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ATLANTIC REGIONAL PANEL MEETING

Société Géologique de France
January 23 - January 26, 1984

Minutes

Present: ARP members: L. Montadert, J. Austin, O. Eldholm, L. Jansa, R. Kidd,
K. Klitgord, J. Mutter, W. Schlager, J. Thiede, B. Tucholke.

PCOM Liaison: J. Honnorez.

TAMU: L. Garrison.

NSF: H. Zimmerman.

In attendance: J.C. Sibuet, G. Boillot, Ch. Ravenne, J.P. Herbin, P. Le Quellec.

I - New advisory structure of ODP

J. Honnorez presented the new ODP advisory structure. It is composed of:

- . 3 thematic panels:
 - . lithosphere
 - . tectonics
 - . sediments and ocean history.

- . 5 regional panels:
 - . Atlantic and adjacent seas
 - . Central and Eastern Pacific
 - . Western Pacific
 - . Indian Ocean
 - . Southern Oceans.

- . A technology and engineering development committee.

- . Task groups: they are adhoc groups working at request of PCOM on resolving communication problems between panels.

II - Organization of the project

L. Garrison presented the new organization of the project. There is no more "Chief scientist".

Three ships are presently in competition for the drilling contract. The capability of the new ship will be:

- 26,000' water depth,
- 30,000' drill string
- drilling with riser to 6000' water depth which the Panel noted allowed targets on the shelf and upper slope only. Jansa commented that many objectives outlined at COSOD for riser drilling would still not be possible. Only when 10,000' of

riser becomes available will we begin to go beyond present-day technical capability.

The Panel discussed at length the procedures for drilling clearance since over 3/4 of the proposed sites are located outside the jurisdiction of Joides member countries. It was agreed that it was impractical to request site surveys and drilling together but proposal authors should provide names of contacts in the relevant countries to provide support for requests.

III - The future program of drilling

J. Honnorez reviewed the program of drilling and the priorities as established during the last 10-12 January 1984 PCOM meeting.

1984 - October	Gulf of Mexico
December	Bahamas
1985 - February	Barbados
April	Mid Atlantic Ridge

June	Labrador
August	Norwegian Sea
October	Mediterranean
December	Mediterranean
1986 - February	NW Africa
April	Caribbean
June	504 B
August	Peru Chile Trench
October	Chile rise - Chile
December	Weddell Sea

Only the first four legs (Gulf of Mexico, Bahamas, Barbados and the Mid Atlantic Ridge) are considered by PCOM to be firm, assuming a 1 October 1984 start. All

subsequent legs are in competition for drilling time. If the drilling program is delayed beyond October 1984, all legs will be reconsidered.

In conclusion J. Honnorez emphasized the urgency for completing the membership of the ARP, for discussing the program in the Atlantic and if possible for establishing priorities.

IV - ARP Membership

J. Honnorez advised the ARP that six more members can be nominated, among them three at least must be members of the thematic panels.

After discussion, the panel proposed that three names had to be chosen, if possible from the following list, as liaison members with the thematic panels.

Lithosphere	1 - K. Bostrom
	2 - P. Robinson
	3 - J. Hawkins

Tectonics	1 - A.W. Bally
	2 - J. Ewing
	3 - K. Becker

Sediments and Ocean history	1 - Y. Lancelot
	2 - W. Hay
	3 - E. Suess
	4 - R. Sarge

As a second step and to achieve a reasonable representation of scientific views in the panel it was also decided to choose three other names if possible from the following list:

Industry representation	1 - P. Vail
	2 - W. Ziegler
	3 - A. Green
	4 - P. Lehner
Biostratigraphy	1 - Van Hinte
	2 - Gradstein
	3 - P. Lohman
	4 - Ruddiman
Organic Geochemistry	1 - Summerhayes
	2 - J.P. Herbin
	3 - E. Suess
Geophysicist	J.C. Sibuet

The panel gave a mandate to the chairman to contact these scientists and propose the names to the PCOM for approval.

V - The Mediterranean proposals

The ARP and the Mediterranean had a joint meeting during the afternoon of the 23rd of January.

J. Mascle presented the provisional priorities as defined by the working group.

Priority 1

A - Tyrrhenian Sea (E Sardinia)

Objectives: rifting and subsidence of a young back-arc basin
 Oceanic crust
 Continuous stratigraphic section.

Drilling: a NW-SE transect of 4 to 5 holes with a penetration of 400 m to 1000 m

No further site surveys are needed.

B - SW Mediterranean ridge

Objectives: 1) Plio. Quaternary tectonics of an accretionary wedge (Med ridge)

2) Tectonics at the base of the slope in the Hellenic Trench

Drilling: - a SW-NE transect of 3 to 4 HPC, across the S.W Mediterranean ridge

- One hole about 700 m deep in the Hellenic trench near site 127.

More site surveys are needed

Priority 2

A - Malta escarpment

Objective: Pre-Neogene history of the Eastern Mediterranean.

Drilling: 3 holes on the escarpment and at the base of the escarpment.

No site survey needed.

B - Pre-Messinian history

1 hole on Erathosthenes seamount,

1 hole to deepen site 375 on Florence rise,

3 shallow holes south of Crete,

Site survey needed for south of Crete.

C - Rhone deepsea fan

Objective: Architecture of a deepsea fan

Drilling: 5 HPC + 1 deep hole (800 m).

No site survey needed.

D - Alboran Sea

A complete Plio-Quaternary section (HPC) to complete an E-W transect through the Mediterranean.

Priority 3 - Eastern Mediterranean Ridge

Other proposals are not yet documented:

N Aegean trough

N Crete

After the meeting the following comments were made by the panel, which will be transmitted to J. Mascle:

1/ For the next meeting a complete package with data and a better definition of the objectives, taking account of drilling time on each site, must be prepared and submitted to the ARP,

2/ Why has the Rhone deepsea fan been second rated? L. Montadert reported that the proposal was not considered as typically related to Mediterranean geological problems,

3/ The proposed HPC Mediterranean Ridge transect must be completed by a hole in front of the ridge to sample an undisturbed section. Some concern was also expressed about the concept of interpreting the rate of tectonic uplift of the ridge from sedimentological analysis alone; site surveys must demonstrate that it will be possible to separate the effects of regional tectonics from local salt tectonics.

4/ The proposed Hellenic Trench deep hole must be located on a good seismic line with a reflector as a target,

5/ The Mediterranean WG could already discuss sites which need drilling with a riser.

6/ The Med W.G; should outline the advantages of drilling a young (Tyrrhenian) passive margin.

VI - Gulf of Mexico

The panel observed that, with the first priority being the Yucatan Basin, this leg was more a "Caribbean leg" than a "Gulf of Mexico" leg.

There was a discussion about the best strategy to get the complete section and the basement at CAR 7. The proposed site needs 2000 m of penetration with a reentry hole and it was observed that ODP will begin with a hole already at the technical limits of the former Glomar Challenger..

Finally, the following motion was put forward:

The ARP recommends that the Caribbean Working Group identify a site or sites in the Yucatan Basin which will provide as complete a stratigraphic section as possible and penetrate the basement.

Based upon an examination of the Rosencrantz proposal document (Fig. 4), two drilling strategies are suggested:

A - Drilling a single-bit hole penetrating sedimentary units C + B atop one of the NE-SW trending basement ridges characteristic of the western Yucatan Basin, then offset, wash through units C + B, and drilling (with reentry if necessary) unit A to basement (including high-amplitude reflections immediately overlying the acoustic basement not now sampled by the proposed site).

B - Drilling a reentry hole to the basement, sampling all three overlying sedimentary units (including the high-amplitude reflectors at the base of unit A previously mentioned).

ARP requests that the CWC define this site or sites specifically in terms of depths to particular targets (seismic sequence boundaries and top of basement) using velocities available from the multichannel seismic results

Moved by J. Austin
 Seconded by K. Klitgord
 For 10
 Abstain 0

Priority 2 (De Soto canyon): It is intended, with 2 holes, to get a detailed Pleistocene section near the Mississippi fan. J. Honnorez specified that these sites must not be considered as alternatives during the Yucatan basin leg, but as substitutes if clearance is not obtained for drilling in Mexican waters. No proposal being available, the panel requested that Kennett and Moore submit their proposal for comments by an individual from the ARP. Tucholke will contact them.

The panel also suggested to the Caribbean WG to study an alternative basin site in the Caribbean but not in Mexican waters.

VII - Bahamas

Schlager presented the geological background and the objectives for drilling.

Objectives

Target areas

- | | |
|---|--|
| 1 - Platform segmentation
(drowning VS grabens) | Straits, P. Channel, Blake, Exuma,
Columbus, Santarem |
| 2 - Slope sedimentation
(Sea level, arag. dissol) | Blake, Exuma. |
| 3 - Escarpment retreat
(submarine erosion, turbidites
VS Contourites) | Eleuthera, Salvador |
| 4 - Gulf Stream history | Straits |

All sites are in Bahamian waters and must be surveyed this year with still some uncertainties about getting the necessary authorizations from the Bahamas. A discussion followed on the site surveys. The ARP recommended that the grid on Little Bahama had to be done first with strike lines with a 2.5 km spacing and then along slope lines located following indications given by the strike lines.

Tucholke emphasized the need for 2 HPC holes on the slope, considering the variability of sedimentation and the possibility that the Plio-Quaternary is missing.

Ravenne and Le Quellec presented their proposal for drilling on the Eleuthera fan. The area was surveyed by Seabeam and high-resolution migrated multichannel lines by French institutions but also intensively studied by coring by the University of Miami. The aim of the proposal is to study deep carbonate deposits put in place by gravity processes and to compare them with deepsea-fan deposits with siliceous material.

The panel was unanimous in considering the proposal as a nice piece of work which could justify a full leg of drilling with additional drilling on the Bahamas.

After discussion on the priorities, the following motions were put forward:

- The ARP recommends that the carbonate platform segmentation/evolution problem in the Bahamas should continue to be assigned the highest priority and, in addition, that it should be investigated with two sites: Florida Straits as the primary site and Exuma Sound as the second site (proponents Schlager et al.). The third priority sites are the slope sedimentation sites on the Little Bahamas Bank north slope with back-up sites on the edges of Exuma Sound. A fourth priority back-up site is a hole in the Eleuthera carbonate fan proposed by C. Ravenne and P. Le Quellec.

Moved by K. Klitgord

Seconded by L. Jansa

For 10

Abstain 0

The ARP recommends that Ravenne and Le Quellec:

- 1/ reevaluate their seismic data in the context of the Sheridan et al. objective of examining the origin of the bench at the foot of the Bahamas escarpment and
- 2/ they document one or two optimal drill sites to achieve this objective. At the next ARP meeting these sites will be reviewed as possible back-ups for the Bahamas sites noted in the first motion

Moved by B. Tucholke

Seconded by R. Kidd

For 10

Abstain 0

A typical scenario for the Bahamas leg would be:

- 1/ Florida Straits - reentry hole, 800 m - 18 days,
- 2/ Exuma Sound - reentry hole, 800-1000 m - 18 days
- 3/ Little Bahamas - 2 HPC - 11 days
- 4/ alternative - Eleuthera fan and escarpment, 700 m

If the site surveys planned during 1984 could not be done, ARP recommends considering a leg with priorities 1 and 4.

The panel requested Schlager to prepare a proposal following those lines.

Following the PCOM request, Mullins, Sheridan, Ladd and Austin in addition to Schlager were proposed as proponents for the Bahamas sites.

VIII - Barbados

ARP did not discuss this leg since the Caribbean WG will meet at the beginning of March.

IX - M.A.R.

Apparently there are two possible targets for bare-rock drilling (much depends on its availability at that time):

- 1 - with re-entry Famous area
- 2 - without re-entry Kane fracture zone/MAR.

The strategy was defined by PCOM. This leg must nevertheless be reconsidered if no Seabeam data are available.

X - Labrador Sea

L. Jansa described the geological background and the objectives of the proposed drill sites:

- 1/ dating the spreading history, especially the 1st phase of spreading between An. 33 and An. 25-23.
- 2/ documenting the change from rifting to drifting.
- 3/ the record of glaciations
- 4/ late Cretaceous and Tertiary paleo-oceanography.

The different sites were discussed and especially site 1A, a deep site (more than 1800 m) for documenting the old history of the Labrador Sea. Examination of the seismic profiles shows that hole 1A would probably encounter, after 1800 m of penetration, Paleocene basalt flows of unknown thickness. Even if a "window" were defined by the planned site survey, it would then be a 2000 m hole with non basement objective which is considered as an unrealistic target. Site 5 was also moved to 5B where a slightly older crust could be found.

J. Thiede emphasized that drilling in the Labrador Sea is an important target for the paleoenvironment, i.e the history of connections between Arctic and Atlantic.

To get an answer, a site (2) is needed on the Canadian side and a site (5) on the Greenland side. Site 3 would give the most complete record.

Finally, the panel redefined the objectives and priorities as follows:

- | | |
|---|---------------------|
| 1 - Glacial record | Sites 3, 2, 5B (1A) |
| 2 - Circulation history of the Atlantic | Sites 3, 2, 5B |
| 3 - Dating of magnetic reversal | Site 3 |
| 4 - Old sediments | Site 1a |
| 5 - Old crust | Site 1a |

Drilling in Baffin Bay was considered as an outstanding objective, but there are many technical problems which will be investigated by L. Garrison.

Jansa will provide members of the ARP with revised proposal prior to the next meeting.

XI - Norwegian Sea

The drilling objectives were defined as follows:

- 1 - Paleoenvironment (Eocene to present)
Dipping reflectors
- 2 - Along strike subsidence
- 3 - Jan Mayen ridge.

J. Mutter and O. Eldholm described the problem of dipping reflectors found along many passive continental margins (Greenland, Rockall, Walvis Ridge, SW Africa, etc.) and clearly displayed on the Outer Voring Plateau. They compared the dipping reflectors found along the margins with lavas in Iceland. These could be oceanic lava flows produced at a subaerial spreading center which after some time become a normal deep spreading center. Other authors consider that the dipping reflectors are alternations of lava flows and sediments produced during rifting.

The merits of a detailed coring program for paleoenvironmental targets in the eastern Norwegian Greenland Sea were discussed by ARP. It was felt that many of these objectives which were given a high priority could be achieved at the same site or sites which are planned for addressing the dipping reflector problem.

To attain the objectives a single HPC + deep hole with reentry will be defined by the Norwegian Sea WG at its next meeting in March. At the site the dipping reflector thickness must not exceed 250 m to ensure penetration into the basement which is essential for resolving the problem. A number of Panel members expressed reservations that it would be difficult to demonstrate that basement had been reached if it was oceanic.

There is a technical problem in recovering possible sediments alternating with lavas. L. Garrison will investigate the best technique to be used.

XII - NW Atlantic

B. Tucholke remarked that many outstanding objectives still have to be solved by drilling in the NW Atlantic:

1/ ENA 3: The previous hole stopped 300 m above the basement. It is still an outstanding objective for a reentry hole.

2/ Calibration of the seismic stratigraphy of the basin N of the New England Seamounts up to the Newfoundland Basin and the M.A.R. In the Newfoundland Basin locate site conjugate to Galicia Bank with objectives similar to those listed for the Galicia Banks.

3/ Horizon A unconformity (Eocene/Oligocene?): it is a very important paleo-oceanographic event whose exact age is still not known. It needs two Western Atlantic holes to determine the onset of the event.

4/ drilling of ENA 8 - dipping reflectors, oceanic-continental crust (continental fragments), transform margin.

XIII - Galicia Bank

G. Boillot (University of Paris) presented the objectives of the proposed sites. The main objectives are:

- Transition from continental crust to oceanic crust,
- Pre-rift and syn-rift sedimentary record,
- Dating the opening between Iberia and N America,
- Mesozoic paleo-oceanography.

The area is well surveyed (MCS, Seabeam Gloria). The sites were already presented at the Safety Panel during IPOD.

The panel recognized the outstanding quality of the data and the unique opportunity to obtain information on the early history of a passive margin and on the nature of the crust, due to the very thin post-rift sediments and the outcropping of the faulted side of well-defined tilted blocks. Conjugate margins could be examined if this was teamed with new found land margin drilling.

A leg on Galicia Bank is considered by the panel as a substitute for any other legs in the North Atlantic.

A proposal by Kidd, Mauffret, Gardner and Hailwood on Porto and Vigo seamounts would complement the objectives previously defined for such a leg. They proposed HPC sites for an analysis of post-Eocene paleo-circulation along the margin.

XIV - W - Africa

J. Thiede presented the proposal by Sarnthein, Hinz, Von Rad, Wissmann and Faugeres: Cenozoic events in oceanic and atmospheric circulation off NW Africa.

It is a transect with 13 sites from Sierra Leone to Gibraltar to obtain paleo-oceanographic records from a number of different surface, upwelling and bottom water masses and to monitor long-distance dust transport. The panel recognized the importance of the proposal but recommended prioritization.

Another proposal was presented (Weaver and Kidd) for two drill sites on the Madeira Abyssal Plain and the Saharan Continental Rise. The purpose is to investigate the history of sediment instability on a passive continental margin as contained in the sediment sequences of its adjacent deep ocean basin and continental rise.

Moreover the ARP will have to review two other proposals at a later meeting:

1/ By K. Hinz and E.L. Winterer who defined the major unsolved problems to be attacked by drilling off NW Africans:

- Ocean-continent boundary and accurate time of commencement of sea floor spreading in the central North Atlantic,
- Relation between carbonate platform growth and drowning and plate tectonics events,
- Progressive downfaulting and subsidence from the west to east.

They suggest: deepening of site 545 to the basement, drilling site MAZ 8, drilling in the area of the Central Mazagan Crustal blocks, drilling near S1 magnetic anomaly to the basement if possible.

2/ By Austin and Hayes following the detailed survey conducted recently along Morocco.

Four proposals will be in competition for drilling along NW Africa. The ARP asks for formal proposals with priorities to be submitted to the JOIDES office, for discussion at the next meeting.

J.P. Herbin (IFP) presented a proposal for drilling along the African continental margin from the Gulf of Guinea to the Guinea fracture zone to study the Cretaceous history of circulation between the South and North Atlantic. It was recognized as an important topic to be considered for future planning. More site surveys are needed.

XV - Final discussion

The ARP recognized that it was not in a position at this meeting to submit to the PCOM priorities between the different proposals. Too many proposals are not in formal shape with priorities and realistic estimates of drilling time. Also, the panel is not yet completely staffed and it could be considered that a reasonable representation of scientific views is still to be achieved. Nevertheless it seems clear to the panel that, even allowing for changes in the program due to political reasons or a delay in the commencement of ODP, there are a number of very valuable scientific proposals which are ready for drilling and can be used as substitutes.

These are:

Galicia Bank

ENA 3

ENA 8

Eleuthera carbonate deepsea fan

S. Bermuda Rise (SITE 417)

Rhone deep-sea fan

Sites in the NW Atlantic

Sites along NW Africa.

At its next meeting, the ARP will be in a better position for prioritization. Montadert was asked to present these views to the PCOM at the March meeting.

XVI - Next meetings

L. Montadert will attend the PCOM meeting on 20-22 March in Washington,
 ARP Meeting, 9-11 May, Miami (U.S.A.),
 ARP Meeting, 10-15 September, Grenoble (France).