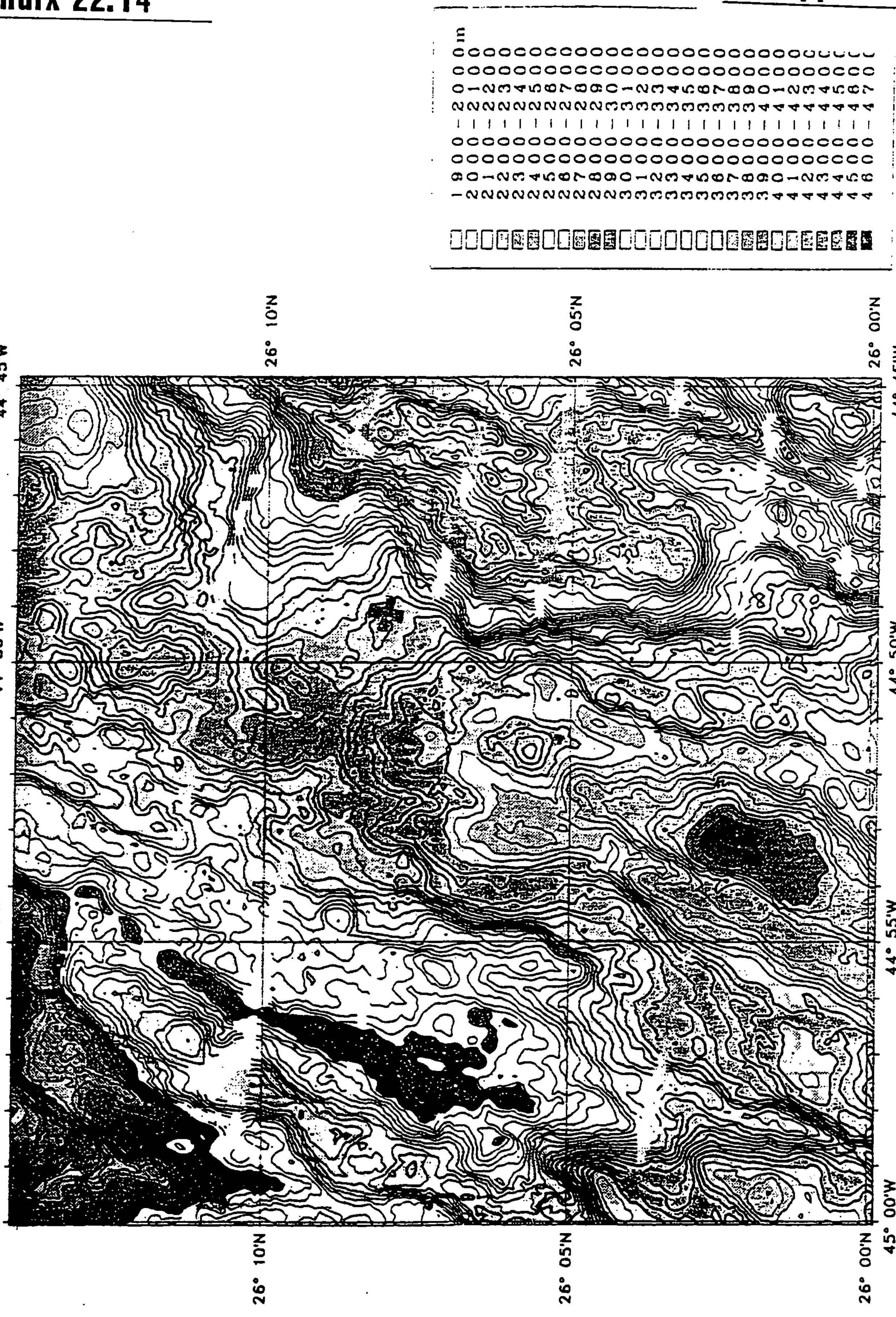
Objectives

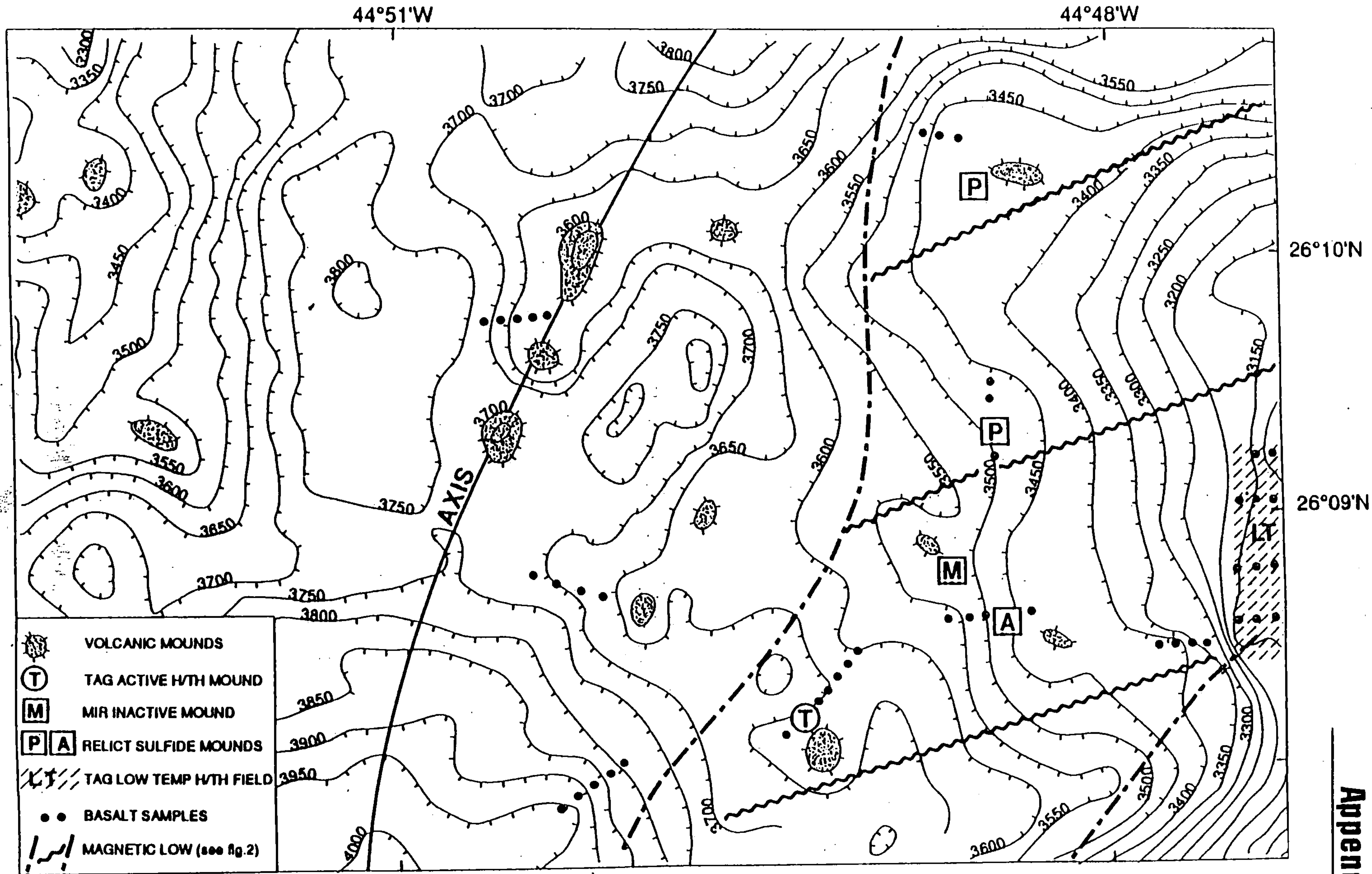
1. To determine the basic structure, composition and alteration state of the ~~upper~~ upper mantle

2. To investigate magma generation processes beneath mid-ocean ridges : e.g.
   - degree of melting ; homogeneity of melting
   - magma extraction and transport/migration
   - role and degree of serpentinization

3. To investigate structural characteristics of the upper mantle : e.g.
   - nature and distribution of deformation fabrics
   - relation of deformation fabrics to asthenospheric flow
   - mechanism by which mantle is incorporated into ridge axis lithosphere.

Appendix 22.14

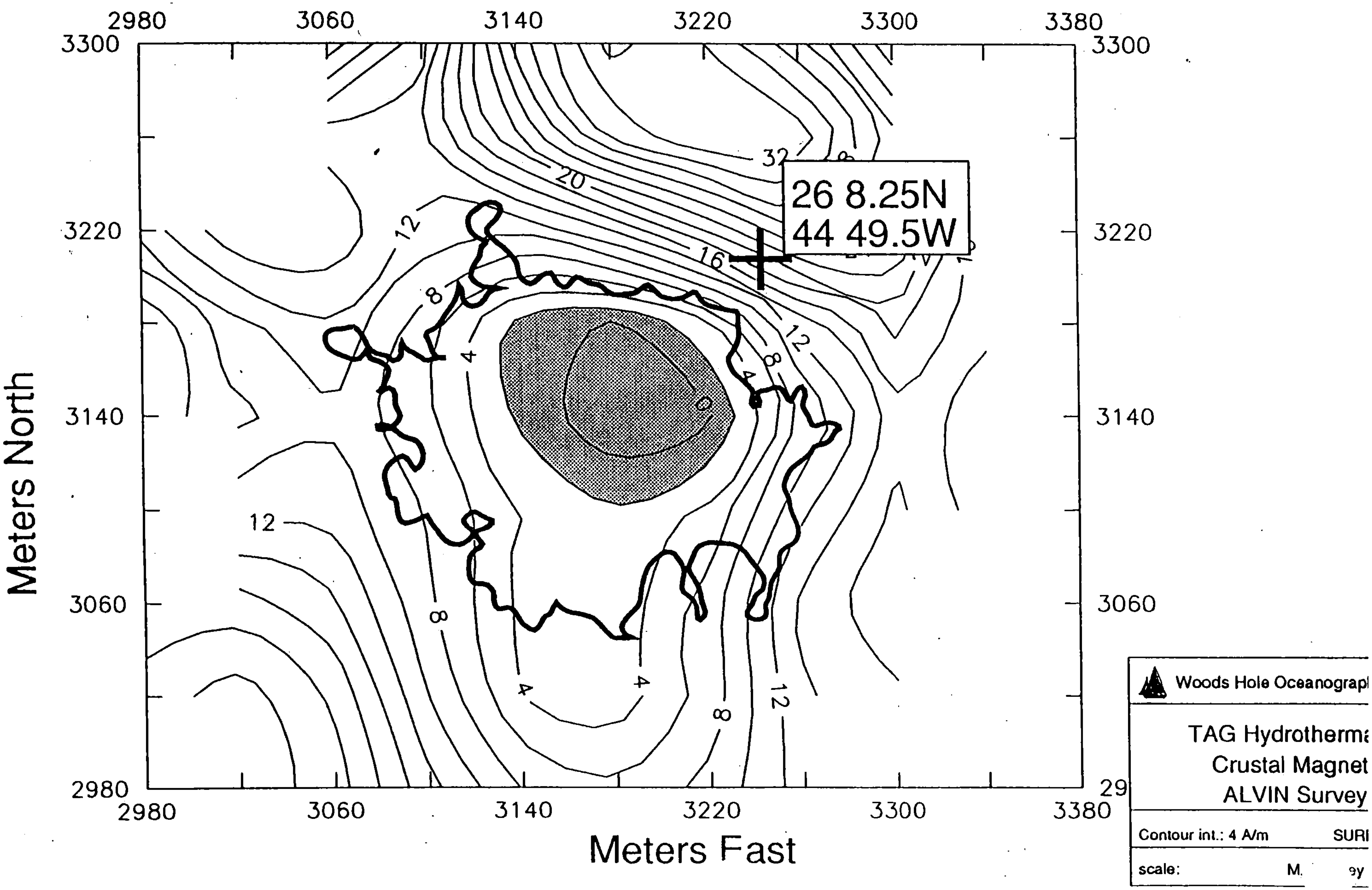


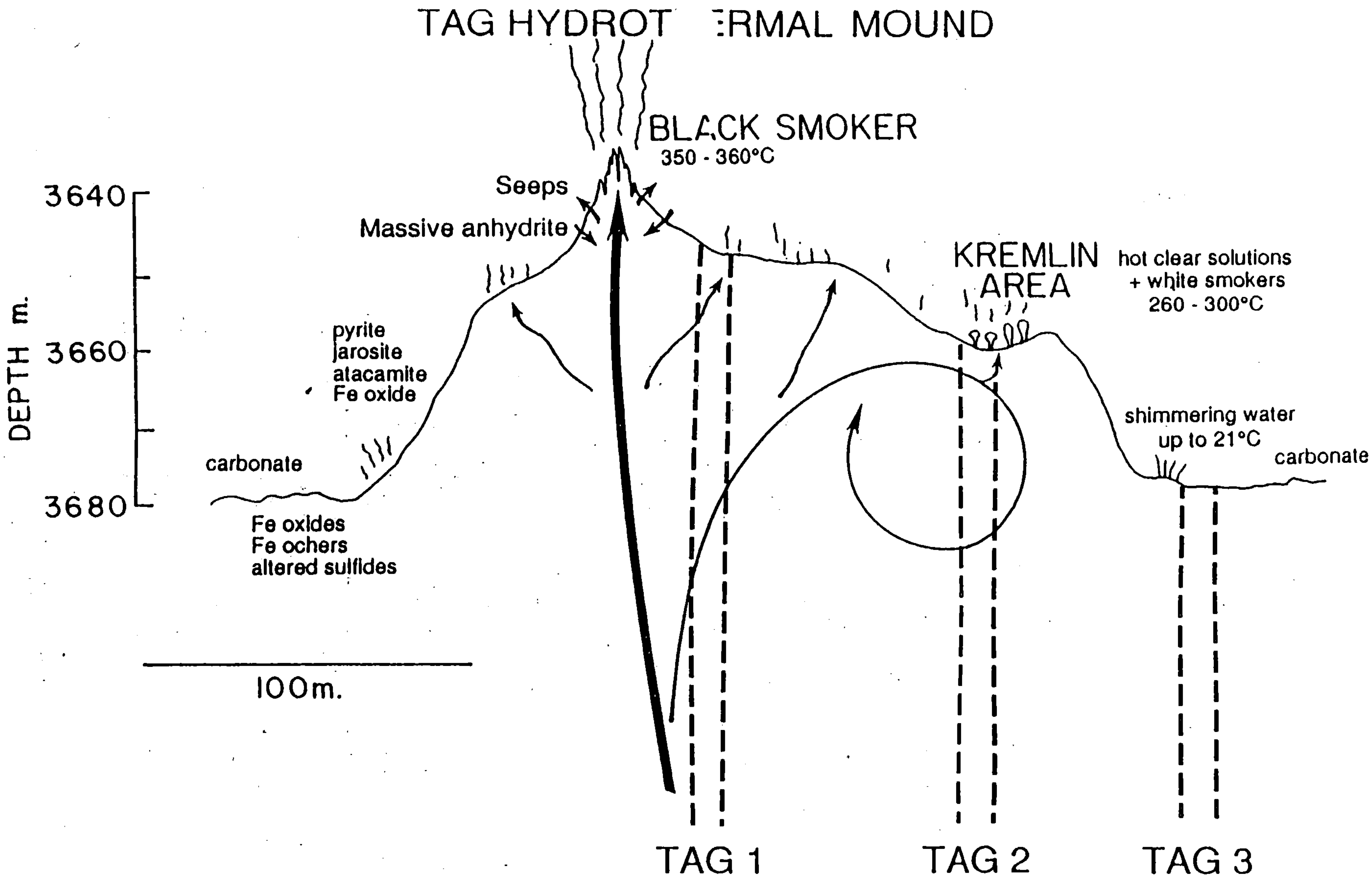


Sea Beam bathymetric map (50m contours) of the TAG area showing the location of volcanic domes (stippled), active (T) and relict (A,M,P) sulfide mounds. The anomalous low magnetic zone and the low temperature field are shown by dashed lines. Recovered basalt samples are indicated by the filled circles.

Appendix 22.15

Crustal Magnetization - ACTIVE MOUND - TAG

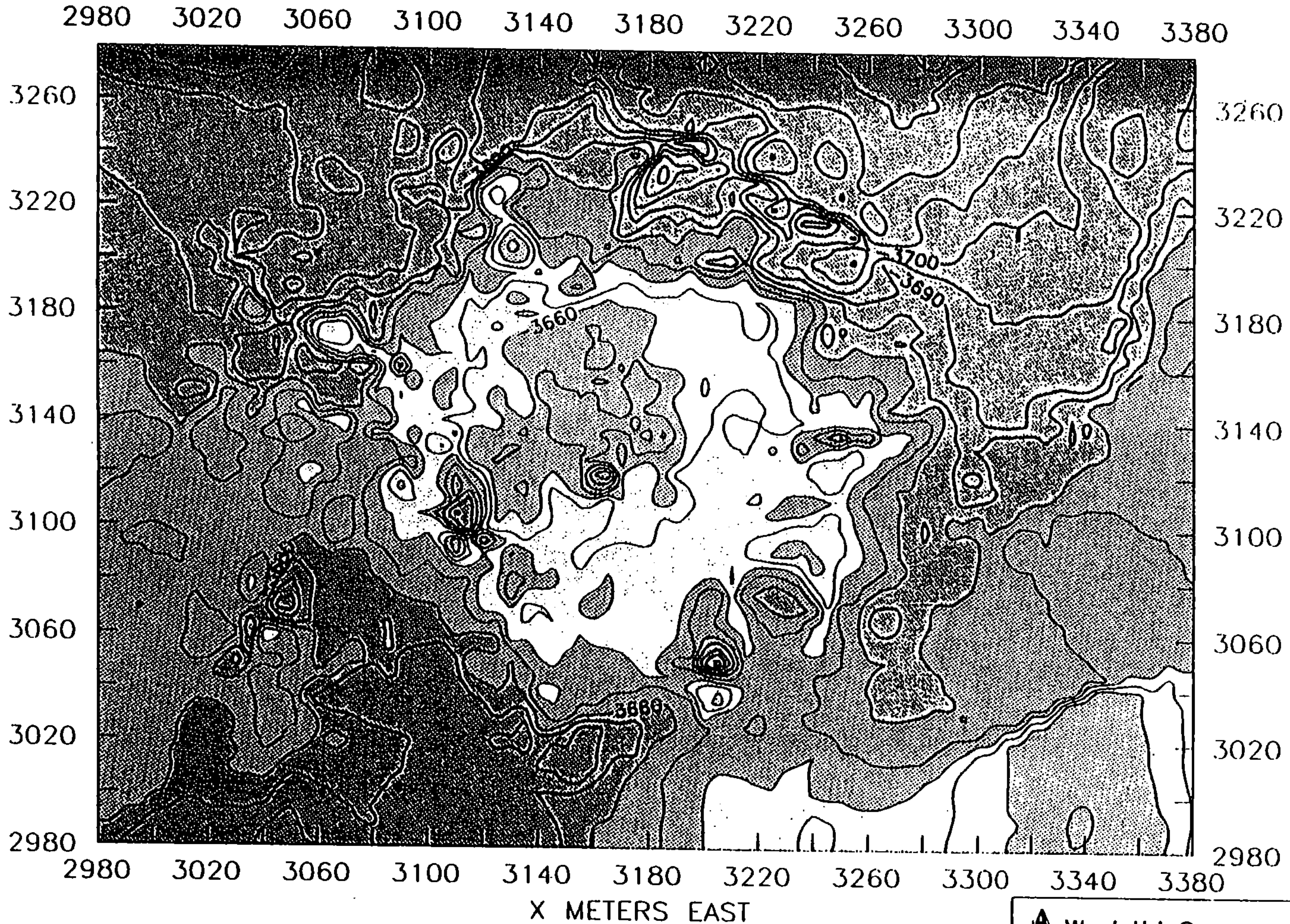




Cross section of the active TAG mound with observations derived from submersible observations. The suggested flow pattern within the mound is derived from the mineralogy of the deposits and the fluid chemistry.

Appendix 22.17

TAG MOUND BATHYMETRY – ALVIN SURVEY



Woods Hole Oceanographic Institution

TAG Hydrothermal Mound
Bathymetry
from ALVIN depth/altimetry data

Contour int.: 5 meters	SURFER
scale:	M. A. Tivey 16 Jan 1991

Appendix 22.18

SCIENTIFIC OBJECTIVES OF DRIL

The overall scientific objectives of drilling at TAG are:

- **to characterize the fluid flow, the geochemical fluxes and the associated alteration and mineralization**

- **to investigate the subsurface nature of an active hydrothermal system on a slow-spreading mid-ocean ridge.**

QUESTIONS TO BE ANSWERED BY DRILLING

1) <u>What is the Nature of the Deposits in the Near-Surface Part of the Hydrothermal System?</u>

- What is the variation (both temporally and spatially) in the mineralogy, chemical composition, and physical properties, of the hydrothermal precipitates?

- What is the spatial and temporal variation in the chemical composition of the circulating fluids, what effect does conductive cooling have on the composition of the fluids, and how does it relate to the mineralogical variations in the deposits?

- How does fluid circulate within the deposit and how do the characteristics of the flow (focused or diffuse) vary spatially?

- What are the effects of fluid circulation within the mound? Are metals remobilized and concentrated in distinct horizons?

- What are the effects of epigene and supergene alteration reactions on the physical and chemical properties of the deposits, and on the fluxes of elements between the deposits and seawater?

Appendix 22.20

ıe Nature and Distribution of Deposits ... ... Stockwork and Root Zone below the Surface Deposits?

- What is the variation in mineralogical and chemical composition of deposits within the stockwork zone?
- To what degree have the fluids reacted with the adjacent host rocks, and what is the nature of the rock-seawater interactions, and how have these affected the magnetics?
- What are the physical and hydrogeological properties of the upper crust in the stockwork and root zone?
- What is the chemical composition of the hydrothermal fluid within the stockwork zone?
- What controls the focusing of the fluid flow within this part of the hydrothermal cell?
- How much heat is exchanged in the system and what are the associated energy fluxes?

3) **What is the Location and Nature of the Reaction Zone?**

- What and where is the reaction zone? What are the styles of alteration with depth beneath an active vent site? Is the mineral assemblage in equilibrium with the highest temperature fluids exiting the mound?
- How do the mineral assemblages compare with those exposed in ophiolites?
- What are the physical and hydrogeological properties, and general nature of the crust within the reaction zone?
- What controls the structure of the plumbing system within the reaction zone?
- How much heat is exchanged, and what are the mechanisms of heat transfer, between the heat source and the circulating fluid?

DCS - PRESENT STATUS

* FINAL REPORTS FOR DCS CONTROLLER RE-DESIGN ARE DUE DECEMBER 2, 1992.

* SUMMARY: (MAJOR ISSUES ONLY)

    * LEG 142 FAILURE DUE TO ONE BENT CYLINDER.

    * SERVO VALVE SIZE SHOULD BE OPTIMIZED.

    * ALTERNATE SEALS ON PRIMARY COMPENSATOR WILL IMPROVE ITS EFFICIENCY.

    * A NEW CONTROL SCHEME/CONTROLLER FOR DCS HEAVE COMPENSATION SYSTEM HAS BEEN DESIGNED AND WILL YIELD MUCH IMPROVED COMPENSATION.

* DCS FEED CYLINDERS HAVE BEEN REBUILT.

* DCS RIG NOW IN MIDLAND, TEXAS AT PARTECH'S FACILITY, REPAIRS/MODIFICATIONS/IMPROVEMENTS ARE PROCEEDING ON SCHEDULE.

* DCS RETRACTABLE BIT TECHNOLOGY WORK PROCEEDING NOW WITH CHRISTENSEN MINING'S DESIGN.

Appendix 23.1

:S RETRACTABLE BIT (D...)

* A WORKING RETRACTABLE BIT SYSTEM WILL SAVE BIT TRIP TIME AND MAXIMIZE TIME AVAILABLE FOR CORING.

* TWO PARTIES HAVE BUILT PROTOTYPES THAT WORK (LONGYEAR, CHRISTENSEN).

* TWO DIFFERENT DESIGNS:

  * LONGYEAR SYSTEM USES SEPARATE RUNNING AND RETRIEVAL TOOLS TO HANDLE BIT CHANGE (SEPARATE, ADDITIONAL WIRELINE RUNS).

  * CHRISTENSEN DESIGN INCORPORATES "COLLAPSIBLE" BIT IN THE CORE BARREL ITSELF, OBVIATING SPECIAL WIRELINE RUNS.

* BOTH APPROACHES HAVE BEEN CONSIDERED. THE CHRISTENSEN DESIGN IS BEING ACTIVELY DEVELOPED.

DCS - PLANNED WORK

* REVIEW FINAL REPORTS ON CONTROL SYSTEM REDESIGN - CHOOSE ONE PARTY FOR FOLLOW-ON WORK.

* CONTINUE MODIFICATIONS/REPAIRS TO DCS RIG - THROUGH JANUARY.

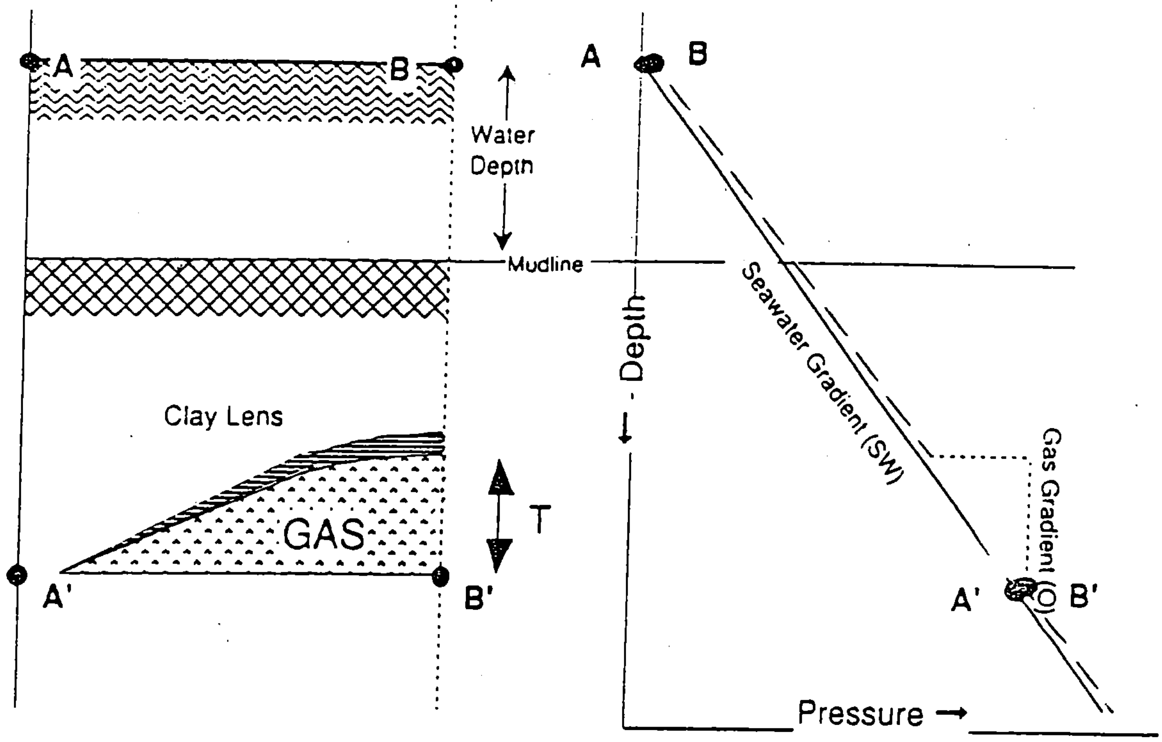
* WRITE SPECIFICATIONS/PROPOSAL PACKAGE FOR NEW SOFTWARE AND HARDWARE FOR NEW CONTROLLER.

* PREPARE FOR LAND TESTING SCHEDULED TO BEGIN DURING FIRST QUARTER OF 1993.

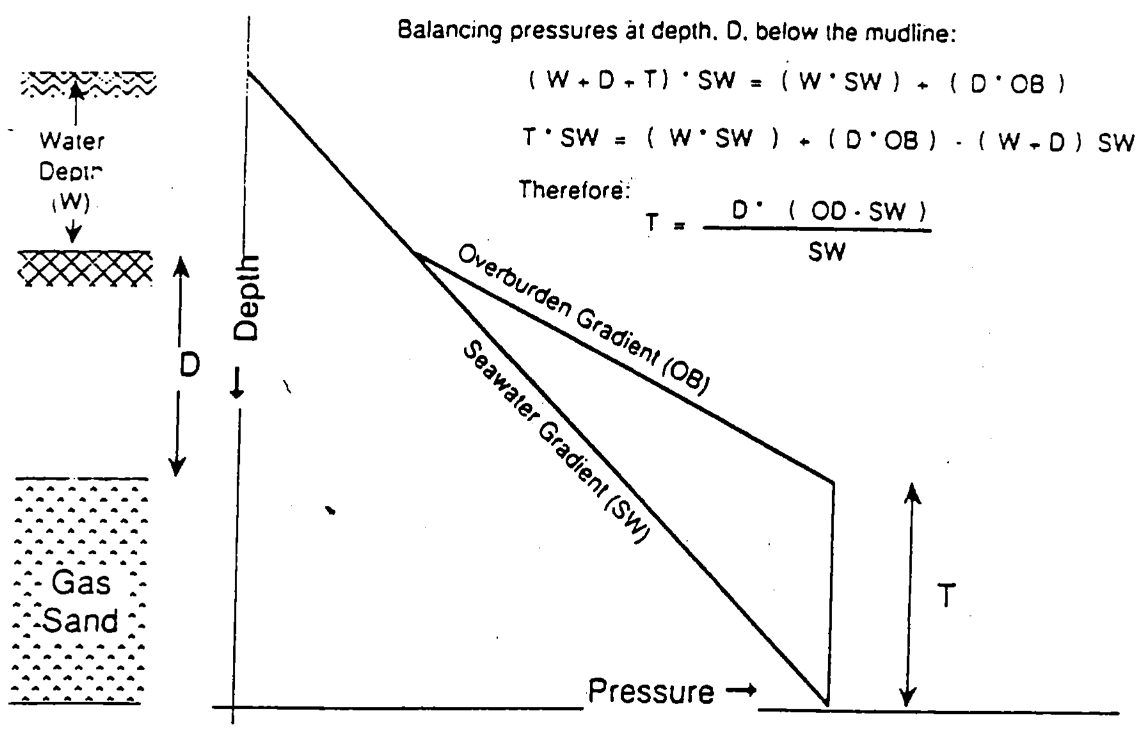
* TEST CHRISTENSEN PROTOTYPE OF DRB IN MAY, 1993.

* WORK WITH THE RUSSIANS TO STUDY THEIR ROLLER-CONE RETRACTABLE BIT TECHNOLOGY FOR POSSIBLE USE WITH DI-BHA SYSTEM.

Appendix 24.0



Shallow Gas Is Always Overpressured



Maximum Shallow Gas Sand Thickness That Can Exist Without Broaching

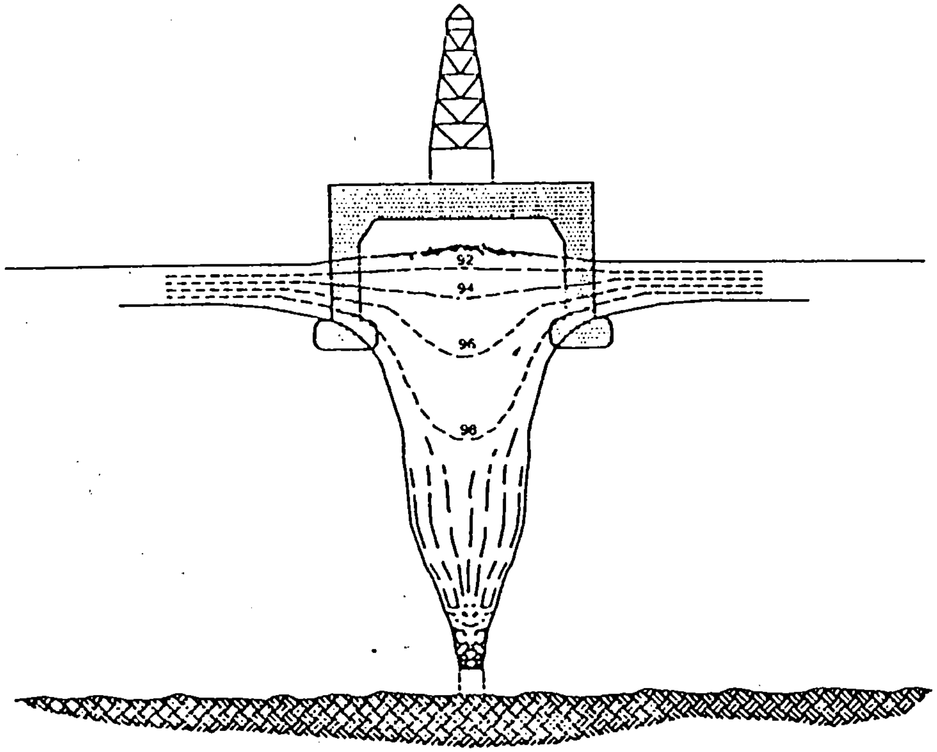


Figure 3. SEMISUBMERSIBLE IN A BLOWOUT BOIL
TYPICAL SPECIFIC GRAVITY VARIATIONS

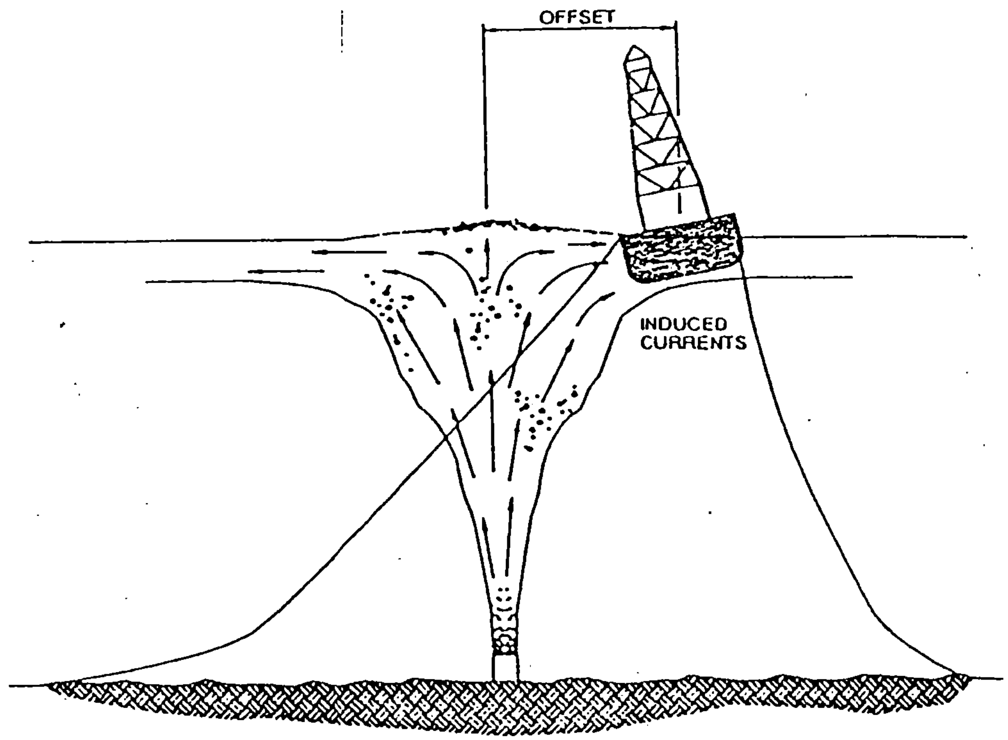


Figure 4. PLUME-INDUCED LIST ON DRILLSHIP

Table 2 Bottom-SupportedRigs(Jack-ups and Submersibles) Damaged by Shallow Gas Blowouts

Year	Contractor	Rig	Damage	Location
1958	Odeco	N/A	N/A	Gulf of Mexico
1968	Fluor	Little Bob	Total Loss	Gulf of Mexico
1972	Reading & Bates	M.G. Hulme	Total Loss	Java Sea
1972	Marine	J. Storm II	Total Loss	Gulf of Mexico
1974	Offshore	Meteorite	Total Loss	Nigeria
1975	Zapata	Topper III	Total Loss	Gulf of Mexico
1978	Penrod	Penrod 61	Light	Gulf of Mexico
1979	Odeco	Ocean Patriot	N/A	Gulf of Mexico
1980	Reading & Bates	Ron Tappmeyer	Extensive	Arabian Gulf
1981	Sedco	Sedco 250	Total Loss	Angola
1983	Penrod	Penrod 52	Total Loss	Gulf of Mexico
1983	Santa Fe	Santa Fe 134	Moderate	Kalimantan
1985	Beaudril	Molikpaq	Moderate	Beaufort Sea
1988	Sedco	Sedco 251	Total Loss	Java Sea
1989	Sedco	Sedco 252	Total Loss	India
1989	Teledyne	Teledyne 16	Total Loss	Gulf of Mexico
1989	Beaudril	Molikpaq	Light	Beaufort Sea

Table 3 Semisubmersibles Damaged by Shallow Gas Blowouts

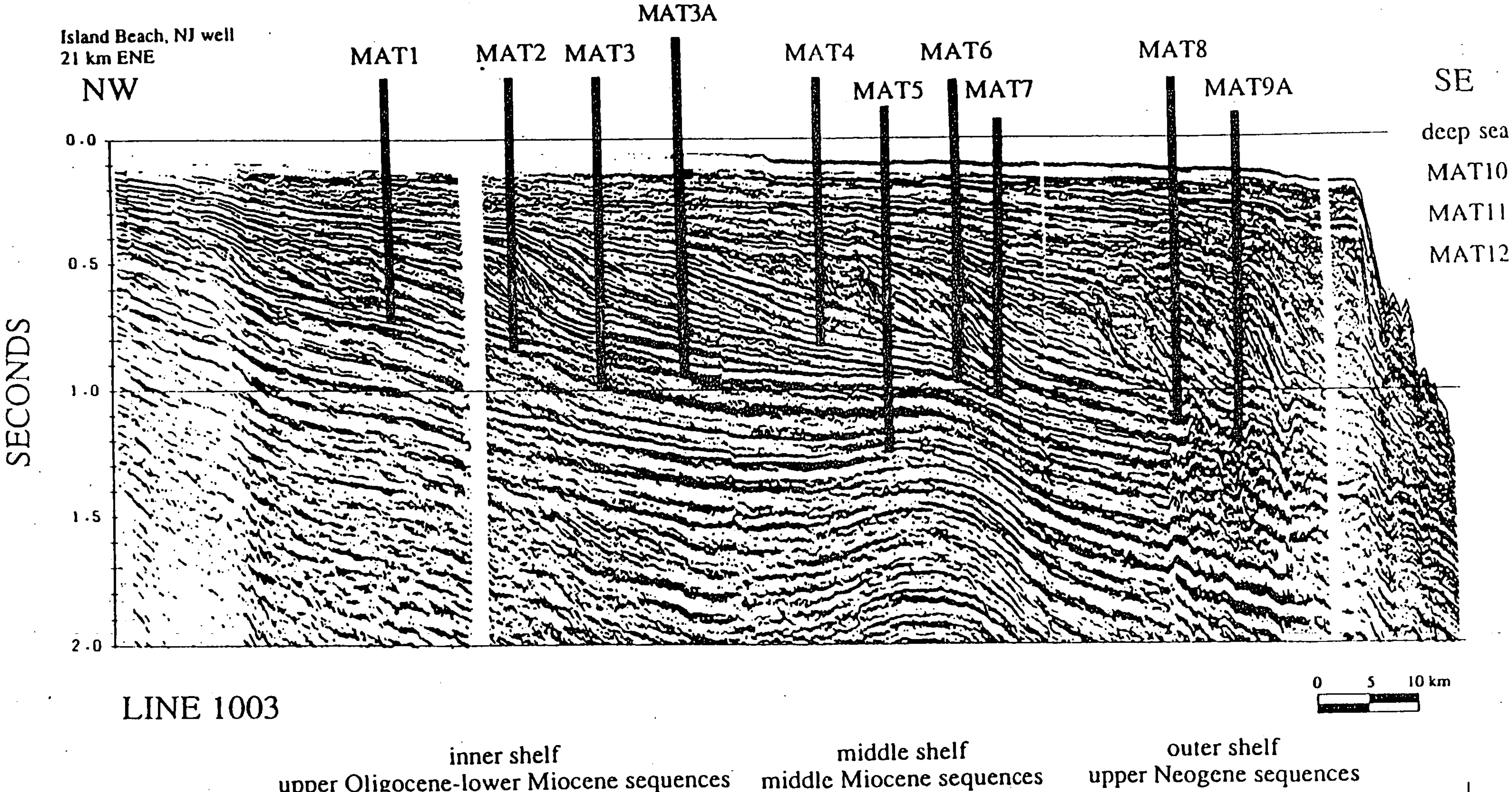
Year	Contractor	Rig	Damage	Location
1971	Odeco	Ocean Driller	Light	Gulf of Mexico
1973	Santa Fe	Mariner I	Total Loss	Trinidad
1973	Santa Fe	Bluewater 2	Light	Gulf of Mexico
1975	Santa Fe	Mariner II	Light	Gulf of Mexico
1978	Sedneth	Sedneth 1	Moderate	Gulf of Mexico
1980	Sedco	Sedco 135C	Total Loss	Nigeria
1981	Wilhelmsen	Treasure Saga	Moderate	N. Sea, Nor.
1981	Odeco	Ocean Scout	Light	Gulf of Mexico
1984	Wilhelmsen	Treasure Seeker	Moderate	N. Sea, Nor.
1985	Smedvig	West Vanguard	Extensive	N. Sea, Nor.

Table 4 Drill Ships/Barges Damaged by Shallo Blowouts

Year	Contractor	Rig	Damage	L
1964	Reading & Bates	C.P. Baker	Total Loss	G
1969	Reading & Bates	E.W. Thornton	Moderate	Malaysia
1970	Offshore	Discoverer II	Light	Malaysia
1970	Offshore	Discoverer III	Moderate	Java Sea
1971	Fluor	Wodeco II	Total Loss	Peru
1971	Atwood Oceanics	Big John	Total Loss	Brunel
1975	Offshore	Discoverer I	Light	Nigeria
1981	Petromarine	Petromar V	Total Loss	S. China Sea
1982	Global Marine	Conception	Moderate	Kalimantan
1988	Viking Offshore	Viking Explorer	Total Loss	Balikpapan

Appendix 24.2

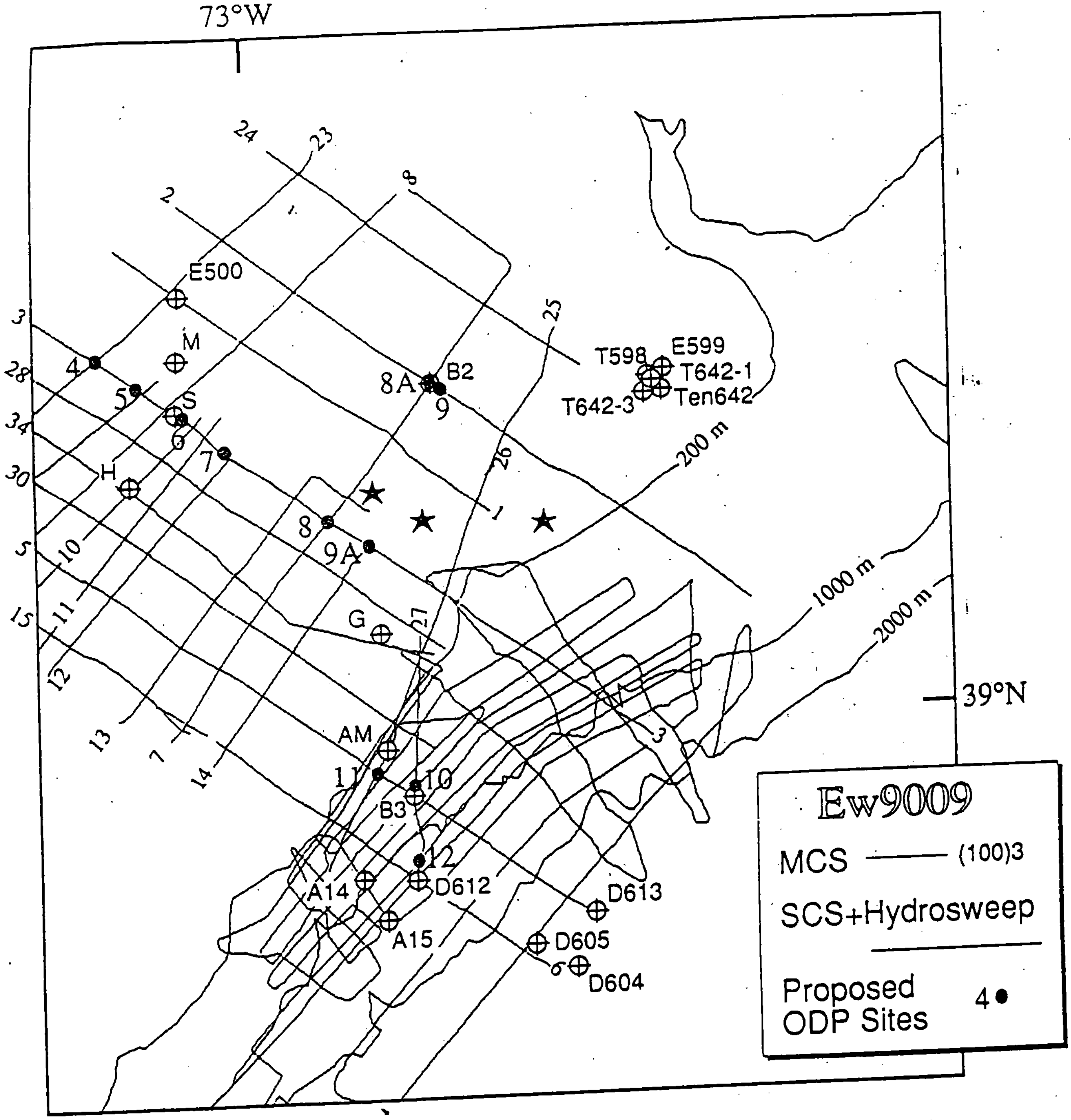
The Mid-Atlantic Transect



- Highly compressed Ew9009 Line 1003 shoing locations of proposed Leg 150 boreholes MAT1 through 9A. This profile is parallel to and offset from Exxon Line 75-6/25 by 4.5 km.

Appendix 24.3

Appendix 24.4



Key to wells ⊕ E 500 & 599 = Exxon 500-1 & 599-1 M = Mobil 544-1
S = Shell 632-1 H = HOM 676-1 G = Gulf 857-1 Ten642 = Tenneco 642-2
T - 598, 642-1, 642-3 = Texaco 598-1, 642-1, & 642-3 AM = Amcor6021
B2 = Cost B2 B3 = Cost B3 A14 = ASP14 A15 = ASP15
D604, 605, 612, & 613 = DSDP604, 605, 612, & 613

Key to potential hazards ★ = shallow gas

0 10 20 km

Figure 13 - Detailed location map of the Ew9009 MCS and SCS lines and their proximity to various we'`s discussed in the text. Shown as well are the three occurrences of possible [illegible]

CONCLUSIONS

1. SHALLOW WATER SITES ON THE NEW JERSEY TRANSECT WERE NOT DEMONSTRATED TO BE SAFE FOR DRILLING.

2. HAZARD SURVEYS ARE NEEDED TO ADDRESS THE SHALLOW GAS PROBLEM. INTERPRETATION OF THESE SURVEYS BY PROPONENTS/CO-CHIEF SCIENTISTS MAY NOT BE APPROPRIATE.

3. AN EXAMINATION OF THE PROCEDURES AND CRITERIA FOR ASSESSING THE SAFETY OF SHALLOW WATER SITES NEEDS TO BE UNDERTAKEN BEFORE WE SCHEDULE ANY MORE SHALLOW WATER LEGS.

4. A DP SHIP LIKE THE *JOIDES RESOLUTION* IS SAFER THAN A JACK-UP OR ANCHORED DRILLSHIP. MONEY IS NOT NEEDED, THEREFORE, FOR ADDITIONAL PLATFORMS BUT FOR ADEQUATE HAZARD SURVEYS.

5. ODP CAN DRILL FOR SCIENTIFIC OBJECTIVES WITH MUCH LESS DETAILED SEISMIC INFORMATION THAN IS AVAILABLE TO INDUSTRY, BUT OUR SAFETY STANDARDS CANNOT BE ANY LOWER THAN THOSE OF INDUSTRY.

MID-ATLANTIC TRAN

0189, 348-Add 8/91

S91 #2 OHP, #4 SGPP

F91 prospectus #2 OHP

SEA LEVEL ⇔ "ICEHOUSE" WORLD

onshore — offshore transect

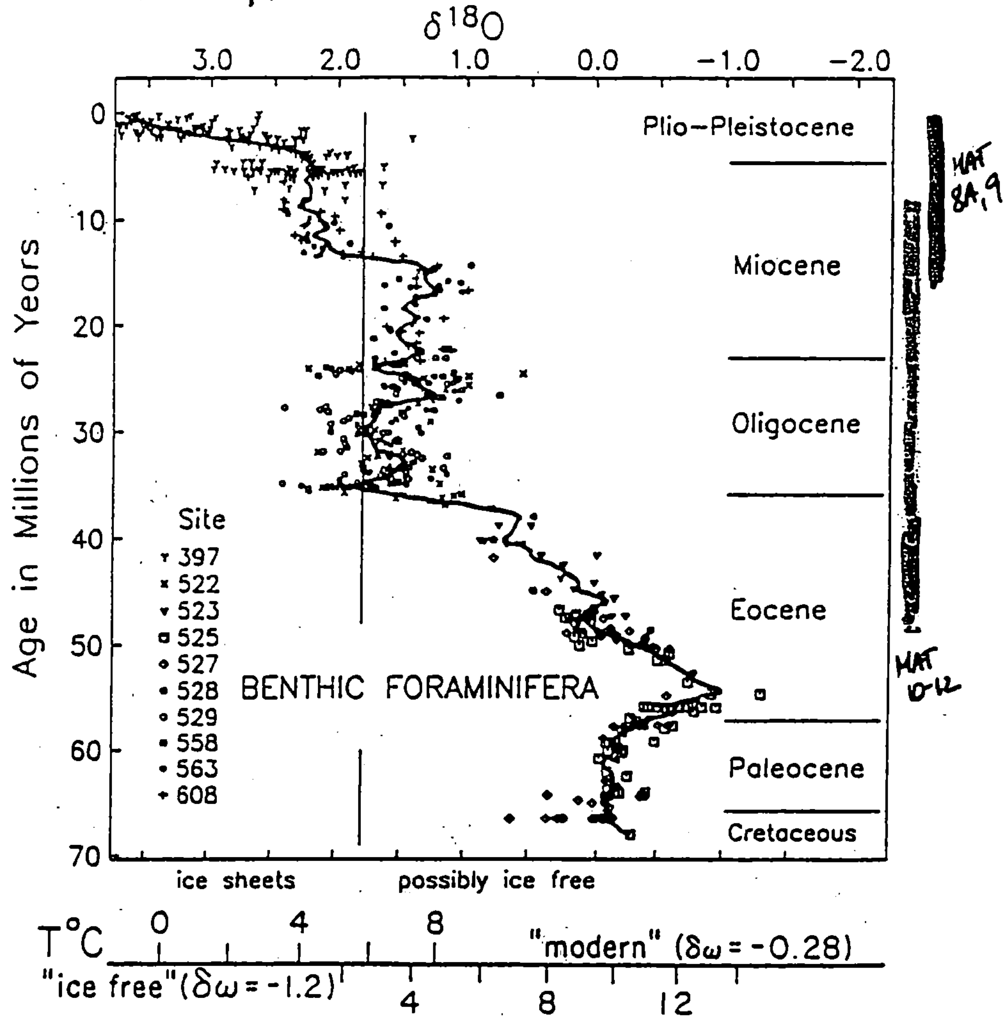


Figure 5. Composite benthic foraminiferal oxygen isotope record for Atlantic ODP sites. The vertical line is drawn at 1.8 ‰; values greater than this suggest the existence of large ice sheets (from Miller *et al.*, 1987).

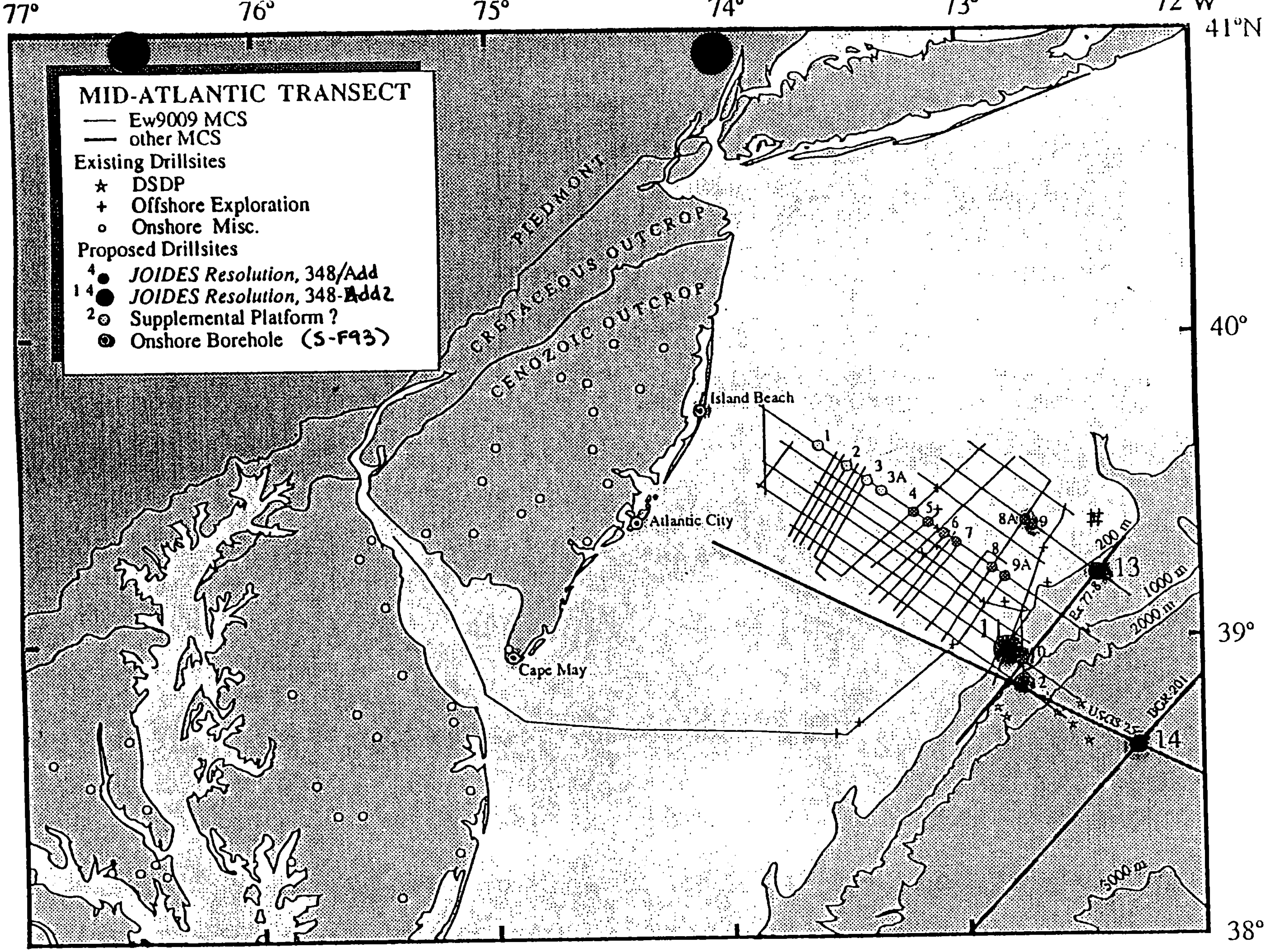


Figure 1 - Location map of the Mid-Atlantic Transect. The drill sites originally described in ODP proposal 348-A are located on the primary seismic data from Ew9009. Sites MAT13 and 14 plus deepening MAT11 are new to this proposal, and rely in part on the additional MCS lines Exxon 77-8, USGS 25, and BGR 201 shown in bold lines.

Appendix 25.1

☺ "REVISED LEG

Appendix 25.2

		depth (m)	sed. thickness (km)	~ targeted drilling (m)	reflector ages
"SHELF SITES"	MAT 8A	91 m	~15 Km	1100 m	(<14 Ma)
	MAT 9	90 m	~15 Km	~800 m	(<14 Ma)
"SLOPE SITES"	MAT 10	806 m	~10 Km	1000 m	(10-49.5 Ma)
	MAT 11	430 m	~10 Km	1000 m ~1270 m	(10-49.5 Ma)
	MAT 12	1298 m	~10 Km	550 m	(?17.5-49.5 Ma)
	MAT 13	345 m	~10 km	937 m	
	MAT 14	2761 m	~10 Km	1300 m [approved to 1000 m for Leg 95; not drilled - time constraints]	

SUMMARY:

- deepen MAT 11 to same stratigraphic level as MAT 10, 12 (originally not because of time constraints)
- add new slope site MAT 13
- add new rise site MAT 14

ADVANTAGES:

- thematically coherent, scientifically exciting
- "prototype" sea level effort, community involvement
- constructive solution to difficult problem

DISADVANTAGES:

- shift in scientific emphasis within sea level area (but may be OK)
- not reviewed by thematic panel structure (but favorable responses watchdogs, others)
- time for needed reviews (SSP, PPSP)

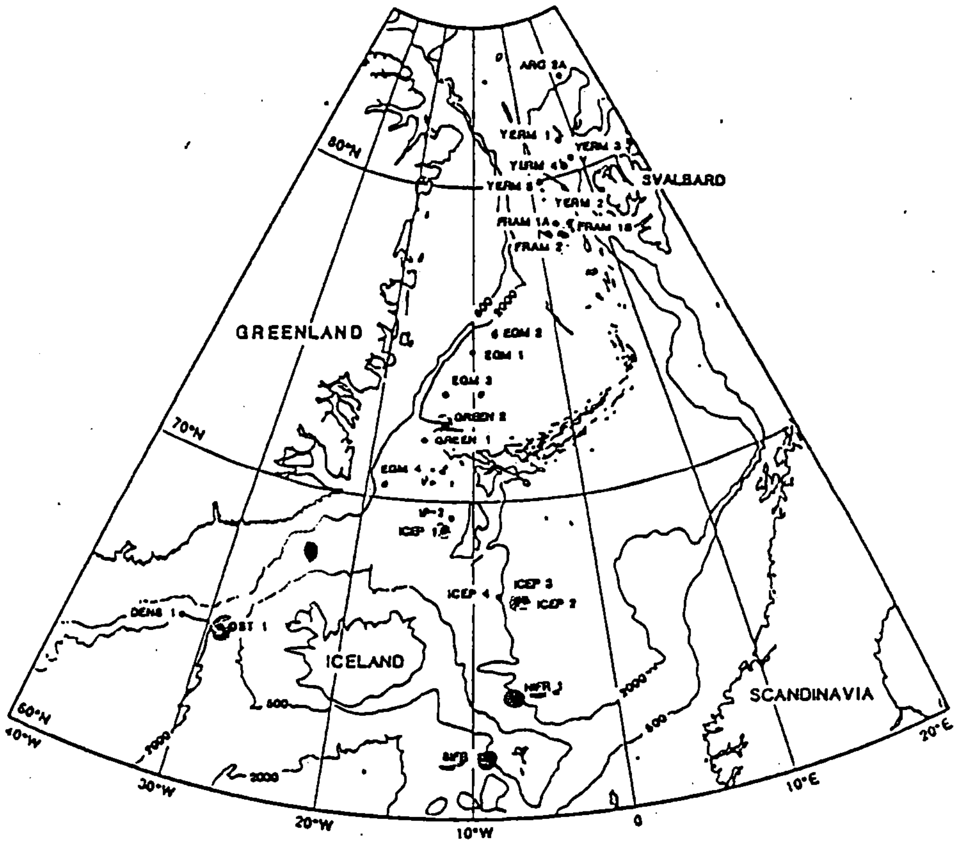
SHALLOW WATER DRILLING / SEA LEVEL STILL OPEN QUESTION. MAT1-7, MAT 8A, 9

 Appendix 25.4

JATIUES:

① ——————

• II



X

Figure 3. Bathymetry in meters and locations of NAAG sites (from proposals 305, 320, and 336). More detailed location maps are available in the original drilling prospectus, available from the JOIDES Office. (Map courtesy L. Gahagan, PLATES/UTIG.)

NAAG-DPG SITES   ICELAND-FAROE RIDGE (SOUTHERN GATEWAY)

NIFR-1   63°50'N 7°05'W   2000 m water d.,
1000 m sed. penetration
8.6 days drilling + 1.9 d logging = 10.5 d

SIFR-1   62°N 9° W   1500 m, 500 m sed. penetration
5.2 days drilling + 1.5 d logging = 6.7 d

} 17.2 d

NAAG-II (includes these sites) 2ND in OHP S92
global ranking

② HIGH-RESOLUTION LATE NEOGENE SITES (SITES-OF-OPPORTUNITY)
Reoccupation (APC-only) DSDP 116, 1150 m water depth
(372, 406)
Bermuda Rise site (APC-only) 404

Data Organization

Example Directory structure

Leg # 139 ~ 225 Mb

A. Documentation (data formats, hole information, etc.)

B. Hole #

1. Conventional log data
   a. acronyms
   b. processing information
   c. logging data (ASCII)

2. FMS / Dipmeter
   a. dipmeter (ASCII)
   b. FMS images (PBM raster)
   c. FMS data (LIS)

Appendix 26.1

ODP CD-ROM

- Evolving quickly, commitment needed
  IHP endorsed
- Cooperative effort with TAMU to
  share remaining space
- Funds available only for first CD-ROM
  (Leg 143 IR volume)
- Prepared request to JOI for $100k, FY93
  - 2/3 production costs
  - 1/3 develop self-sufficiency
- Request PCOM action to endorse this
  priority for spending

Appendix 27.0

DEEP DRILLING PROPOSA

* DEEP DRILLING PROPOSAL SPECIFICATION AND DCS WERE THE TWO MAJOR AGENDA ITEMS AT THE OCTOBER 7 - 9 TEDCOM MEETING.

* SEPARATE SESSION WAS HELD SPECIFICALLY FOR DEEP DRILLING.

* SPECIFICS OF TYPICAL DEEP HOLE LITHOLOGIES WERE PREPARED, DISCUSSED AND FINALIZED (TWO SCENARIOS).

* SUBSEQUENT MEETING HELD IN HOUSTON WITH TWO TEDCOM PARTICIPANTS AND ODP ON OCTOBER 20, 1992.

* DOCUMENTS ARE FINALIZED AND ARE READY TO BE MAILED WITH A BID PACKAGE.

Appendix 28.0

MARGINS Research Initiative

Primary Goal

° Develop integrated research programs aimed at developing an understanding of the physical processes that control the initiation, evolution and destruction of continental margins.

Components:

° Mechanics of lithospheric deformation

° Magmatism and mass transfer

° Sedimentary processes

Margins are the principal locus of activitiy of these processes.

"Mechanics of Lithospheric Deformation : The Initiation, Evolution and Destruction of Continental Margins"

Three major classes of phenomenon present particularly enigmatic problems that can be posed in the form of major paradoxes.

- **Fault stresses.**

There is presently no adequate theory to account for the observed tectonic process that accommodates virtually all the deformation at margins.

- **Lithospheric strength.**

There is a major discrepancy between the strength of the lithosphere estimated by integration of the "yield strength envelope" and the most optimistic estimate of the strength of the driving forces.

- **Vertical strain.**

Because of the lithosphere's layered rheology the mode of deformation of the upper crust probably provides little insight into the way in which the rest of the lithosphere deforms. Hence, we have little if any basic description of how the lower crust and mantle behaves during deformation, and a very incomplete physical understanding of the mechanisms involved.

CONCEPTS:

• Definition of research objectives in terms thematic problems - the paradoxes - rather than area-specific or methodology specific

• Suggested studies aimed at understanding the nature of the fundamental processes of plate interactions rather than "the structure and tectonic history of..............."

• This leads to somewhat different uses of resources including the potential use of the drill ship. For instance, one important approach is to use drill hole measurements of in situ stress fluid pressures, fluid composition and permeability in the immediate neighborhood of an actively slipping major fault. However, to escape surface effects, deep holes are required; deeper than the Ocean Drilling Program is currently capable of drilling.

PLANS

- Two workshops planned for May 1993 in Austin Texas. JOI will be handling the logistics. Topics are

  - Margin Magmatism and mass transfer

  - Margin Sedimentation and the stratigraphic record

- Results of these workshops together with the Lithospheric Deformation workshop in 1991 will be combined into a Science Plan for Margins research by Nov. 1993