SMP MINUTES

Executive Summary
SMP Meeting No. 8

In addition to the normal review of individual laboratories, the SMP reviewed the requirements for the new ODP computing system; reviewed core processing requirements for Santa Barbara Basin; updated the equipment priority lists; in the add-on meeting of physical property specialists, reviewed the specific problem areas in this laboratory; and jointly met with DMP to review core-log data integration.

SMP Computing System Priorities (to PCOM)
The proposed new computing has three major components: the data aquisition modules; the database; and the data retrieval modules. The largest cost of the new computer system will be for the data acquisition modules. The level of effort for the data acquisition modules development may be as much as 80% of the total resources. Given the potentially restricted budget, SMP reviewed the data acquisition requirements and ranked them in priority order. Modules are defined as groups of data acquisition systems which should logically have similar front-ends and which can be maintained in a similar manner. The result of this review is a listing (in priority order) of data acquisition modules which require new software. Items which are identified with an asterisk represent those that should be done inhouse. All others could readily be contracted out.

1 Paleontology (this is required immediately)
2 Natural gamma
3 XRF/XRD
4 Discrete Physical Properties
5 Core-log data integration
6 Paleomagnetics
7 Visual core description/smear slides/colour
8 Petrology: HRTHIN (throw out and start again)
HARVI (throw out and start again)
9 MST
10 SAM/Corelog*
11 Chemistry*

SMP Laboratory Recommendations
The IHP recommendation to allow higher de-magnetizing fields is supported by SMP. SMP recommends the following procedures for shipboard AF

demagnetization (92-16 to ODP/TAMU): AF demagnetization of archive halves will only be allowed at peak fields ≥ 15.0 mT on the basis of the following tests:

(1) Zijderveld plots of stepwise AF demagnetization data from subsample studies done on either the spinner, or the cryogenic magnetometer demonstrate the need to use higher peak fields to remove secondary components.

(2) Whole core measurements of AF demagnetized archive halves indicate that the residual remanence at a given peak field is at least 40% of the original natural remanent magnetization (NRM).

(3) Careful attention should be paid to avoid imparting an anhysteretic remanent magnetization (ARM) to the archive halves at peak fields >20.0 mT. The nested coil design of the present demagnetizer may be prone to increased distortion at peak fields >20.0 mT, and this distortion produces the ARM. The ARM effect can be recognized by an increase in remanence at higher peak fields, rather than the expected decrease. Note that archive halves from intervals of negative polarity may have a positive overprint that if removed at peak fields ≤ 20.0 mT, will then cause an increase in the magnetization that is not related to the ARM effect.

SMP agrees that any further delay on paleontological data acquisition software development will seriously impact the success of future legs, particularly legs with paleoceanographic objectives. The panel also agrees that this software development has the highest priority and consequently the RFP should go out now. SMP recommends that the paleontological software package be completed prior to Leg 150, New Jersey Sea Level (92-17 to ODP/TAMU)

The panel is concerned that items such as reprints, books, microscope parts and other accessories are frequently permanently borrowed by the members of the science party. These long term loans (or thefts, to be blunt) not only cost the program money, but affects the ability of subsequent scientists to complete their research tasks. SMP recommends that the following statement be included in the initial information package sent out to all scientists before joining a leg (92-18 to ODP/TAMU):

A MESSAGE TO ALL SHIPBOARD SCIENTISTS
FROM THE SHIPBOARD MEASUREMENTS PANEL

It has come to our attention that reference papers, books, DSDP reports and occasionally items of a more attractive nature, such as microscope objectives, are "lost" or "go missing". More often than not this is a kind way of saying they have been stolen. Microscope objectives are expensive to replace, but of equal, if not more importance, reference literature is being denied to scientists on subsequent Legs. Please leave everything as you would hope to find it yourself when joining a Leg.

Thank you,
Members of the *JOIDES* Shipboard Measurements Panel

SMP recommends that the second generation VCD program should fulfill the following requirements (92-19 to ODP/TAMU):

- ergonomic so that it can be used by one person for direct input of the core description to a computer (e.g., pen-type data input system)
- data should be captured as a graphic at the 1.5 m scale
- data should be captured using autocad-type software (object oriented)
- the program should be able to capture data at variable, user-selected scales
- the description should be wysiwyg
- output should go directly into the database for archive and for immediate access
- designed for both sediment and hard rock core descriptions
- allows for input of smear slide and thin section descriptions
- a video display of whole core data should be optionally available during the VCD data capture process (e.g. MST data) to assist in the selection of intervals for detailed description

SMP recommends the following storage procedures for split and whole cores of anoxic sediment (92-20 to ODP/TAMU):
For whole-round core sections (e.g. Santa Barbara Basin Cores):
(1) fabricate or use a prefabricated KAPAK bag; (2) place the whole-round 1.5 m core section in the KAPAK bag; (3) evacuate the KAPAK bag to remove air; (4) refill the bag with dry N_2 gas; (5) heat seal the bag ends; and (6) place the core and bag into cold storage.
For half-round archive core sections from anoxic sediment:
(1) split the core section; (2) immediately after description,photography and colour measurement of the split section, place it in a KAPAK bag; (3) place the core and bag into a D-tube and evacuate the air from the bag; (4) fill the bag with dry N_2 and seal; and (5) flush the D-tube with N_2 and seal.

SMP recommends that the new Minolta spectrophotometer be routinely used to measure Munsell colour and should replace visual assessment of colour. For legs with paleoceanographic objectives, colour spectral data should routinely be measured and recorded at an appropriate depth interval (92-21 to PCOM).

SMP is seriously concerned with the delay in adequate navigation software/hardware. The delay is totally unacceptable. At present, real time navigation is not possible. The panel agrees that this must be changed immediately. SMP has been emphasizing this need since March 1990. The delay in upgrading of this essential requirement is negligent. It is embarrassing that we cannot properly site the ship in real time. SMP recommends that real time navigation be incorporated into the underway laboratory immediately and reminds PCOM that this recommendation has been on the 'books' since March 1990 (92-22 to PCOM).

SMP Core-Log Data Integration Recommendations
SMP recommends that ODP/TAMU purchase the new version of CORPAC for evaluation and for specifying any special modifications required for shipboard use (92-23 to ODP/TAMU). A version of CORPAC should be available for use on Leg 150.

DMP and SMP are concerned that core-log integration has not been included as an integral part of the new computing system upgrade. The panels jointly agreed on the following recommendation: DMP/SMP re-emphasize the scientific requirements of core-log data integration during the upgrading of the shipboard computer system. In order to incorporate a new core-log data integration shipboard facility, a scientific staff member at ODP/TAMU should be identified to lead and coordinate this development. The core-log integration software development should draw upon existing capabilities within the JOIDES community where appropriate (92-24 to PCOM).

SMP Recommendation for Santa Barbara Basin Cores (to ODP/TAMU)
SMP is concerned that Santa Barbara Basin cores may not be properly handled and processed. If the cores are anoxic as will be expected, they should be stored as recommended on page 11 (SMP recommendation 92-20) until they are processed. The cores should be processed in the same manner as all other ODP cores. Measurements which are required include: interstitial water (IW) analyses; gas chromatograph analysis (GC); paleontological analyses; MST; paleomagnetics; discrete physical properties (a minimum of one sample per core for index measurement); and measurement of spectral colour reflectance of the split archive half using the spectrophotometer (see SMP recommendation 92-21). Processing of the IW and GC samples should be performed by the shipboard geochemists on Leg 146. Preliminary age determinations should be performed by the Leg 146 shipboard paleontologists. The remainder of the analyses and measurements can be performed off of the vessel, if necessary. However, it is the view of the SMP that these procedures would best be performed onboard the ship because of logistical problems in setting up a separate laboratory and possible damage to the physical properties during transport to another laboratory. The Leg 147 marine technical specialists can perform all of the analyses competently and in a timely manner during the transit to the first site of Leg 147. If processing is

performed onboard as recommended, then split archive cores from anoxic intervals should be stored as recommended above (SMP Recommendation #92-20) and other non-anoxic archive cores should be covered with plastic wrap, bagged in plastic sleeving and then stored in a D-tube until the science party can open the cores for description.

SMP Equipment Priorities (to BCOM)

1. Navigation
2. Natural gamma and MST upgrade
3. Hardrock velocimeter
4. XRF PC upgrade
5. Resistivity equipment for discrete measurement
6. Bar code reader
7. Seismic workstation
8. Seismic towing system

Note: the carbonate autosampler is still a high priority, but it is not yet available by the manufacturer. It will be reviewed again for its priority at the next SMP.

Third-party equipment under development which SMP monitors for future shipboard use is ranked as follows:

1. Colour reflectance (Mix)
2. Electrical resistivity core imaging system (Jackson)
3. Infrared spectroscopy (Herbert/Amoco)
4. XRF split core scanner (Herbert/Jansen)

DRAFT MINUTES
SMP Meeting No. 8

I Introduction of members, guests and liaison.

Members	Liaison
N. Brereton	J. Fox, PCOM
R. Chaney	J. Allan, ODP/TAMU
J. King	B. Mills, ODP/TAMU
M. Mottl	P. Worthington, DMP
K. Moran	
M. Rhodes	
E. Thomas (regrets)	Guests
H. Tokuyama (regrets)	T. Janacek, ODP/TAMU
J.P. Valet (regrets)	P. Schultheiss, Geotek
D. Weis (absent)	I. Gibson, DHWG
	G. Iturrino, RSMAS
	C. Sondergeld (DMP)

E. Thomas sent a report with specific items of concern which the panel addressed during the meeting.

II Approval of minutes

The minutes of meeting seven were approved with one change. SMP recommendation 92-5 should read: "SMP recommends adoption of the procedures for XRF....." which replaces "SMP recommends adoption of the procedures for XRD.....".

III TAMU Report

J. Allan presented an overview of major changes in shipboard equipment, changes to the structure of ODP/TAMU, and new personnel since the last SMP meeting. New shipboard equipment includes two Zeiss stereo microscopes for the paleontological laboratory, one Zeiss petrographic microscope, two hardened tool steel grinding vessels, two Minolta spectrophotometers, components for the natural gamma, 4 new Sun workstations, new 486 PC computers to replace the HP system for the chemistry laboratory, and a universal VCR.

ODP/TAMU has recently undergone internal re-structuring. As part of that restructuring, a new group was formed as the department of information handling. The new head of this group is John Coyne. For the technical staff,

the program is trying to reduce technician turnover by implementation of the Alternate Sea Pay Plan to increase the number of veteran technicians who have expertise in multiple laboratories.

Discussion of the details on each laboratory was deferred until each laboratory was discussed individually.

IV Data Handling Working Group Report (I. Gibson)

I. Gibson summarized the evolution of the Data Handling Working Group. The DHWG recommended to PCOM a new integrated computing system for the Program including data acquisition, database development, and data retrieval software. The summary included PCOM's latest directive on this issue whereby the entire development would be sent out for bid. This directive will significantly delay the implementation of the new computing system. SMP is seriously concerned about this delay. Not only does this inhibit shipboard data acquisition, but it seriously affects data quality.

In addition, the money to cover the development of this system may not be realized. Given these new considerations, SMP reviewed the basic requirements for a new shipboard computing system to meet two objectives: provide assistance to the expert RFP committee which will issue and review the computing proposals; and to develop a priority list of development for budgeting needs. SMP reviewed the new computing system in three components: (1) data acquisition modules; (2) database; and (3) data retrieval modules. Basic requirements for all shipboard data acquisition modules are:

- the software must not inhibit data acquisition in any way and must be responsive to the user
- instrument calibration must be the first procedure in each data acquisition module and, where appropriate, calibration runs should be included as part of the measurement
- the software must be easy to implement and maintain
- each module must include the ability for the user to add comments to the data fields measured
- module software design should be consistent within each laboratory

Basic requirements for the database component of the computing system can be met by the purchase of a new relational database software package. For shipboard measurement needs, the data retrieval component must allow for the recovery of ASCII data files of core, section, interval (CSI) and any associated data field within the user-specified CSI range. The required functionality of data retrieval can likely be met by the purchase of a new relational database package. The final component, development of the data

acquisition modules cannot be as easily achieved. SMP suggests that the largest cost of the new computer system will be for the data acquisition modules. The level of effort for the data acquisition modules development may be as much as 80% of the total resources.

SMP reviewed the existing data acquisition modules. Modules are defined as groups of data acquisition systems which should logically have similar front-ends and which can be maintained in a similar manner. The result of this review is a listing (in priority order) of data acquisition modules which require new software. Items which are identified with an asterisk represent those that should be done in-house. All others could readily be contracted out.

1 Paleontology (this is required immediately)
2 Natural gamma
3 XRF/XRD
4 Discrete Physical Properties:
  Index
  Velocity
  Strength
  Resistivity
5 Core-log data integration
6 Paleomagnetics:
  Cryogenic magnetometer
  Spinner magnetometer
  KappaBridge
7 Visual core description/smear slides/colour
8 Petrology
  HRTHIN (throw out and start again)
  HARVI (throw out and start again)
9 MST
10 SAM/Corelog*
11 Chemistry*
  Organic
  Inorganic

V Business Arising

Paleomagnetics

J. Allan reported on the status of the paleomagnetics laboratory. A Kappabridge with a 486 PC computer controller was purchased for the lab to measure magnetic rock fabric. The PC software for the cryogenic magnetometer is still under development and will be completed in 1993. A new spinner program was developed by D. Bontempo and will be tested on Leg 146.

The AC field assessment will be conducted on Leg 146. Equipment was borrowed from the TAMU Health and Safety Department. Results will be reported to SMP **(Action: B. Mills to report on the results of the AC field study)**

The core barrel magnetization study has not yet been completed. The study is scheduled for Leg 146 by Bob Musgrave **(Action: B. Mills or B. Musgrave to report on the results of the core barrel study)**

IHP has recommended that higher de-magnetizing fields be allowed on the archive half of the core. SMP supports this recommendation. To achieve higher de-magnetizing fields, modifications to the cryogenic are required. This requires re-configuration of the cryogenic magnetometer because it is currently limited to a field of 26 mT. An assessment of the required modifications will be completed by the manufacturer (2G) during the San Diego port call prior to Leg 147. (Action: B. Mills report on required or completed modifications for cryogenic de-magnetization).

The strength of the Walker Scientific magnetometer was increased by 2G during the Honolulu port call. The shielding recommended by 2G was aluminum foil, which has been working effectively. The paleomagnetics technical manual will be distributed this fall. **Action: J. Allan to forward copies of the technical manual to J. King and J.-P. Valet.**

The IHP recommendation to allow higher de-magnetizing fields is supported by SMP. **SMP recommends the following procedures for shipboard AF demagnetization (92-16):**

In general, AF demagnetization of archive halves at peak fields > 25.0 mT will not be allowed because of the increased possibility of the ARM effect and the increased stress that AF demagnetization at higher peak fields places on the equipment. In addition, the extra time required for AF demagnetization at peak fields > 25.0 mT may have deleterious effect on core flow.

AF demagnetization of archive halves will only be allowed at peak fields ≥ 15.0 mT on the basis of the following tests:

(1) Zijderveld plots of stepwise AF demagnetization data from subsample studies done on either the spinner, or the cryogenic magnetometer demonstrate the need to use higher peak fields to remove secondary components.

(2) Whole core measurements of AF demagnetized archive halves indicate that the residual remanence at a given peak field is at least 40% of the original natural remanent magnetization (NRM).

(3) **Careful attention should be paid to avoid imparting an anhysteretic remanent magnetization (ARM) to the archive halves at peak fields >20.0 mT. The nested coil design of the present demagnetizer may be prone to increased distortion at peak fields >20.0 mT, and this distortion produces the ARM. The ARM effect can be recognized by an increase in remanence at higher peak fields, rather than the expected decrease. Note that archive halves from intervals of negative polarity may have a positive overprint that if removed at peak fields ≤ 20.0 mT, will then cause an increase in the magnetization that is not related to the ARM effect.**

Physical Properties

B. Mills and K. Moran reported that the miniature vane shear device will be modified to copy a Bedford Institute of Oceanography design for automatic data acquisition using potentiometers during Leg 147. No changes have been made to the Torvane or hand penetrometers onboard. These instruments should be placed on the ship with all of their components and their instruction manuals.

K. Moran reported that two different resistivity devices will be tested on Leg 146. One is a system borrowed from the University of Bremen and the second borrowed from the Bedford Institute of Oceanography. The original ODP Wayne-Kerr component analyzer will also be tested with one of these systems. After this leg, a decision will be made for purchase or construction of a new discrete resistivity probe. **(Action: K. Moran/B. Mills report on shear vane and resistivity instruments)**

The manuals in the Physical Property Laboratory are still being updated. J. Lloyd (TAMU marine tech) has compiled the most up to date versions of the cookbooks, but they still require updating and review. **(Action: B. Mills forward copies of physical property manuals to R. Chaney for comment and review and R. Chaney report on recommended changes to the manuals).**

R. Chaney reported that ASTM is in the process of developing a pycnometer standard. **(Action: Chaney to distribute final ASTM standard to panel members).**

New thermal conductivity standards have been ordered and will be available for Leg 147.

B. Mills reported that National Instruments software/hardware system Labview will be used to develop an automated data acquisition system for the pycnometer. SMP encourages the development of this system using Labview; this advancement should significantly reduce the

labour required for processing discrete index property data. **(Action: B. Mills report on status of pycnometer/Labview development).**

The panel briefly reviewed the problem with the GRAPE on the MST. At the previous SMP meeting, the panel discussed the 10% offset of GRAPE data from discrete data. The discussion was deferred to the Physical Property Special Meeting. **(Action: K. Moran report on GRAPE problem/solutions for joint SMP/IHP)**

SMP was pleased to hear the report that the natural gamma whole core measurement for core-log data integration was progressing. The natural gamma is under development. All of the components have been ordered. Installation and testing is scheduled for Leg 149. **(Action: B. Mills report on the status of natural gamma).**

Micropaleontology

J. Allan reported that the paleontological software development had not yet been sent out as an RFP. I. Gibson reported on the IHP discussions which resulted in a recommendation to evaluate the software package, BugWare for shipboard use. K. Moran reminded the panel that E. Thomas had reviewed the mock-up form which was shown to the panel at the Honolulu port-call and that her recommendation was to proceed with development of this software. The panel agrees that it is up to the developer of BugWare to decide to bid on the RFP. However, SMP agrees that any further delay on this data acquisition software development will seriously impact the success of future legs, particularly legs with paleoceanographic objectives. The panel also agrees that this software development has the highest priority (see data acquisition priorities, page 3) and consequently the RFP should go out now. **SMP recommends that the paleontological software package be completed prior to Leg 150, New Jersey Sea Level (92-17).** Prototype versions should be forwarded to E. Thomas for comment and review as they become available. **(Action: J. Firth or J. Allan demonstrate paleo software program at the next SMP meeting).**

B. Mills reported on the status of technician training. In future, one of the marine technical specialists will be assigned the responsibility to maintain the paleo laboratory. The duties will include equipment maintenance, sieve inventory, and laboratory safety. When a paleontological technician is assigned as such during a leg, the technician will receive pre-cruise training from J. Firth on sample preparation. J. Firth has prepared a workbook for paleontological

sample preparation **(Action: ODP/TAMU forward a copy of J. Firth's workbook to E. Thomas).**

E. Thomas reported that the reprint collection in the library is still seriously depleted and not indexed. J. Allan reported that TAMU is making efforts to correct this problem by replacing the reprints with photocopies made from J. Firth's personal library. In addition, a letter will be sent to paleontologists who have recently sailed asking for reprints of non-ODP articles. **(Action: J. Allan or J. Firth report on the status of the reprint collection)**

The panel is concerned that items such as reprints, books, microscope parts and other accessories are frequently permanently borrowed by the members of the science party. These long term loans (or thefts, to be blunt) not only cost the program money, but affects the ability of subsequent scientists to complete their research tasks. **SMP recommends that the following statement be included in the initial information package sent out to all scientists before joining a leg (92-18):**

A MESSAGE TO ALL SHIPBOARD SCIENTISTS
FROM THE SHIPBOARD MEASUREMENTS PANEL

It has come to our attention that reference papers, books, DSDP reports and occasionally items of a more attractive nature, such as microscope objectives, are "lost" or "go missing". More often than not this is a kind way of saying they have been stolen. Microscope objectives are expensive to replace, but of equal, if not more importance, reference literature is being denied to scientists on subsequent Legs. Please leave everything as you would hope to find it yourself when joining a Leg.

Thank you,

Members of the *JOIDES* Shipboard Measurements Panel

Petrology

Grinding vessels for the shatterbox were discussed again. J. Allan reported that agate grinding vessels would still be provided by the program for use by shipboard scientists. However, based on the poor record of these vessels, the panel stands by its previous recommendation (92-4), repeated here as follows: **Because of the excellent results of the shipboard XRF, increasingly more sailing scientists wish to take powdered samples home with them for additional analyses. However, agate grinding vessels have not proved**

to be reliable in the shipboard environment. SMP recommends that sailing scientists should be told that only Tungsten-Carbide grinding vessels are available on the ship, but that they are welcome to bring other types of vessels for use during their leg.

Sediment analysis procedures have not yet been adopted by ODP/TAMU. It seems that the methods tested and proposed by M. Rhodes have not been communicated to the science or technical staff. **(Actions: K. Moran to forward M. Rhodes report to J. Allan and J. Allan to forward a copy of the shipboard manual to M. Rhodes for incorporation of these methods).** Carbonate contamination of the platinum crucibles was discussed as a potential problem if these types of analyses are used onboard. The solution to this potential problem is to use old crucibles for sediment analysis and keep them separate from the other crucibles.

J. Allan reported that XRD mineral identification cards have been ordered and are due for delivery for Leg 147. The XRF will be upgraded during this port call (Victoria). Both goniometers will be upgraded to eliminate positioning problems. The PDP-11 computer will be replaced with a 486 PC during one of the next two port calls.

Computers

B. Mills reported that an email facility is now in use on the ship. It is currently being reviewed for full implementation and to assess potential costs to users. Presently, blasts of compressed email files are sent and received once per day. Panel members expressed their support of the continuation of shipboard email. A status report for the next meeting would be appropriate **(Action: B. Mills)**

B. Mills presented the LabView software to the panel. This software allows the user to develop windows-type data acquisition modules for individual labs. The utility is available for both Mac's and PC's. K. Moran reported good success with the package in her laboratory. The panel encourages the use of this software utility for development of data acquisition modules.

Microsoft© Word is now included as one of the shipboard supported software packages. The software programming language 'C' is available on the ship for Mac's, but is not supported by the systems managers. A full software review was tabled until the spring meeting of SMP **(Action: J. Allan present available software to joint IHP/SMP meeting).**

B. Mills also reported on computer hardware upgrades. Two Sun Sparcstation 10/30's have been purchased. One will be transferred to the ship soon after delivery. All of the 286 and 386 PC's will be upgraded to 486 PC's within the next 4 months. All DEC Pro 350's will be replaced by the next two legs. Five new removable hard-disk drives have also been purchased for easier transfer of data from the ship to the shore. SMP commended ODP/TAMU on their efforts in maintaining computing equipment which will enhance existing systems and which will provide a good base for the new computing system and core-log data integration.

Sedimentology/VCD/Sampling

The revised Visual Core Description (VCD) program was presented to the panel by B. Mills. Modifications are still being made to it and the final version will be ready in December. The modifications will address the following problems: provide a link to CORELOG which does not now exist; fix the cursor problem and add symbols/text to the menus; and automatically input samples from SHIPSAM. J. Allan reported that J. Coyne is working on a second generation VCD which will be based on "etch-a-sketch" concept. Because of this potential second generation, the panel reviewed and discussed the existing VCD program and identified changes for improvement.

The panel agreed that the VCD is actually a misnomer, the program should be called the BSP for Barrel Sheet Program. Although this software package is a major improvement for use in the production of barrel sheets, it is not actually used directly for visual core description. Because of this, the panel agrees that any new development should be dedicated to the acquisition of visual core description data. If this is done and the data are captured appropriately, then the input of VCD's to barrel sheets may be done electronically and relatively simply.

SMP recommends that the second generation VCD program should fulfill the following requirements:

- **ergonomic so that it can be used by one person for direct input of the core description to a computer (e.g., pen-type data input system)**
- **data should be captured as a graphic at the 1.5 m scale**
- **data should be captured using autocad-type software (object oriented)**
- **the program should be able to capture data at variable, user-selected scales**

•the description should be wysiwyg
•output should go directly into the database for archive and for immediate access
•designed for both sediment and hard rock core descriptions
•allows for input of smear slide and thin section descriptions
•a video display of whole core data should be optionally available during the VCD data capture process (e.g. MST data) to assist in the selection of intervals for detailed description (92-19)

C. Sondergeld reported that Amoco have developed a voice recognition VCD system. This option should also be investigated as a possible mechanism for data acquisition of VCD (**Action: ODP/TAMU to contact Sondergeld for additional information on the Amoco voice recognition software)**
The panel also agreed that a review of the content, presentation, and form of publication of the barrel sheets is past due. **ACTION: IHP and SMP review Barrel Sheets at the next joint meeting in February, 1993.**

J. Allan reported that the CORELOG program has not been revised. SAM has been modified for use on a PC. The modifications to this software should be reviewed. **Action: ODP/SAM forward a copy of the new SAM program to E. Thomas for review before the next SMP.**

Critical core sampling intervals was discussed by the panel. E. Thomas raised a concern that the existing critical interval list is counterproductive. The following is the existing ODP Critical Interval Policy:

Certain types of material considered to represent 'critical intervals' are handled and sampled following special guidelines. Falling into the category of critical intervals are important stratigraphic boundaries, structural phenomena, and key macrofossils. Critical intervals are defined as follows:

K/T boundary
volcanic glass
Cenomanian/turonian boundary event
Mediterranean Messinian/Tortonian boundary
sediment/basement interface
salt cores
macrofossils
sulfides
sapropel
whatever co-chiefs determine is critical

If an interval is deemed 'critical' is should be closed off 3 meters above and below its boundaries. A sampling plan must be drafted that provides material for all interested parties. The plan is FAX'd to shore for Curator approval. Sampling of the critical interval may be deferred to shore to allow sufficient time for investigators to assess their sampling needs, and to work out co-operative studies to maximize the science gained from this unusual material.

This list includes the Eocene/Oligocene boundary as a critical interval which is not appropriate. The actual critical interval is the lowermost Oligocene and not the boundary. There are also similar problems with the Paleocene/Eocene boundary. The panel agreed that critical intervals must be decided by IHP with input from the other panels. SMP requests that IHP review and modify the definition of critical intervals with input from other panels. **Action: E. Thomas to review critical intervals for next joint meeting with IHP.** However, SMP is concerned that critical intervals, once defined, may not be handled appropriately and the core intervals may degrade with time, particularly those intervals which are anoxic and may suffer from chemical degradation. **SMP recommends the following storage procedures for split and whole cores of anoxic sediment (92-20):**

For whole-round core sections (e.g. Santa Barbara Basin Cores): (1) fabricate or use a prefabricated KAPAK bag; (2) place the whole-round 1.5 m core section in the KAPAK bag; (3) evacuate the KAPAK bag to remove air; (4) refill the bag with dry N_2 gas; (5) heat seal the bag ends; and (6) place the core and bag into cold storage.

For half-round archive core sections from anoxic sediment: (1) split the core section; (2) immediately after description,photography and colour measurement of the split section, place it in a KAPAK bag; (3) place the core and bag into a D-tube and evacuate the air from the bag; (4) fill the bag with dry N_2 and seal; and (5) flush the D-tube with N_2 and seal.

J. Allan reported that two colour measurement devices have been purchased. The device chosen is manufactured by Minolta. The device can output colour data in a variety of systems: XYZ, Yxy, L*a*b*, Munsell, etc. In addition, spectral reflectance is measured within 20 spectral bands over the range of 400 to 700 nm. The instrument can work with or without a computer attached. **SMP recommends that the new Minolta spectrophotometer be routinely used to measure Munsell colour and should replace visual assessment of colour. For legs with paleoceanographic objectives, colour spectral data should routinely be measured and recorded at an appropriate depth interval (92-21).**

M. Rhodes reported on his further investigation of the infrared analyses method as a potential replacement for smear slides and thin sections. He reported that Tim Herbert (Scripps) had contacted him about developing an IR device for mineral analyses. Herbert is preparing a proposal for building an instrument to use the IR method. The most promising aspect of the method may be the ability to routinely determine three major components: $CaCO_3$, silica, and clays. Instead of actual abundances, the output may be ratios of peaks (e.g., the ratio of a clay peak to quartz peak). Some of the potential problems with the method include: sample preparation (require size of $< 2\mu m$), absorption of water, contamination, and precise weighing of an accuracy of 0.5 mg/300 mg.

C. Sondergeld reported that Amoco has been using this method for 5 years. They have invested development time of approximately 2 years just for sample preparation. They have found that the method has been better than XRD for their needs; however, they have spent a considerable amount of time on site specific calibrations.

SMP agreed that the method may still be very appropriate for shipboard use. It was also clear that for development of a shipboard system, Herbert should take advantage of the experience gained by Amoco, if they agree. The ideal scenario would be for a graduate student (under Herbert's supervision) to spend some time in the Amoco laboratory using their method for a variety of ODP sediment types. **Action: M. Rhodes to contact Herbert; K. Moran to write to Herbert on behalf of the panel in support of the development; and C. Sondergeld to request that Amoco liaise with Herbert for ODP development of the IR method.**

The recommendation from SMP meeting no. 7 to ODP/TAMU should still proceed. It is repeated here as follows: **SMP recommends that a few samples are sent to Corelabs for infrared mineral analysis (92-8) for evaluation of the IR method. Action: K. Moran forward a copy of M. Rhodes report to J. Allan.**

M. Rhodes also reported on another potential new development, an XRF scanner. T. Herbert has suggested this second potential development for the split core MST as the geochemical scanner component. The panel discussed the potential applications of this device. A continuous scan, high resolution geochemical split core analysis tool would be appropriate and beneficial for paleoceanographic objectives. It could also be used as a tool for the rational selection of intervals for detailed XRF or XRD analyses. Approximate cost estimates range from \$75k to \$100k. This technology would likely be limited to elements heavier than Ca and Fe. Some of the potential

problems are: core topography, variable water content, and matrix effects. P. Schultheiss reported that a research group in Holland has already developed a scanner of this type. It seems this device has been used successfully to measure Ca, Ti, Mn, Fe, Ni and Cu. **Action: M. Rhodes to contact Spectra for more information on this development and report to SMP.**

At the last SMP meeting, it was reported that the shipboard X-Ray system was not yet back onboard. At that time, the goal was to put the system back onboard for Leg 144. The system is still not back on the ship. This delay is unacceptable. SMP emphasizes the need to get this equipment back onboard immediately. **Action: B. Mills report on status of shipboard X-Ray.**

Geochemistry

J. Allan reported that the automatic titration system (Brinkman 702) has been ordered. Analytical techniques for use of this equipment will be developed onshore prior to its installation on Leg 149. **SMP agrees that technical staff must be fully trained on this equipment prior to its installation. Action: J. Allan report on Auto titration installation and technical training.**

Other changes to the geochemistry laboratory include replacement of the LAS system (HP1000) with 486 PC's. The Dionex will be replaced with a new Dionex DX-100 ion chromatograph with an autosampler. Installation is scheduled for the Leg 149 transit. Also the HP 5890 gas chromatograph upgrades will be completed on Leg 146 to 5890 Series II.

An evaluation of the new Geofina in comparison to the Rock Eval is ongoing. **Action: M. Mottl to report on results of the comparison.**

The balances have been upgraded to run by Labview 2 programs. Acquisition of the carbonate autosampler is on hold due to vendor delays. Tentative schedule for acquisition is sometime in early 1993. **Action: B. Mills report on status of carbonate autosampler.**

The changes and upgrades which are presently in progress are excellent. The improvements will increase the efficiency of the laboratory and optimize the laboratory space which has been one of the major problems in this laboratory.

The status of technician training was not reviewed at this meeting, discussion was tabled until the spring meeting. **Action: B.Mills or J. Allan report on geochemical laboratory training.**

Underway Geophysics

SMP is seriously concerned with the delay in adequate navigation software/hardware. The delay is totally unacceptable. At present, real time navigation is not possible. The panel agrees that this must be changed immediately. SMP has been emphasizing this need since March 1990. The delay in upgrading of this essential requirement is negligent. It is embarrassing that we cannot properly site the ship in real time. **SMP recommends that real time navigation be incorporated into the underway laboratory immediately and reminds PCOM that this recommendation has been on the 'books' since March 1990 (92-22).**

Discussion of required seismic data acquisition tasks was tabled until the next meeting. **Action: H. Tokuyama present recommended data acquisition requirements for the underway laboratory at the next SMP meeting.**

The acquisition of a workstation for the underway laboratory has been put on hold until a decision is made on the direction of the new computer database upgrade system. **Action: J. Allan report on status of seismic workstation.**

ODP Sampling and Downhole Tools

This discussion was deferred to the joint SMP/DMP meeting (see notes from joint meeting, pages 25-26).

VI PCOM Report

J. Fox reported that there will likely be flat funding in the program in future. There will likely be no budget enhancement and no Russian participation. Consequently, long term strategies will have to be revised. ODP will be approved for further U.S. participation and there has been positive "voices" coming from other member countries regarding future participation.

He also reported that the core repositories are running out of space and PCOM is considering the possibility of new, potentially non-U.S., repository sites. There is currently a call for interest in new repository sites.
The JOIDES office will likely be at a non-US institution after residing at U.W.

PCOM unanimously approved the continuation of the DCS at a reduced level. This placed resource priority with the DCS, while major required

modifications to the new program computing system was essentially ranked as a second priority. Because of these budget constraints, SMP must place priorities on the computing upgrades.

VII DMP Report

P. Worthington reported that DMP's guidelines for third party tool development has been approved with tougher rules. The panel was disappointed that PCOM endorsed in situ pore fluid sampling development with no financial commitment. High temperature tool development is proceeding well.

The new panel chair as of the new calendar year will be Peter Lysne.

DMP have been proactive in the development of a booklet on ODP downhole measurements. The 'hot-off-the-press" issue was passed around for SMP comment. E. Thomas, an SMP member contributed to the DMP booklet. The result is excellent.

VIII SMP Publications

The panel discussed the possiblity of following the DMP lead and produce a booklet highlighting the shipboard capabilities as they relate to the program's scientific objectives. SMP agreed that this type of publication was very cost-effective and should be viewed as an investment to the program. J. King recommended that some specific aspects should be highlighted for a greater awareness among the science community of available capabilities, e.g. core-log data integration; database; and specific shipboard measurements capabilities. He emphasized that we should not duplicate DMP's booklet. SMP members agreed that these capabilities should be highlighted as key components. However, the general agreement was that any SMP publication should be thematically focussed. **Action: K. Moran to discuss potential thematic topics for a booklet with thematic panel chairs at the annual PANCH meeting. All members discuss potential topics with colleagues for the next SMP meeting.**

The Chair apologized for the delay in reproducing the Attachments to the previous SMP minutes. They will be forwarded with the minutes of this meeting. It was suggested that the Core Disturbance Meeting Report be published in the next JOIDES Journal. **Action: J. King to assist in editing the report for submission to the JOIDES Journal.**

B. Mills reported that a video was being produced from footage shot on Leg 143. The video is titled "This is ODP". **Action: B. Mills to arrange for the SMP to view the video at the next meeting in College Station.**

IX IHP Report

R. Chaney has replaced A. Richards as the new liaison to IHP. He reported on four items from IHP that are related to SMP issues. (1) At the IHP meeting, R. Chaney reported on the GRAPE problem and asked for guidance on how to handle any old data that may be in error. IHP recommended that one logical solution would be to include a note on the problem in the CD ROM data set. (2) The Bugware software developed by Mitch Covington did not arrive at ODP/TAMU for some reason. However, IHP still strongly recommended that ODP/TAMU review Bugware for possible implementation on the ship. Implementation does not necessarily have to be on a Macintosh. IHP is seriously concerned about the 45 leg backlog of micropaleo data. (3) Data Handling Working Group recommendations were accepted by PCOM. Budgetary constraints will slow the development and TAMU has decided not to bid on it. SMP should note that core-log data integration has not been specifically addressed in the RFP. (4) TAMU has indicated that they need resources to handle assembling data bases - not new data structures. IHP has recommended to PCOM that TAMU obtain an additional full time person and focus on product not new widgets.

X Upcoming Legs

SMP is concerned that Santa Barbara Basin cores may not be properly handled and processed. If the cores are anoxic as will be expected, they should be stored as recommended on page 11 (SMP recommendation 92-20) until they are processed. The cores should be processed in the same manner as all other ODP cores. Measurements which are required include: interstitial water (IW) analyses; gas chromatograph analysis (GC); paleontological analyses; MST; paleomagnetics; discrete physical properties (a minimum of one sample per core for index measurement); and measurement of spectral colour reflectance of the split archive half using the spectrophotometer (see SMP recommendation 92-21). Processing of the IW and GC samples should be performed by the shipboard geochemists on Leg 146. Preliminary age determinations should be performed by the Leg 146 shipboard paleontologists. The remainder of the analyses and measurements can be performed off of the vessel, if necessary. However, it is the view of the SMP that these procedures would best be performed onboard the ship because of logistical problems in setting up a separate laboratory and possible damage to the physical properties during transport to another laboratory. The Leg 147 marine technical specialists can perform all of the analyses competently and in a timely manner during the transit to the first site of Leg 147. If processing is performed onboard as recommended, then split archive cores from anoxic intervals should be stored as recommended above (SMP Recommendation #92-20) and other non-anoxic archive cores should be covered with plastic

wrap, bagged in plastic sleeving and then stored in a D-tube until the science party can open the cores for description.

A discussion of Atlantic legs was deferred until after the FY94 schedule has been decided. The panel agreed that each member should be assigned as a watchdog to scheduled legs. The watchdog will be responsible for contacting the assigned cochief scientists to discuss any potential special requirements for the leg. **Action: K. Moran to assign watchdogs after the FY94 schedule has been set.**

XI Discrete Measurements of Index Properties

Discussion of index properties was referred to the Special Physical Properties Meeting (see pages 21-25).

XII Core-Log Data Integration

T. Janacek reported on the activities related to core-log data integration from the recently completed Leg 145. Core-log data integration was done in a brute force manner, by printing out data sets and correlating them on a light table. He summarized the reasons for minimal success of core-log data integration. The two primary reasons were: (1) the software/hardware onboard is inadequate to do this task; and (2) the job description of the core-log data correlation specialist is not well defined.

J. King reported on the status of CORPAC. Globex, the company that developed and owns CORPAC, has contracted a software development company (Gnomix) which is well-known for their skills in taking prototype software packages to completion to do the following: (1) convert the entire CORPAC program into an X-Windows interface; (2) complete the manual; and (3) fix any remaining software bugs. Gnomix anticipates completion of these tasks sometime this fall. The X-Windows version is being designed for ease of use, but also for rapid analysis of large data sets. Commands can be used interchangeably with menus (i.e. the program allows pointand-click operation as well as command line operation). A "self-tutoring" interface has been developed where all of the commands are built and logged for the user to see and re-use. This has been developed so that the user can readily become familiar with the command structures in their day-to-day use. The program is designed to run on all UNIX based machines. The price is $750 per copy (educational discount). There will also be a group purchase discount price. Globex has recently initiated a discussion with NSF about an academic community discount and Globex would be willing to discuss a similar arrangement for ODP researchers. The size of the discount is dependant on the number of copies negotiated for purchase. ODPspecific modifications to CORPAC would require funds for a Gnomix programmer(s) and Doug

Martinson's time. CORPAC training for ODP related operations can be done through Doug Martinson at LDGO. He suggests a program similar to the BHRG for training.

The panel again agreed that CORPAC is required for core-log data integration. This task can be completed by use of CORPAC and the software developed by Terry Hegelberg and Nick Pisias at OSU which is used to manipulate core segments in depth. It is clear that a combination of CORPAC and the OSU software would be suitable for the core-log data integration task. However, neither of these software packages are ready yet and they are certainly not integrated in any way. J. King suggested that the direction for integrating these packages for ODP shipboard use could come from the shortcourse/workshop that will be held at URI the 2nd week of February. The workshop topic is on multi-variate and spectral analysis. **Action: J. King to initiate discussion of OSU and CORPAC software integration at URI workshop and report to SMP at the next meeting.**

SMP recommends that ODP/TAMU purchase the new version of CORPAC for evaluation and for specifying any special modifications required for shipboard use (92-23). A version of CORPAC should be available for use on Leg 150.

T. Janacek reported that ODP/TAMU has purchased a copy of PV-Wave which may have some of the capabilities required for core-log data integration. SMP members were not familiar with this package. **Action: ODP/TAMU report on evaluation of PV-Wave and set-up a demo for the next meeting if the evaluation is positive.**

Two Sun workstations have been purchased and one will be put onboard as a corelog data integration station. SMP is pleased to see the operator taking the initiative on core-log data integration and encourages further development.

SMP is concerned that the data handling steering committee did not include corelog data integration in the specifications for the new computing system as recommended by the DHWG. SMP emphasizes that core-log data integration will be a key part of most future legs and that this component must be considered as part of the shipboard capabilities. Thus this activity must be included in any new computing design.

XIII Shipboard Operations

This discussion had to be cut short due to time. The panel defined topics that must be discussed at the next meeting. These include issues related to dry dock: (1) lab space needs/changes; (2) changes to the catwalk design; and (3) addition of a deck on the main house.

The panel discussed the delays the operator faces in the acquisition of computers as data acquisition systems. Many of the panel members have faced similar restrictions at their home institutions in the past, but most have found that their respective institutions have modified the restrictions to accommodate data acquisition computers. **SMP recommends that computers (PC's, Mac's or UNIX boxes) identified for purchase as data acquisition machines should not be reviewed in the budget as computers. Rather, this hardware should be considered as part of any new measurement system or as an upgrade to an existing measurement system. Any new equipment that is requested for purchased which does not have a computer dedicated to it should be more carefully scrutinized.**

XIV To Half the Core or Not?

E. Thomas suggested that it would be inappropriate for SMP to discuss this topic with no representation from a sedimentologist. SMP members agreed with her comment. SMP suggests that IHP review sampling procedures for the archive half of the core and that a questionnaire for the JOIDES Journal regarding the practice of splitting the core in half be drafted. **Action: R. Chaney to draft a questionaire regarding possible new options for splitting the core.**

XV Report of the Physical Properties Special Meeting

This report was presented jointly to SMP/DMP (see Joint Meeting Report, pages 2125)

XVI Laboratory Equipment Priorities

Laboratory equipment priorities were reviewed again. Due to the delay in the acquisition of appropriate navigation hardware, it was put back on the list. The current equipment priorities are as follows:

1. Navigation
2. Natural gamma and MST upgrade
3. Hardrock velocimeter
4. XRF PC upgrade
5. Resistivity equipment for discrete measurement
6. Bar code reader
7. Seismic workstation
8. Seismic towing system

Note: the carbonate autosampler is still a high priority, but it is not yet available by the manufacturer. It will be reviewed again for its priority at the next SMP.

Third-party equipment under development which SMP monitors for future shipboard use is ranked as follows:

1. Colour reflectance (Mix)
2. Electrical resistivity core imaging system (Jackson)
3. Infrared spectroscopy (Herbert/Amoco)
4. XRF split core scanner (Herbert/Jansen)

XVII Panel Membership

The panel still requires a sedimentologist. A U.S. sedimentologist was nominated by one of the panel members and all SMP members agreed that the nominee would be an excellent addition to the panel. The Chair contacted the individual named and this person agreed to participate as a member if approved by PCOM. The Chair will recommend the individual to PCOM at the annual meeting in December. There were no other changes to panel membership at this time.

XVIII Next Meetings

SMP will request the next meeting to be in College Station from 24-26 February with a one day joint meeting with IHP. J. Allan will host this meeting. Future tentative meetings are: September 1993, Paris (J.P. Valet, host) and February 1994, possible port call meeting.

SMP/DMP Joint Meeting Summary and Recommendations

The joint panels focussed on three topics: (I) a presentation by Carl Sondergeld on Amoco's geophysical rock properties laboratory; (II) a report of the special meeting on ODP shipboard physical properties which was held during the SMP meeting; and (III) the status of core-log data integration.

I Presentation of Geophysical Rock Properties Laboratory

C. Sondergeld presented the capabilities of Amoco's laboratory facilities. The capabilities include index properties, p-wave at variable stress levels, magnetic susceptibility, qualitative and quantitative mineralogy, permeability (air method), triaxial stress-strain testing, uni-axial compression, and quantitative image analysis. These measurements are all performed by a team of three and at a rate of 1 sample every 2 hours. Potential benefits to the ODP include technology developed for velocity measurements under stress, infrared mineralogical analyses, and quantitative image analysis. SMP is

suggesting that Herbert (Scripps) collaborate with Amoco in the development of a shipboard IR system (see SMP minutes, page 12). If this collaboration is successful, there may be a potential for technological exchange in other areas.

II Report of the SMP Special Meeting on Physical Properties

R. Chaney reported to the joint panels on the results of the special shipboard physical properties meeting which ended one hour before the start of the joint meeting.

The physical property special meeting was held because of the long term problems with these measurements. Most of the problems in this laboratory occur because none of the equipment is off-the-shelf and consequently the measurements are made with essentially 'patched together' equipment. Five different measurements were reviewed during the special meeting: discrete measurement of index properties; resistivity; the gamma ray porosity evaluator; velocity; and natural gamma. A list of recommendations under each topic is summarized below.

Discrete Measurement of Index Properties

The current recommended procedure of measuring the wet and dry sample mass and the dry sample volume where the sample is oven-dried in a convection oven for 24 hours at 105^{o} C is working well. The group agreed not to alter this recommended procedure. An additional check on the accuracy of the procedure is recommended. It is recommended that the accuracy of the method be checked by (1) comparing index property data from before and after Leg 131 (freeze-dried vs. ovendried) and by (2) calculating the errors for different sediment types.

The special group discussed the possibility of using CATSCAN technology to replace the current index property method because the existing method is very labour intensive and the CATSCAN provides an automatic method for archiving whole core information which is lost after splitting. The group agreed that this technology should be considered further. It was reported at the special meeting that Schlumberger had developed a core-sized CATSCAN. R. Chaney will investigate the possibility of acquiring this technology for ODP from industry and will report to the next SMP on his findings.

Resistivity

Three options for resistivity measurement were discussed: discrete AC measurement on split cores; induction resistivity on whole cores; and resistivity imaging of split cores. The special group agreed that a discrete measurement device should be available onboard for routine split core resistivity measurement. Resistivity provides an independent estimate of porosity and can potentially provide insight into the tortuosity and matrix permeability of sediment. Two systems will be used on Leg 146 and evaluated by K. Moran. A selection will be made following this evaluation. In the longer term, the group agreed that the induction method is a nice option because it could be automated in the whole core MST. P. Schultheiss will investigate the two systems which have been developed for other programs and provide a report to SMP. In addition, the group agreed that a split core resistivity imaging system could provide both discrete resistivity and a split core image for core-log data integration of the FMS with the core. The group encourages P. Jackson to continue the development of this system for eventual routine use onboard.

GRAPE

SMP was contacted by one of the co-chiefs from Leg 138 and several members of the Leg 138 science party regarding the reliability of the gamma ray attenuation porosity evaluator (GRAPE) which is part of the multi-sensor track (MST). The scientists on Leg 138 suspected that the GRAPE was calculating a bulk density that was up to 10% too high. The offset between the discrete measurements and the GRAPE density was highest in high porosity materials.

R. Whitmarsh, previous UK SMP member, reviewed the GRAPE software and suggested several potential problems which could account for this offset: (1) the attenuation coefficient for the original Barium source was not changed to the appropriate Cesium coefficient when the source was changed at the beginning of ODP; (2) appropriate calibration calculations are not done in the software; and (3) a correction for pore water is not included in the software.

The group also suggested other potential problems including: (4) calibration standards are not close to the density of the material tested, e.g. use water for high porosity sediment, carbon for intermediate porosity, and aluminum for rock samples; and (5) pile-up effects can cause a slightly higher density. The group made the following recommendations:

- evaluate pile-up effect
- check source anchors and modify to better secure them
- modify detection hole to increase its size
- incorporate a carbon standard into the core tray so that it is automatically run on each section

- assess existing code to evaluate problem for high porosity materials
- modify and document program code

Velocity

There are currently two compressional velocity apparatus onboard the ship for discrete measurements. These are the Hamilton frame for hard sediments and rocks and the digital sound velocimeter (DSV) for sediments. The Hamilton frame is calibrated using lucite and aluminum blocks. In contrast, the DSV is calibrated using distilled water.

Prior to Leg 130, p-wave velocity results from the Hamilton frame were picked off the oscilloscope. After Leg 130, the software for the DSV was connected to the Hamilton frame so that the first break could be automatically and systematically picked.

Problems with the discrete measurement includes inconsistent transducer contact pressure on the Hamilton frame and non-parallel faces for hard samples using the Hamilton frame. The group recommended the following:

- hemispherical contacts for the transducers on the Hamilton frame
- develop an apparatus for cutting parallel surfaces for friable materials
- develop a half core jig for the Hamilton frame
- put together a tool kit for trimming biscuit
- develop a jig to be used for making flat, parallel surfaces for hard rocks

G. Iturrino presented to the special physical properties group a comparison of shipboard Hamilton frame p-wave results versus laboratory tests done shore-based under stress. The results showed that stress relief caused the opening of microcracks which resulted in erroneously low shipboard velocity measurements. He also presented some details of the apparatus he used at Miami which seems to be a very user-friendly system. The group recommended that the equipment used by Iturrino be evaluated further and acquired for routine shipboard use, specifically for hard rock legs.

The group also discussed the p-wave logger on the MST. This device has been routinely used since Leg 108. The group agreed that the measurement suffers from poor quality control. Because of this, the group made the following recommendations:

- apply a wet sponge to the core tube prior to running the sample in the MST to assure acoustic coupling
- run a water standard routinely and record the results

- XCB cores should not routinely be run through the MST, rather the paleomagnetics and/or physical properties specialists should request running of XCB cores when they are satisfied the core quality is high enough.

In addition, because of the increased use of multi-sensor tracks in many laboratories, the group agreed that routine and consistent procedures should be established throughout the community so that data can be confidently compared. Consequently, the group recommended that a workshop be held to discuss the methods and applications of MST data, specifically for marine geological applications. The group agreed that R. Chaney should take the lead and write a proposal to JOI to conduct a workshop. Other suggested individuals to assist in this effort include: Peter Schultheiss and Nick Pisias.

Natural Gamma

ODP/TAMU is currently in the processing of developing a whole core natural gamma device. The plan is to put the instrument out on Leg 147 or 148 mounted on the MST, but not controlled by the MST software. Then integrate the system into the MST by the end of Leg 149. Between Legs 147 and 149, the raw counts will be used and the data evaluated.

There should be no problem with the either the background or direct radiation from the Ce^{137} source. There is a potential that Compton scattering may occur from the Ce source (low energy gamma, 100-159 kV). Lowest energy levels should be 150 to 200 kV. Shielding may be required in future consisting of 3/8 in. copper plus 3/4 in. lead. The system will also need calibration sources. The software should be designed to convert counts to API units and because the vertical resolution of the core data will be better than the log data, routines to filter the core data for comparison to the logs should also be incorporated.

III Core-Log Data Integration

The panels first heard a report from A. Fisher on the status of Core-log data integration. The following is the status of progress made by the operator:

- Science operations have purchased two Sun SPARC-10 workstations , one will be used onshore by Database for development and the other will go on the ship sometime in early 1993.
- Computer services has purchased two Sun SPARC-10 workstations, one will go to the ship as an empty platform for use by shipboard scientists and will be installed during the Leg 149 transit, the second will be in the ODP/TAMU user room.
- Science operations/database have purchased several copies of PV-Wave software for development of custom data-merging tools.

•CORPAC will be evaluated over the coming year.

•ß-release of VCD software is onboard for Leg 146 and the final version will be out in December 1992.

•Natural gamma prototype will be installed during Leg 147 with the goal of fully merging the system for Leg 149.

•Sonic core monitor has not been run since Leg 143 - no future modifications planned.

•Core scribing system - no changes since Leg 143. New core-barrel latch to prevent rotation when used with the RCB is due out for Leg 147.

•Tensor orientation tool was run during Leg 145 with 75% success rate. Failures were attributed to battery problems which can be corrected. A second tool has been purchased, both will be out for Leg 146.

•Bit-depth indicator data is now collected manually on an electronic clipboard. True digital drilling parameters at least one year away.

•Magnetic susceptibility tool was successfully run on Leg 145 downhole.

The operator has yet to designate an individual as the coordinator of developments for core-log data integration. In addition, A. Fisher pointed out that core-log data integration is not included as part of the RFP for the new ODP computing system.

T. Janacek briefly reviewed the problems with core-log data integration on Leg 145 as was presented earlier to SMP. Based on these reviews, the panels agreed that the two outstanding problems are: (1) the equipment and software to perform the task is not yet available; and (2) the job description of the science party core-log data correlation specialist has not been well-defined.

DMP and SMP are concerned that core-log integration has not been included as an integral part of the new computing system upgrade. The panels jointly agreed on the following recommendation:
DMP/SMP re-emphasize the scientific requirements of core-log data integration during the upgrading of the shipboard computer system. In order to incorporate a new core-log data integration shipboard facility, a scientific staff member at ODP/TAMU should be identified to lead and coordinate this development. The core-log integration software development should draw upon existing capabilities within the JOIDES community where appropriate (92-24).

The job description for the shipboard core-log data correlation specialist needs to be defined at an early stage. To facilitate this definition, DMP and SMP will identify the key tasks that will have to be undertaken in order to achieve the

data integration objectives. The job description should be completed prior to the staffing of Leg 150.