MEETING OF JOIDES DOWNHOLE MEASUREMENTS PANEL

King Kamehameha Hotel
Kailua-Kona
Hawaii

28-30 January 1992

EXECUTIVE SUMMARY

1. Key thrusts of this meeting were the question of third party tools and how the guidelines are to be enforced, the public information brochure for ODP downhole measurements, and the issue of log data processing, acquisition and distribution.

2. The enforcement of the guidelines for the development of third-party tools requires a redrafting of these guidelines into a format that is suitable for stand-alone distribution within the ODP community. It is envisaged that this format will be that of a public information brochure. The redraft should retain the essence of the existing guidelines but should make, inter alia, the following additional points.

   (i) A distinction should be drawn between tools that are developed specifically for ODP and those that are being developed for other purposes but that ODP might wish to use.

   (ii) ODP development tools must be deployed in test mode, i.e. by their very definition they are not ODP mature tools and the scientific success of a leg should not be contingent upon the proper functioning of such a tool.

   (iii) There should be a cut-off date (perhaps 6 months before a tool is scheduled for deployment) by which time the tool must have satisfied all the relevant development criteria, as contained in the guidelines. Otherwise the tool should be withdrawn.

   (iv) The public information literature should include a pro-forma letter of accedence for completion, signing, and submission to ODP by the Principal Investigator before a development tool is accepted for test scheduling.

   (v) The public information brochure must include the names of key contacts within the permanent ODP structure.

   (vi) Funding should be adequate to allow the appropriate ODP contractor to carry out necessary day-to-day monitoring of tool development.

   In view of the urgency of this matter, the brochure should be targeted for completion no later than August 1992.

[DMP Recommendation 92/1 : to PCOM]

3. Panel agreed a detailed breakdown of the proposed publicity booklet on ODP downhole measurements. This breakdown encompasses a discussion of the rationale for and principles of downhole measurements, illustrations of the application of downhole measurements to eleven recognized branches of earth science, and an overview of the relationship of downhole-measurement data to core and geophysical information. Target date for publication is May 1992.

4. A Publications Subcommittee has been formed to progress the public information documents on third party tools and ODP downhole measurements. This subcommittee comprises DMP Chairman, LDGO and TAMU Liaisons to DMP, and the ODP Public Information Coordinator. The subcommittee will meet in College Station on 12 February 1992.

5. Panel considered that the PCOM decision to relegate the logging objectives of Leg 142 to alternative status was made at too late a stage. If JOIDES Committees/Panels feel it necessary to alter drilling and/or logging priorities after a leg has been fully staffed, it is imperative that shipboard scientists be informed of these changes prior to their departure for the leg.

[DMP Recommendation 92/2 : to PCOM]

6. Panel endorses the long-term scientific vision of the logging contractor in terms of an on-line data archive for logs, onshore processing where not possible on board ship, and greater involvement in ODP logging science by the scientific community at large.

7. In view of the growth in demand on LDGO for log data, it is important that appropriate manpower be dedicated to data dissemination. In the longer term, computer access to a central archive of log data would facilitate the acquisition of these data by the community at large. Steps should be taken to explore this possibility with a view to its potential adoption in the future. Panel views the greater dissemination of log data as an important ongoing responsibility of the logging contractor.

[DMP Recommendation 92/3 : to PCOM]

8. Excellent progress is being made in developing all three of the top priorities identified by DMP and LITHP for high-temperature downhole tools. They are temperature and resistivity tools, and a borehole fluid sampler.

9. The logging contractor is encouraged to pursue the acquisition of a high-spatial-resolution magnetic susceptibility tool, especially in view of the strong implications for studies of palaeoclimate.

10. The steering group for in-situ pore-fluid sampling, approved by PCOM in December 1991, could not be activated in time for this DMP meeting. In any case, this meeting is being held away from the centre of gravity of members and the funding situation is unclear. If the funding position becomes positive, the group should meet in College Station in March. This would be the only time that the group would meet outside DMP meetings.

11. Panel encourages the proposal to drill closely spaced boreholes in the ocean lithosphere to investigate the scaling of heterogeneity. Appropriate technological input should be sought at an early stage of the planning process.

12. Roy Wilkens is rotating off DMP : replacement nomination(s) are being collated.

13. The next DMP meeting is scheduled to take place in Windischeschenbach, FRG, during the period 2-4 June 1992.

PAUL F WORTHINGTON
17 February 1992

MEETING OF JOIDES DOWNHOLE MEASUREMENTS PANEL

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MINUTES

Present

Chairman:	P.F. Worthington (UK)
Members:	R. Desbrandes (USA) J. Gieskes (USA) S. Hickman (USA) M. Hutchinson (USA) P. Lysne (USA) M. Williams (USA) R. Wilkens (USA) H. Crocker (Canada/Australia) H. Draxler (FRG) J.-P.Foucher (France) M. Yamano (Japan)
Liaisons:	A. Fisher (TAMU) X. Golovchenko (LDGO) B. Lewis (PCOM) J. McClain (LITHP) J. Mienert (SGPP)
Guests:	P. Dauphin (NSF) J. Karsten (Univ. of Hawaii)* J. Ladd (LDGO) T. Lautzenhiser (Amoco) K. Riedel (TAMU)
Apologies:	O. Kuznetzov (Soviet Union) R. Morin (USA) C. Sondergeld (USA)
Absent:	N. Balling (ESF) E. Winterer (Scripps)

* Present for Agenda Items 17-22 only.

1. Welcome and Introductions

The meeting was called to order at 0840 hours on Tuesday 28 January 1992. The Chairman welcomed attendees to the first DMP meeting of 1992. A special welcome was extended to those attending for the first time: Steve Hickman (replacing Dan Karig on DMP), Brian Lewis (PCOM Liaison), and guests Paul Dauphin (NSF), John Ladd (LDGO), Ted Lautzenhiser (Amoco) and Karen Riedel (TAMU). Another guest, Jill Karsten (University of Hawaii), would be attending for the latter part of the meeting.

Key thrusts of the meeting were the question of third party tools and how the guidelines are to be enforced, the public information brochure for ODP downhole measurements, and the issue of log data processing, acquisition and distribution.

Review of Agenda

The precirculated agenda was adopted as a working document for the meeting.

2. Minutes of Previous DMP Meeting, AGC, Halifax, NS, 15-17 October 1991

The following modifications were proposed.

(i) Page 5, Paragraph 2, Line 2.

This should read

"Bottom-hole-temperature was 116°C at the beginning of the logging operation, ..."

(ii) Page 5, Paragraph 5, Line 3.

This should read

"...rate was 5-7 litres/minute at the beginning and stabilized at 3 litres/minute."

With these modifications the minutes were adopted as a fair record.

Matter Arising

McClain reported that there had been no TECP meeting since DMP last met, so he was unable to report any progress on the question of a TECP liaison to DMP. The Chairman noted that any such initiative would have to be driven by TECP, because DMP's earlier recommendation for such a liaison had not been accepted by PCOM.

3. Chairman's Annual Report

The Chairman presented, for the information of the Panel, his annual report to PCOM given on 4 December 1991.

Three DMP meetings had been held during 1991: at ODP-TAMU, College Station (February), LDGO, New York (June), and AGC, Halifax, Nova Scotia (October). The February meeting had encompassed a working group meeting on logging in tectonically active areas, the June meeting had

included a joint meeting with JOIDES SGPP, and the October meeting had incorporated a joint meeting with JOIDES SMP.

Three meetings are planned for 1992: Kailua-Kona, Hawaii (28-30 January), Windischeschenbach, FRG (2-4 June), Santa Fe, New Mexico (September). The June meeting will encompass a joint session with the German KTB programme.

Current panel membership is 16 (9 from USA, 7 from international partners), of whom 6 are from universities (2 from JOIDES institutions), 5 are from government laboratories and research institutions, and 5 are from the oil industry. During 1991 four panel members rotated off or resigned. They were Carson (replaced by Desbrandes), Villinger (Draxler), Stephansson (Balling) and Karig (Hickman). Wilkens is due to rotate off in January 1992.

Highlights of the DMP year were as follows.

(i) Shipboard computer-based integration of core and log data.
(ii) In-situ pore-fluid sampling working group.
(iii) High-temperature downhole measurements.
(iv) Downhole measurement contribution to Leg 139.
(v) Working group on logging in tectonically active areas.
(vi) Joint meeting with SGPP.
(vii) Promotional presentations by Chairman on ODP Technology in London (May) and Victoria, BC (September).
(viii) Publications (in press) on ODP logging in Encyclopaedia of Earth System Science (Academic Press, 1992) and Yearbook of Science and Technology (McGraw-Hill, 1993).
(ix) Presentation of (Bill Meyer's) paper on log-core integration at SPE Asia Pacific Conference, Perth (November).

DMP directions for 1992 include the following.

(i) Establishing options for in-situ pore-fluid sampling.
(ii) Continuing the integration of core and log data.
(iii) Production of a public information brochure on ODP downhole measurements.
(iv) Specification of an enforcement mechanism for third-party tools.
(v) Speeding up the shipboard acquisition, processing and distribution of log data.
(vi) Progressive evaluation of technologies identified in the COSOD II white paper.
(vii) Lithosphere characterization by multiscale measurements.

Two causes for concern were identified.

(a) There is some evidence for a reversion to a pre-1987 mentality concerning the role of logs in ocean science. This mentality is manifested by a reluctance to log because logging impacts on core acquisition. The manifestation is confined to local pockets of ignorance but these should not be allowed to detract from the programme as a whole.

(b) There is still an inadequate general awareness of the scientific legacy of ODP holes in terms of integrated databases. Narrowness of vision and antiquated views are two prime causative factors.

Remedies that are being pursued include better education, more readily digestible information, and clearly demonstrating the benefits of the logging programme.

4. PCOM Report

Lewis reported on the most recent PCOM meeting held in Austin, Texas, during the period 4-7 December 1991. The primary objectives had been to hear from the panel chairs and to formulate the drilling plan for FY 93.

The FY 93 plan is as follows:

Leg 147	Hess Deep
Leg 148	Engineering, DCS
Leg 149	Iberian Abyssal Plain
Leg 150	New Jersey Sea Level
Leg 151	Atlantic Arctic Gateways
Leg 152	East Greenland Margin

PCOM responses to specific DMP recommendations were as follows:

Rec. No.	Description	PCOM Response
91/17	Steering group for in-situ pore fluid sampling	Accepted, but try to hold meetings in conjunction with DMP meetings.
91/19	Logging at 801C	Not accepted
91/21	Through-casing natural gamma logs	Not discussed
91/22	Logging at multi-hole sites	Not discussed
91/23	Core-log integration	General support, but will require consistent attention.

It was noted that a meeting of a working group in Toronto, Canada, on 5-6 March 1992 will examine how the shipboard computing system can be upgraded/modernized. This is an important prerequisite for addressing core-log integration goals.

5. Liaison Reports

(i) Sedimentary and Geochemical Processes Panel

Mienert reported that SGPP has a new panel chair (Judith McKenzie). The last meeting took place in Zurich in November 1991: the next is scheduled for Miami in March 1992.

A principal concern is in-situ pore-fluid sampling: the available technology is inadequate. SGPP endorses the development of new technology. The "top hat" approach to tool deployment should be investigated and, if feasible, should be tested on Leg 146. This would provide a back-up to Geoprops. OPCOM had recommended $350 000 for technology development over two years: Mienert enquired as to the current position.

Dauphin replied that NSF does not have before it a true OPCOM proposal with properly researched costs, etc. It is believed that some funds might be made available for high priority items.

Mienert referred to the proposed deployment of an alternative platform during Leg 150 (New Jersey Sea Level). It is important that logging should be feasible from an alternative platform. Lewis commented that all FY 93 drilling will be from the JOIDES Resolution: there are no funds for an alternative in FY 93. Lysne noted that the U.S. Continental Drilling Programme might provide onshore drilling that is tied to ODP: there is a possible area of collaboration that needs to be explored.

SGPP agreed to the discontinuing of supplemental science proposals and supported the DMP proposal to log Hole 801C.

(ii) KTB

Draxler reported that the KTB main hole had reached 5595 m on 15 January 1992. Current diameter is 14.75 inches: there is a 16-inch casing shoe at 3000.5 m. The estimated formation temperature at 6000 m, the next logging depth, is 175°C: cooling while drilling is likely to reduce this figure by about 50°C.

Coring has been undertaken only below 4000 m, the depth of the pilot hole. Total length cored (on 7 January 1992) was 134.7 m with a core recovery of 52.54 m (39%). Wireline sidewall coring has been undertaken over intervals where there are no cores: this has had a 95% success rate. However, the temperature limit for this system is 175°C which means that it cannot be used below 6000 m.

Some problems have been encountered with the Formation Micro Imager (FMI): a failure developed which could not be seen on the monitor. This was traced to a multiplexer fault that caused results to be duplicated so that the pad data were a mirror image of the flap data.

The Dipole Sonic Imager (DSI) has provided excellent results, especially in detecting fractures.

The DMT BHTV could not be run in the 14.75-inch hole on a long cable because the tool could not be adjusted for the cable characteristics on location. The circumferential borehole imaging tool of Atlas Wireline is being considered as an alternative to the DMT BHTV.

The development of high-temperature tools has been delayed because of the financial situation. This work would be undertaken by Schlumberger. A possible approach might be to commission development work now through a letter of intent and to schedule payment for 1993-94 when the financial situation has eased. The aims are to upgrade several tools to 260°C (e.g. AMS, 4-arm caliper, FMS, fluid sampler) and to further upgrade the AMS and 4-arm caliper to 300°C. KTB is also developing a cablehead for mineral-insulated cable rated to 300°C.

The tight financial situation is bringing pressure to drill faster. This would involve less coring and logging. The next logging depth is 6000 m. It is proposed to log for 21.5 days in two stages. The first, with the borehole full of mud, will include measurements of temperature build-up over 233 hours. The second will involve lowering the mud level, inducing inflow, and logging to detect the inflow zones: this stage will include the borehole gravimeter and zero offset VSP.

6. National Reports

Representatives of International Partners informed the Panel of developments in their respective countries that are relevant to the downhole measurements thrusts of ODP.

(i) Japan

Yamano reported that an ODP logging school is to be held in Tokyo during the period 20-24 July 1992. This coincides with a port call of the JOIDES Resolution. The plan is that the logging school will be followed by a symposium, a ship tour and possibly a tour of JAPEX.

There is a proposal to place a broadband downhole seismometer in Hole 843B (OSN 1) in 1994 or shortly thereafter. The systems to be developed include the seismometer itself, a large-capacity digital recorder, an acoustic link with a submersible, and a wireline re-entry system. An application has been submitted for a grant to fund the first stage of this development.

(ii) FRG

Draxler reported that the German annual ODP meeting would be held in Hamburg on 4-6 March 1992. This will include reports from different working groups and contributions on special topics.

FRG is looking at a 10-year renewal of ODP. There is concern over intellectual rights, e.g. patents. There is a need for specific technical public information that is professionally presented and translated. This would help to sell ODP within the community.

There is interest in the integration of ODP and KTB expertise for the development of a new European drillship. The research vessel SONNE has been restructured: it has dynamic controls and is ideal for ODP operations.

Aachen University recently asked for log data from ODP wells and were served very efficiently by LDGO whom they complimented. This represents the first push by German universities to use ODP logs.

Miernert reported that GEOMAR (Kiel) have acquired a multisensor core logger comprising P-wave velocity (similar to the ODP P-wave logger), density (similar to GRAPE), magnetic susceptibility and natural gamma spectral sensors. One aim is to create synthetic seismograms based on velocity and density measurements on piston cores. The sensors move over the core rather than the core being moved through the sensors. The time required to measure 1 m of core is approximately one hour. The idea is to use this system in conjunction with pre-site surveys, not on the JOIDES Resolution. The APC often smears the uppermost sediments and it is hoped that these piston-core measurements might complement and enhance ODP data.

(iii) France

Foucher reported that an ODP day had been organized in June 1991 to promote ODP. A new committee has been formed to consider the future of scientific ocean drilling in France. The committee saw ocean drilling as a high priority and wished to see a high-quality French involvement. In particular, they recommended that petrophysics should be developed in relation to the drilling programme. This would be achieved through targeted initiatives, e.g. the possible involvement of French groups in ODP log data processing.

A broadband seismometer experiment is scheduled for Hole 396B in 1992. Two seismometers are to be deployed, one in the hole, the other on the sea floor. The system is expected to be operational by June.

A new project (NATHALIE) is directed at high-resolution borehole magnetic imaging. This could possibly result in a third-party tool two years from now.

(iv) United Kingdom

The Chairman reported that a national technical meeting took place in London in May 1991. It was attended by about 200 scientists and industrialists. ODP logging technology was featured. There were also several thematic overviews of ODP science. These might be suitable topics for a series of specific technical publications, as mentioned in Item 6(ii).

An advisory committee was formed during 1991 to advise NERC on renewal. After carrying out a thorough review, including extended interviews of key personnel, the committee recommended renewal. This recommendation was accepted by NERC and the UK has now confirmed its intention to participate in ODP Phase II.

The ODP high-temperature resistivity tool is being built at the Camborne School of Mines (see Item 15(ii)). The Borehole Research Group at the University of Leicester is seeking a greater role in the processing and distribution of ODP log data.

(v) Canada/Australia

Crocker reported that the Australian ODP Secretariat is to move to the University of Sydney with Peter Davies taking over as Head. No definite decision has been made concerning Australian renewal but pre-Christmas indications were very promising. No feedback was available from Canada.

Crocker commented that Woodside Petroleum of Perth was planning long-term temperature and pressure observations to monitor production from five wells in the Cossack field. The system comprises a suspended downhole cable with sensors and an acoustic transponder on the sea floor. The sensors are opposite the producing zones. Certain North Sea fields already have such a system in place: in Norway it is mandatory for all new fields. In Australia, it is planned to install the system in two further fields. DMP should keep an eye on these developments because ODP might be able to use the technology. A UK company (Wood Petroleum (Services)?) was promoting downhole sensors. The Chairman undertook to investigate.

[ACTION: WORTHINGTON]

(vi) ESF

For the second meeting in succession, DMP had no ESF representative. No report was tabled.

(viii) Soviet Union

No Soviet representative was present. No report was tabled.

7. Tool Monitor Reports

(i) Geoprops Probe

Fisher reported that the Motor-driven Core Barrel (MDCB), essential for the deployment of Geoprops, had been satisfactorily tested on Leg 141 and was now declared to be operational. This means that Geoprops can be pursued realistically for deployment on Leg 146. Following the withdrawal of the proponent (Dan Karig), one of the Leg 146 Co-chiefs, Bobb Carson, had secured funding for the development of Geoprops to the status of an ODP Development Tool. The tool would undergo its first test at sea during Leg 146. Its development is to be overseen by the ODP tools engineer, Scott McGrath, formerly of Schlumberger.

(ii) LAST

Crocker had received no report from Kate Moran at this time.

(iii) BGR Borehole Magnetometer

Draxler reported that this three-component magnetometer was planned for gradient measurements in environments up to 160°C. A new sensor system had been satisfactorily tested with sensitivity in the range 0.1 nT. Heat sink tests were also satisfactory. Software needs to be upgraded to accommodate the new sensor system. BGR is looking for an orientation system. The tool could be deployed in ODP from March 1992 following its use in the KTB 6000 m logging programme, which would be regarded as the land test.

(iv) French Sediment Magnetometer

Foucher confirmed that the tool is scheduled for Leg 145 but the logistics have not been worked out. Previously the tool was run by the Schlumberger engineer with a French scientist in support. The French have received no formal confirmation that the tool is required. This needs to be rectified urgently as a first step.

[ACTION: GOLOVCHENKO]

(v) Japanese Borehole Magnetometer

Yamano reported that the tool is virtually complete. Final land tests are scheduled for mid-February. The tool is not designed for high-temperature holes and its strength ratings require that it be run separately for safety reasons.

(vi) Flowmeter

Both Becker and Morin had been unable to attend this meeting. No report was tabled.

8. Third Party Tools

The Chairman reported concern in the ODP community that the previously formulated guidelines for the development of third-party tools are not being enforced. The guidelines do not need to be changed but they might require redrafting in the form of an enforcement code. DMP is not an enforcement agency but the Panel has been asked to advise on this key issue. An important aspect of this initiative concerns enhancing public awareness that the guidelines and an enforcement mechanism actually do exist. Panel were asked to provide input.

It was noted that difficulties were being encountered because the scientific community wanted data from tools prematurely. For example, at Nankai 18 out of the 23 days scheduled for downhole measurements involved tools that had not been tested and, in some cases, not even built. Even if an enforcement mechanism was formulated, it might be difficult to implement from a cultural standpoint. For example, although ODP would like to schedule only fully tested tools, it is difficult to secure time during scientific legs for tool testing. This difficulty has now extended to engineering legs: an example is the relegation to low priority of the logging objectives for Leg 142. ODP cannot have their cake and eat it: if fully tested tools are required, time must be made available for their shipboard testing. It was emphasized that tools must be tested in the manner in which they are to be deployed. For example, the DMT BHTV worked well in the KTB pilot hole but failed in the main hole where the tool telemetry was not compatible with the characteristics of the new cable. No system is foolproof.

After much discussion the following recommendation was formulated.

DMP Recommendation 92/1

"The enforcement of the guidelines for the development of third-party tools requires a redrafting of these guidelines into a format that is suitable for stand-alone distribution within the ODP community. It is envisaged that this format will be that of a public information brochure. The redraft should retain the essence of the existing guidelines but should make, inter alia, the following additional points.

(i) A distinction should be drawn between tools that are developed specifically for ODP and those that are being developed for other purposes but that ODP might wish to use.

(ii) ODP development tools must be deployed in test mode, i.e. by their very definition they are not ODP mature tools and the scientific success of a leg should not be contingent upon the proper functioning of such a tool.

(iii) There should be a cut-off date (perhaps 6 months before a tool is scheduled for deployment) by which time the tool must have satisfied all the relevant development criteria, as contained in the guidelines. Otherwise the tool should be withdrawn.

(iv) **The public information literature should include a pro-forma letter of accedence for completion, signing, and submission to ODP by the Principal Investigator before a development tool is accepted for test scheduling.**

(v) **The public information brochure must include the names of key contacts within the permanent ODP structure.**

(vi) **Funding should be adequate to allow the appropriate ODP contractor to carry out necessary day-to-day monitoring of tool development.**

In view of the urgency of this matter, the brochure should be targeted for completion no later than August 1992."

Some further points were made concerning the development plan to be submitted by the Principal Investigator. The plan should include a brief description of the tool, a schematic, the operational procedure, and technical specifications such as dimensions, weight, temperature and pressure ratings, cable length restrictions, cable type, etc. It should also include time-related milestones. Provision should be made for transporting tools for shipboard testing, in terms of both cost and time.

The Chairman undertook to redraft the guidelines into a format that might satisfy the above requirements. The draft would be sent to panel members for comment.

[ACTION: WORTHINGTON]

The Chairman proposed forming a publications subcommittee comprising Fisher, Golovchenko, Riedel and himself. This subcommittee would review the revised draft and decide on further action.

[ACTION: FISHER, GOLOVCHENKO, RIEDEL, WORTHINGTON]

9. Operations Report, Legs 140-141

(i) Leg 140: 504B

Fisher reported that the junk left in Hole 504B during Leg 137 was fished out at the final attempt before it had been planned to abandon the site. Once the hole was cleared, it was deepened to 2000.6 mbsf. Core recovery was 12.7%. Petrological studies did not indicate that the Layer 2/3 boundary had been encountered. However, this boundary is based on seismic stratigraphy and some physical changes to high velocity and density were noted at depth. It is possible, therefore, that the hole did penetrate the Layer 2/3 boundary as defined seismically.

Golovchenko reported that two logs were run prior to drilling, temperature and FMS. The temperature recorded was equilibrium temperature because no circulation had taken place. Bottom hole temperature was about 170°C, close to the operating limit of the FMS, whose tool electronics failed during the logging run. Most caliper-type tools will fail open and therefore there is a risk of arms being broken off on forced recovery. The FMS was minus two pads when the tool was recovered. However, some data were obtained over the uncased hole. The rationale for running the FMS was that it had never been run in 504B, the most logged of all holes. Questions were raised about monitoring the internal tool temperature during logging. The GPIT provides this information in real time. Was this, in fact, monitored by the Schlumberger engineer?

The geophysical (sonic, resistivity, density, etc) and geochemical tool strings were run after drilling. The flowmeter was deployed over the top portion of the hole and the DMT high-temperature digital BHTV at the bottom.

Time lapse temperature logs spanning several legs have indicated changes in sea-water circulation downhole. It was pointed out that these variations might be (partly) an artefact due to the performance of the temperature tool on entering the casing.

(ii) Leg 141: Chile Triple Junction

Golovchenko, who was on Leg 141, reported that a full suite of logs was obtained from Hole 859B, which was enlarged and rugose. The WST was difficult to clamp. The FMS could be run because of the speeded up delivery of spare parts. A bottom simulating reflector (BSR) had been indicated at 85-100m bsf. This was not seen from drilling. However, logs indicated that hydrates had been penetrated and that the BSR was attributable to the boundary between the hydrates and the underlying free gas zone. Gas hydrate concentration was only about 10% of recovered matter over this interval. This is why it was not seen from drilling.

A bridging problem was encountered at Site 860 and the side-entry-sub (SES) was deployed. The cable broke at the cablehead during deployment of the geophysical tool string. The problem was due to the use of a mechanical caliper to centralize the sonic. When run in pipe, the caliper did not allow the tool string to rotate. Consequently, the cable wrapped around the tool string and subsequently snapped. The toolstring was stuck in pipe and was subsequently recovered when the pipe was pulled. The message is that the mechanical caliper should not be used during SES deployment. Only 100 m of logs were obtained from the upper portion of Hole 860.

When Hole 861 was near total depth, a medical emergency required that the site be abandoned before logging. Because of rough seas, it was not possible to deploy a minicone. At Site 862, a further medical emergency, when the hole was at an intermediate depth, again necessitated hole abandonment.

A full suite of logs was run at Site 863 in a 740 m hole. During hole conditioning the pipe was pulled towards its target logging position of 50 m bsf. However, it stuck at 230 m bsf allowing logging only over 510 m of open hole. Earlier predictions of temperature gradient (200°C/km) had suggested a possible high-temperature environment. In fact, the gradient varied from 150°C/km at the top of the hole to 85°C/km at the bottom. Core recovery was a function of lithology so that petrophysical zonation of the succession guided the sedimentological zonation. In general, however, reports describing sedimentological units are written while the logs are being run, and therefore they do not draw upon petrophysical input. This highlights the importance of core-log integration in real time. The rapid availability of hard-copy logs should mitigate in the short term.

10. Logging Contractor's Report

Golovchenko reported that the FY92 budget for LDGO BRG made provision for recruiting two new staff, a log analyst (who started in November 1991) and an assistant computer systems manager (not yet appointed). The electronics technician who was scheduled to go out on Leg 142 has resigned. There is provision for only one full-time technician and this position is vital for third-party-tool monitoring, care of tools, etc. Interviews for a replacement are being held this week.

There is a need to expand training in FMS processing. TAMU sail two systems managers per leg and they are trained in FMS processing. However, TAMU have indicated a need to train additional personnel in order to free the systems managers for general duties. This is currently on hold.

The FY93 budget for LDGO BRG has been fixed at $4.32 million, compared to $3.95 million for FY92. Over 50% of this increase will be taken up by increases in Schlumberger's prices. The MAXIS has not been included for FY93 so it cannot be acquired until October 1993 at the earliest. Extra money may be made available if the Soviets firm up their position. This will be used to purchase a new winch unit and to convert the CSM high-temperature resistivity tool to digital operation. If this extra money is not forthcoming, it will be necessary to repair the existing winch at a cost of $40-50k, which is not budgeted.

A high-temperature field test is planned of the Gable high-T logging cable. This will take place at China Lake, California. No date has been set.

11. Logging Programme: Legs 142-147

(i) Leg 142: Engineering

It was perceived that the PCOM decision to relegate the logging objectives of Leg 142 to alternative status was made at too late a stage. The JOIDES logging scientist was not made aware of this decision. Panel felt that this behaviour was unacceptable.

DMP Recommendation 92/2

"If JOIDES Committees/Panels feel it necessary to alter drilling and/or logging priorities after a leg has been fully staffed, it is imperative that shipboard scientists be informed of these changes prior to their departure for the leg."

(ii) Legs 143-144: Atolls and Guyots I and II

Scientific Aims:

By coring and logging selected guyot and flanking sites, explore the fundamental problems of:

- timing and causes of platform drowning;
- timing and amplitude of changes in sea level and relationship to regional tectonics;
- seamount latitude changes;
- ages of volcanic edifices;
- longevity of mantle plumes;
- bioprovinciality of reefal organisms and post-reefal palaeoceanographic reconstruction.

Downhole Measurement Plans:

- Schlumberger geophysical, geochemical and FMS logs at all sites;

- BHTV and Japanese magnetometer in basement at HUE-A (Leg 142 - 200 m basement planned) and all basement sites ≥ 50 m on Leg 144 (HAR-1, PEL-3, SYL-1, MIT-1 [200m], SEI-1);
- Logging/packer in Hole 801C is alternative during Leg 144.

Also of interest:

- Anewetak test drilling in 30 m water during Leg 143, 1.3 days.

WSTP is not scheduled for specific holes at this stage but will be deployed in holes to be identified later (cf. DMP Recommendation 91/5).

(iii) Leg 145: North Pacific Neogene Transect

Palaeoenvironmental and tectonic objectives include:

- history of surface ocean and atmospheric circulation;
- variations in deep water circulation;
- timing and nature of shift from calcareous to siliceous sedimentation;
- history of continental climate from aeolian deposits.
- age and palaeolatitude of Detroit seamount;
- age and origin of Chinook palaeoplate.

Also of interest to DMP:

- next big leg for first phase of "data integration"; Janecek is staff scientist;
- pre-cruise meeting: 30-31 January 1992.

No change in logging plans to date.

(iv) Leg 146: Cascadia Accretionary Margin

Transects off Vancouver and Oregon to:

- assess fluid and chemical budgets;
- install long-term observatories (CORK);
- determine roles of fractures and layers in directing fluid flow;
- test model for formation of gas hydrates;
- evaluate tectonic histories, influences.

Pre-cruise meeting to be held in the spring.

Likely tools include:

- standard logs (including FMS)
- WSTP/ADARA tools
- Geoprops
- LAST? (I,II?)
- packer (in casing)
- pressure core sampler
- CORK (2)

(v) Leg 147: Hess Deep

Middle and lower crust is exposed by propagating rift in the eastern Pacific. Initial visit plans to:

- obtain the first continuous core of gabbroic layer 3 formed at a fast-spreading ridge;
- test feasibility of drilling tectonic blocks;
- drill through layer 3/mantle boundary.

Logging plans:

- if hole deeper than 200 m is achieved, "standard" suite of logs is planned.
- DMP recommended a fuller suite of measurements, including DLL, high-T temperature tool, magnetometer and susceptibility, packer and flowmeter, VSP, BHTV.
- Co-chiefs seem to support at least standard suite plus BHTV, check-shot VSP, packer.

12. North Atlantic Prospectus

(i) Leg 148: Engineering DCS IIB

This leg assumes that the engineering Leg 142 will be successful. Otherwise the back-up is 504B.

- tests to be conducted on the MAR;
- may include wider range of hardware, including:
  - medium diameter DCB
  - alternative guide-bases with or without BHAs
  - mini-piston corer? spoon sampler?

Of interest to DMP:

- this will be the next opportunity for slimhole logging, possibly high temperature.

(ii) Leg 149: N. Atlantic, Non-volcanic Rifted Margins: Iberian Abyssal Plain

This is the first of a proposed 8-leg programme to study conjugate margins. Goals for this leg will include:

- identification and characterization of the ocean-continent transition (OCT):
- subsidence history of westernmost continental block;
- determine lithostratigraphy of basement ridge;
- document the effects of continental stretching;
- sample basement and pre-rift sediments;
- determine nature and age of earliest oceanic crust.

Little more than DPG report is available now:

- proposed logging for IAP sites is "standard";
- BHTV, VSP and possibly LAST should be deployed at selected sites;
- all IAP sites include about 100 m basement;
- mostly RCB; no re-entries proposed, but some may be needed.

(iii) Leg 150: New Jersey Sea Level

Intended to study late Oligocene-Miocene relative sea level changes. Drilling is aimed at:

- estimating ages of sequence boundaries and amplitude of sea level changes;
- determine age and geometry of individual sequences;
- establish role of lithospheric flexure;
- evaluate role of ice-volume record, as inferred from deep-sea isotopes.

Water depths vary from 29 m to 1298 m; nine sites have water depth ≥ 60 m, which should allow dynamic positioning in appropriate weather.

Of interest to DMP:

All site sheets request "quad combo, geochemical, and FMS strings". If the main goal is seismic stratigraphy, we should separate the sonic log from the quad combo or carry out check-shot VSP?

(iv) Leg 151: Arctic Gateways I

Palaeoceanography of polar seas in terms of:

- temporal and spatial variability of oceanic heat budget, chemical composition, and evolution of marine organisms;
- circulation patterns of a warm ocean;
- mechanisms of climate change in ice-free world.

The plan includes a series of N-S and E-W transects, and sites are planned to investigate the time opening of critical passages and downstream sedimentology.

Specific points are:

- sediment drilling, mainly APC/XCB;
- standard logs requested;
- will need many alternative sites due to possible ice problems; a second ship will be needed.

Bad hole conditions can be expected in poorly sorted glacial sediments. It may be necessary to abandon sites quickly because of ice movements. Therefore the logging programme should be confined to easily deployable tools.

(v) Leg 152: N. Atlantic, Volcanic Rifted Margins: East Greenland Margin

This programme will address:

- lithospheric flexure;
- mechanisms of magma emplacement;
- subsidence of seaward-dipping reflectors;
- timing of rifting and "drifting";
- role of mantle plumes.

Two (re-entry) sites are proposed:

Site	Water Depth (m)	Sediment Thickness (m)	Basement Penetration (m)	Total Time (days)
EG 63-1	520	440	500	20
EG 63-2	1875	1220	500*	48

* later deepening to 1000 m into basement is proposed

Proponents request: standard logs, FMS, core orientation.

13. Log Data Acquisition, Processing and Distribution

The Chairman introduced this general issue, which was initially rooted in problems of shipboard geochemical processing and has subsequently expanded into the need for a long-term scientific vision of how log data can best be processed and disseminated within ODP. At the last DMP meeting, an action was placed upon the Chairman and Roger Anderson (LDGO) to generate jointly a white paper on the subject for the perusal of the Panel. This action was not followed and the white paper that is now to be presented has had no input from the Chairman and has not been precirculated to the Panel. Furthermore, Anderson has been unable to attend this meeting of DMP and is represented by Ladd.

Ladd reported that the number of logs run has been increasing greatly over the past few years. Key questions concern how we handle these data and how we process them. ODP cannot avoid these issues because LDGO's mandate requires them to acquire, process and disseminate data, to improve existing instrumentation, and to advance new technologies.

To handle this increase, an on-line database is needed permitting transmission of data from ship to shore (for service processing) and subsequently to members of the ODP community as part of the data dissemination remit. This would require that certain processing centres be established, each with special responsibilities. These would effectively act as subcontractors when handling embargoed data but could also serve as centres of excellence for interpretation of released data.

The benefits include better science, increased international participation, and ready access to data. The plan, therefore, is to put ODP log data on line. This would avoid repetitious use of LDGO manpower and render data processing and dissemination more efficient. In any case, tapes are rapidly becoming obsolete. Ladd concluded with a system demonstration.

Wilkens commented that scientists at the University of Hawaii who use the on-line Internet system reap considerable benefits. Logs can be transferred from LDGO to Hawaii by initially loading the tapes on Masscomp. The system is wonderful: we should endorse its use.

Draxler pointed out that such a system works well for released data. Other data would require password protection. This is standard practice.

Panel felt that a vision of this kind has several stages of natural evolution. Initially one could consider an on-line data archive for logs, then perhaps for all ODP data. A further stage would be onshore processing and finally there would be the possibility of an enlarged scientific party with some

members onshore. The last two would be password protected. Panel regarded this natural evolution as inevitable. It is, however, a long-term process which will advance gradually.

DMP Consensus

Panel endorses the long-term scientific vision of the logging contractor in terms of an on-line data archive for logs, onshore processing where not possible on board ship, and greater involvement in ODP logging science by the scientific community at large.

In the light of this consensus, Panel formulated the following recommendation.

DMP Recommendation 92/3

"In view of the growth in demand on LDGO for log data, it is important that appropriate manpower be dedicated to data dissemination. In the longer term, computer access to a central archive of log data would facilitate the acquisition of these data by the community at large. Steps should be taken to explore this possibility with a view to its potential adoption in the future. Panel views the greater dissemination of log data as an important ongoing responsibility of the logging contractor."

14. Publicity Brochure

The Chairman reviewed progress on the production of a publicity brochure on ODP downhole measurements. At its last meeting Panel decided that this should be organisationally seamless, i.e. it should be structured solely according to scientific considerations. Further, it should be targeted at the technical community and, as such, should be written at an appropriate technical level. The Chairman presented a draft structure based upon those earlier deliberations and examples he had gathered at LDGO during a visit in mid-January. Panel debated this structure and proposed the following detailed breakdown.

Target length:	20 pages plus covers
Page 1:	Table of contents
Page 2-5:	Rationale for and principles of downhole measurements: logging, packers/samplers, observatories.
Pages 6-17:	General description of applications of downhole measurements to each of several recognized branches of earth science together with one example of each application. Branches of earth science to be included are: economic geology, geochemistry, geothermics, hydrogeology, palaeoclimatology, petrology, sedimentology, seismology, stratigraphy, structural geology, tectonics. Each subject area should be assigned one page except for palaeoclimatology, which would comprise a two-page centre display.
Pages 18-20:	Relationship of log data to data measured at different scales, e.g. core data and geophysical data.

The inside-front-cover could contain a brief description of ODP and its aims. The inside-back-cover could contain some information on how to get tools run, especially third party tools.

The Chairman proposed that this initiative should be progressed by the same publications subcommittee that is looking at publicity for third party tools. He proposed that the subcommittee should meet on 12 February 1992 to agree the initial draft. Some time thereafter, the draft would be sent out for technical review. Five reviewers were nominated. They are: Joris Gieskes, Steve Hickman, Peter Lysne, Mike Williams and (in absentia) Tom Pyle. Following an accelerated review process, a final draft would be prepared for production. The ODP Public Information Coordinator (Karen Riedel) would manage the production stage. Target date for distribution of the final product would be May 1992. This timetable might allow the initiative to have some bearing on renewal. Recipients would be the ODP community at large.

15. High Temperature Technology

(i) Temperature

The Gable tool used on Leg 137 and given to LDGO is rated to 500°C but is currently limited to 350°C, the temperature rating of the Plastelec (MgO-insulated) cable purchased by LDGO and due to be tested at China Lake, California. There are no plans to acquire a second tool. A surface panel is being built to run the tool: the existing panel has had to be returned.

(ii) Resistivity

The contract to build a high-temperature (350°C) formation resistivity tool, with a capability for borehole-fluid resistivity, was initiated with Camborne School of Mines (UK) on 1 January 1992, although the work began earlier. This is an analogue slimhole (1.75 inches) tool. Two tools will be developed, one of which will be financed by the UK DoE and will be loaned by them to ODP. Target data for completion is June 1992.

(iii) Fluid Sampling

Lysne reported that bridges were being built between different scientific programmes. A proposal has been submitted to the US DoE entitled "Development of a fluid sampling data logging tool". The aims are to monitor, inter alia, the temperature and pressure of the borehole fluid (sea water) with a view to taking a sample as close as possible to the critical point. The tool itself decides through its downhole computers when to take the sample: it is therefore an intelligent memory tool. It is hoped to apportion development costs with DoE funding the tool construction at Sandia and ODP funding the cost of the uphole facilities. A proposal is needed for the latter: it is not clear how things stand.

The initiative requires input from geochemists. For example, what materials should be used to minimize the risk of contamination? What volume of sample is needed? To provide some of these answers, a proposal was made to JOI (by John Edmond of MIT) to form a borehole sampler support group. The group met for the first time in December 1991. At the same time, JOI and DoE began a dialogue. They decided that the tool proposal needs greater scientific justification. The support group now has the charge to write a science support document. The draft science plan should be available in February 1992.

Once the tool proposal has been accepted by JOI and DoE, it will take two years to build a tool and carry out limited testing. The tool would be developed from basics: it would not be a modification of existing tools except for a transfer of, for example, dewar and computer technology. It would be compatible with the DCS. After testing, a further 2-3 years would be required to bring the tool to fruition.

(iv) Miscellaneous

The Chairman noted that excellent progress is being made on all three of the top priorities identified by DMP and LITHP at their joint meeting in Windischeschenbach in 1989. However, there were other tools on that original wish-list: one of these was a high-temperature natural gamma spectral tool. Lysne commented that Sandia are looking at this development under a different programme. Fisher noted that there is a possibility of ODP acquiring a rapid-deployment high-temperature memory tool such as the GRC tool run on Leg 139. Desbrandes informed the Panel of his research into logging with coiled tubing: this would allow the cable, cablehead and tool to be cooled while logging so that the operating range of existing tools might be extended.

16. Technology Review - Borehole Gravimetry

The Chairman introduced this review as part of the DMP strategy of keeping abreast of those technologies described in the COSOD II white paper on downhole measurements. The aim was to hear about the state-of-the-art and to assess how far away we are from being able to deploy this technology with confidence in ODP.

Lautzenhiser described the principles of the borehole gravimeter (BHGM). The tool is used to measure gravity in stationary mode at different depths in a borehole. Formation density can be determined from the change in gravity, Δg, over a selected interval, Δz. This selection determines tool resolution. In an ocean environment, it can be more difficult to determine g and z, and thence Δg and Δz, with sufficient accuracy. The BHGM is especially useful where the drilling process has caused the formation to change in the vicinity of the borehole so that the density log no longer reflects true in-situ conditions, e.g. in gas hydrates. Depth of investigation is related to formation geometry: for example, a bed of thickness 10 ft can be detected 40-50 ft away from the borehole.

There are two principal tool suppliers, La Coste-Romberg and Edcon-Schlumberger. Tools are typically 4.25 inches O.D. rated to 125°C and 5.25 inches O.D. dewared to operate at 200°C for 24 hours. The tools can operate in boreholes deviated up to 14 degrees.

Edcon is developing a shuttle sonde, funded by the Gas Research Institute. The gravity meter is positioned on an elevator within the (stationary) tool so that Δz can be determined accurately. This leads, in turn, to a better density determination over small intervals, e.g. ±0.01 gm/cc over 8 ft if there is no borehole noise (flowing fluids or percolating formation) or cable motion. Edcon propose a sidewall clamp to minimize wireline or borehole noise from BHGM readings. This makes Edcon-Schlumberger the best option for shipboard deployment.

There are two other future trends that are noteworthy. One of these is a quartz gravimeter developed by Delta-G. This is at the testing and repackaging stage. A prototype is being evaluated by Schlumberger for a possible future service role. Tool is 3.5 inches O.D. and it can operate in holes deviated to 40 degrees. The other is a borehole gravity gradiometer with a high noise immunity, the possibility of a continuous log, and high spatial resolution. The spatial resolution is dependent upon hole rugosity: measurements at the microgal level must be grossed up over a sufficient vertical distance to overcome borehole rugosity effects. Achievable vertical resolution is a few centimetres.

The Chairman noted that the existing BHGM tools are too large for conventional deployment in ODP. However, the proposal for the "top-hat" deployment of commercial pore-fluid samplers (Item 18) might have some bearing. If the top-hat system should be developed, it might open the door to BHGM and other large-diameter tools. At that time, there would be strong interest in running the tool,

not just to evaluate gas hydrates but also to investigate in conjunction with the density log the scale of lateral inhomogeneities (Item 19).

17. Magnetic Susceptibility Logging

The Chairman reminded Panel members that PCOM had identified routine magnetic susceptibility logging as a high-priority target for technology development. Panel should be aware of candidate tools.

Golovchenko reported that two tools are being evaluated. The first is the French susceptibility tool that is run with the high-parametric-resolution sediment magnetometer. This tool was the subject of a presentation to the last DMP meeting by Jacques Pocachard of the French CEA. At present, this tool has a spatial resolution of about 1 m. This is too coarse for some scientific applications, e.g. Milankovitch. Pocachard has offered to rewrite the software to improve this resolution to about 40 cm. In principle, a 1 cm vertical resolution is achievable. Pocachard has proposed the development of a new tool with tripartite funding (CEA, ODP, and a further French institution) to achieve a vertical resolution of the order of centimetres. Cost to ODP would be $ 200 000. Golovchenko noted that there is no provision for this technology in the budgets for FY92 and FY93, although she believed that it had been proposed. It would take two years to build the tool after the money had become available.

The second tool, which might be available to ODP as an interim measure, is a German susceptibility tool developed by the University of Munich. This tool is operational, rated to 125°C, and should be rated to 260°C by mid-1992 when dewaring will be available. Spatial resolution is around 60 cm. Tool O.D. is 3.375 inches (125°C operation) or 3.785 inches (260°C operation).

DMP Consensus

The logging contractor is encouraged to pursue the acquisition of a high-spatial-resolution magnetic susceptibility tool, especially in view of the strong implications for studies of palaeoclimate.

The Chairman undertook to solicit the views of OHP and SGPP as regards optimal spatial resolution for scientific purposes.

[ACTION: WORTHINGTON, MIENERT]

18. Working Group on Pore Fluid Sampling

The steering group approved by PCOM in December 1991 could not be activated in time for this meeting, which, in any case, was being held away from the centre of gravity of members. The Chairman was reluctant to convene this steering group, whose first task was to formulate a request for proposals for a feasibility study of the options identified within the 1991 Working Group report, until it was clear that funds were available for the study to be carried out. The Chairman undertook to establish the funding position. If favourable, he proposed that the steering group be convened during the second half of March at College Station. This would probably be the only time that the steering group would meet outside the framework of DMP meetings.

[ACTION: WORTHINGTON]

19. Lithosphere Characterization

The Chairman noted that this issue, originally flagged by DMP a few years ago, had remained dormant for some time. The issue had its roots in three key questions. To what extent does an ODP hole characterize the subsurface around it? Is it merely a sample of a wide statistical range? How is the form of characterization related to the scale of measurement? To answer these questions, Panel had suggested three closely spaced sub-ocean boreholes at a scientifically appropriate location. These holes would be subject to detailed coring and core analysis, borehole logging, and VSP and interwell geophysics, all of which would be linked to surface geophysics in the form of detailed site surveys. However, initial soundings within the scientific community had indicated that technology was not yet ready for such an initiative. Recent indications are that this situation has progressed and that a proposal targeted for 1995-6 would have a good chance of success. A not-unrelated proposal is being developed by a scientific group with interests in crustal evolution. A member of this group (Jill Karsten, University of Hawaii) would now report.

Karsten reported that a group of 20 investigators, including three with DMP connections, were proposing a Crustal Evolution Drilling Programme. The aim was to drill a pair of holes, about 1 km apart and 500 m deep, in 20-30 Ma basaltic crust north of the Clipperton Fracture Zone in the eastern Pacific (12-13°N, 115-116°W). Seismic indications are that crustal evolution is dramatic in the first 10-15 Ma, after which it reaches a plateau. This seismic manifestation is thought to be related to changes in the porosity and pore geometry of the uppermost crust, but the processes that control these porosity changes are not well understood.

The scales of these processes probably vary significantly. An important aim is therefore to investigate the degree and scale of heterogeneity within the uppermost crust, in terms of: timescales and nature of alteration, how these are related to physical properties, correlations between physical properties and geological architecture, and the dependence on tectonic processes.

The key information for determining the evolution of a porosity and permeability distribution will come from downhole measurements. Important questions are:

(i) how accurate are single vertical sections in characterizing physical properties?
(ii) are porosity measurements accurate?

Essential technical needs are:

(i) accurate shear wave logging (for porosity structure);
(ii) fracture orientation and extent;
(iii) permeability evaluations using

  (a) packer flowmeter;
  (b) Stoneley waves;
  (c) integrated analysis of logs and packer data for secondary flow;
  (d) hole-to-hole experiments.

Current status is that a drilling proposal is to be submitted to ODP in mid-1992. ODP does not have a basement hole in the target age range. The Office of Naval Research (ONR) is interested in cost sharing, perhaps by funding post-cruise science.

Panel members raised several points in responsive discussion. First, an approach to ODP would bring about thematic-panel imprints on the proposal. For example, the holes might be considered too shallow or too far apart. Second, there should be three holes ideally colinear so that interwell projections between two outer holes might be verified at a third interposed hole. Third, considerable technical advice should be sought on the status and capability of cross-hole (electrical and seismic) geophysics, especially as regards sub-ocean deployment. Fourth, a proposal to ODP would almost certainly involve more than one leg.

In summing up, the Chairman complimented the initiative of Karsten and her co-workers. There would be two levels of achievement. The first is a functioning system of geophysical measurements, processing and interpretation, spatially distributed over five orders of magnitude. The second is the scientific evaluation of these and related data. The first of these achievements, in itself, would put ODP at the forefront of scientific application. The second would benefit enormously from shared funding to provide a structured programme of post-cruise science.

DMP Consensus

Panel encourages the proposal to drill closely spaced boreholes in the ocean lithosphere to investigate the scaling of heterogeneity. Appropriate technological input should be sought at an early stage of the planning process.

DMP should pave the way for this initiative by taking a critical look at cross-hole geophysics. This should be the featured technology of the next two DMP meetings. Panel members are asked to identify potential speakers for both the June and the September meetings.

[ACTION: PANEL]

20. Shipboard Integration of Core and Log Data

Fisher reported on the status as of 26 January 1992.

The shipboard core laboratory is being redesigned to render core flow more linear. The eventual aim is to have both a whole-core and a split-core Multi-sensor Track (MST).

ODP is moving ahead with plans to purchase a stand-alone or MST-associated natural gamma-ray system.

A request for funds has been made to procure a stand-alone workstation for data merging. Use of this station will require:

1. acquisition of appropriate software for development of data-merging tools;
2. assignment of programmer and Science Operations staff to develop software tools;
3. training of individual "data integrators" as members of each scientific party.

The first phase of this development will concentrate on the merging and shifting of core data; linear compression/expansion to match log data will come later. Full shipboard deployment will require purchase of at least 3-4 complete systems, plus assignment of appropriate personnel.

Sonic-core monitor and electronic multishot are operational after Leg 141. Standardized and duplicatable "core-shifting" awaits additional computer hardware and software developments, plus assignment of dedicated shipboard scientists.

Scratch-server and thin-wire Ethernet added to the shipboard system should facilitate data access.

ODP re-organization should improve computer support and development projects.

21. Panel Membership

Nominations are sought for a replacement for Roy Wilkens. The ideal person would have sailed as a JOIDES logging scientist, be seismically numerate, and be based at a JOIDES institution in the USA. One name had been put forward at the previous DMP meeting and this person had informally agreed to serve. Panel were not able to propose any other candidates. The Chairman undertook to progress the matter. In accordance with PCOM policy, the names discussed are not being minuted.

[ACTION: WORTHINGTON]

22. Next DMP Meetings

The next meeting of the JOIDES Downhole Measurements Panel is scheduled to take place at the KTB facility, Windischeschenbach, Germany, during the period 4-6 June 1992. Hans Draxler will host. The third day of this meeting will comprise a joint session with KTB to further the collaborative contacts between ODP and KTB. The Chairman will collate presentations on suggested topics that can be offered for joint session. Suggestions are:

high-temperature logging (CSM speaker?)
high-temperature fluid sampling (Lysne)
performance of new tools (LDGO)
ODP datanet vision (LDGO)
five-year vision of petrophysics (Worthington, P)
interwell acoustic tomography (Worthington, M, Imperial College London: or alternative)

A one-day geological field excursion is planned for Friday 5 June.

The following meeting of DMP is confirmed for Sante Fe, New Mexico, during the period 21-23 September 1992. Peter Lysne will host. There may be a joint session with LITHP on 23 September.

The subsequent meeting of DMP is tentatively scheduled for College Station in the second half of January 1993. Andy Fisher will host.

23. Other Business

TAMU Engineering Report

Fisher reported on the FY 93 engineering development programme, listed as follows.

Motor-driven Core Barrel	$ 115 k
Sonic Core Monitor	55 k
XCB Flow Control Concept	25 k

Pressure Core Sampler	85 k
Hard Rock Orientation	70 k
Vibra-Percussive Corer	90 k
Visiting Engineer	30 k
3rd Party Development	20 k
Other	50 k
Total	$ 540 k

The Chairman would include a Science Operator's Report on the agenda of all future DMP meetings.

24. Close of Meeting

The Chairman thanked Panel Members, Liaisons and Guests for their contribution to the meeting and Roy Wilkens for his gracious hosting. In reminding the Panel that Wilkens would now be rotating off DMP, the Chairman thanked him for his contribution over the past four years and wished him well for the future. The meeting closed at 1450 hours on Thursday 30 January 1992.

PAUL F WORTHINGTON
17 February 1992