SCIMP APPENDIX 99-1-1

JANUS PAL application comments and fixes

Brian, Tom: Here are Comments from Leg 181 and 182 users as well as paleontologists who saw PAL at the ICP in Lisbon last summer. My responses to each comment are in CAPS. Also, I have included some responses from Gil Munoz, who programmed PAL, which he emailed back to Leg 181 user's during the cruise.

John Firth

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LEG 181 COMMENTS

Felix Gradstein (Foraminifers):

Paleo is an excellent program; having worked with several, this one is remarkable intuitive and looks like the best so far. The subjective idiosyncracies of paleontology will never allow the perfect program. So, always something to comment on, and thus here i go:

1. It should be possible for every genus entry to automatically, by default have a sp. and spp. entry, instead of the full genus-species name.

THIS HAS NOT BEEN DONE. WAS VIEWED AS OF LESSER PRIORITY THAN OTHER ITEMS.

2. The comment line per sample should be longer.

THIS HAS BEEN DONE.

3. there should be a spreadsheet code for reworked specimens

THIS WILL BE DONE FOR 184.

4. The percentage classes for the relative abundance will give trouble. We use rare when a sample is poor and only has few specimens. Technically, in the Paleo program these specimens would be abundant, if we followed the internal logic of percentage of assemblage. Since we never have time to count on the ship, better use relative classes like isolated specimens, rare, common, frequent, abundant and dominant. Amd do not define it..,.... any further.

WE THINK THIS SHOULD BE REVIEWED BY SOME OUTSIDE PALEONTOLOGISTS TO DECIDE WHETHER TO MODIFY THE PREDEFINED TABLES FOR RELATIVE ABUNDANCE OR NOT.

Bruce Hayward (foraminifers)

PAL programme comments and suggested improvements

1. In the spreadsheet when benthic forams is selected as the group: Group abundance options says "Rare means common" - typing error.

ERROR IS IN DATABASE TABLE, NOT IN PAL. CAN BE FIXED EASILY BY 184

2. In benthic forams: the abundance options for species is the set for

group abundance, should be the set for species abundance (i.e. Dominant, Abundant, Few, Rare, Present).

ERROR IS IN DATABASE TABLE, NOT IN PAL. CAN BE FIXED EASILY BY 184

3. When choosing samples to add to the spreadsheet you are working on - it is a pain that every time you go in, the leg number is 200 and one has to scroll down to the appropriate leg (ie. 181) - it would be much friendlier to default to the leg you are on - save a lot of time (ie. Done every hour or two).

THIS WAS FIXED DURING LEG 181.

4. It would save time and be convenient, if it was possible to save the spreadsheet and its settings you are working with, and be able to call them up next time you go in - since they are partially lost when you go out; and on my machine I need to switch the whole PC off 2-3 times per day, because it keeps losing contact with the server or the headings in Pal turn pink and cannot be read - these can only be rectified by exiting Pal and switching off and on again. Similarly others use the same terminal in the next shift and also Pal.

PAL WAS MODIFIED TO SAVE SETTINGS FOR EACH USER, BUT NOT THE SPECIFIC SAMPLES BEING WORKED ON IN THE LAST WORK SESSION.

5. For fossil groups with more than one worker, we adopted a user code to share between the two foram workers (forams) and one for the two nanno workers (nannos) - thus there is no record of who's IDs the records were made by. If this is a concern, then it could be added under comments or an extra column. If we had not shared one user code we would end up with two separate spreadsheet tables and not be able to modify each others and eventually have the irksome job of combining the two in excel somehow. The shared code works well.

ODP AGREES THAT 2 USERS WITH THE SAME FOSSIL SPECIALTY SHOULD USE A SINGLE USERCODE TO SHARE BETWEEN THEM.

6. We are all using paper, to some extent,to write our records first - and entering them after each sample or mostly at the end of each day. I prefer on other programs to enter directly into the computer, but several aspects of PAL are not particularly friendly for this for me:
a. I work on forams - both planktics and benthics at the same time - it is impossible to switch easily between the two spreadsheets - I normally put them in the same database, not separately. (I realise however that this is not always the case with all foram workers - though many I suspect). I have adopted middle ground of entering the planktics as I go along and entering the benthics at the end of the hole.

ODP BELIEVES THAT OPENING MULTIPLE INSTANCES OF PAL AT THE SAME TIME PROVIDES THE BEST WAY FOR A USER TO ENTER 2 OR MORE FOSSIL GROUPS AT THE SAME TIME FOR EACH SAMPLE.

b. Selecting the age and zone for each sample is quite a lengthy process - have to scroll down through c. 20 options each time (times 4 for each sample - 4 columns). I believe this is one of the most important pieces of data to come from our samples - but it is my impression that it is not being filled in by many of us because it takes so long. How to make it easier I do not know - maybe being able

to hit a key to copy the last entry in that column would help some - both here and under the columns for preparation method, group abundance, preservation and bathymetry.

THIS HAS NOT BEEN CHANGED. MULTIPLE ZONE DICTIONARIES ARE NOW POSSIBLE WITH PAL, AS THEY WERE WITH JANUS PALEO, SO SHORTER ZON LISTS CAN BE USED, WHICH WOULD REDUCE THE AMOUNT OF SCROLLING.

7. One major problem is that PAL only runs on PCs - in the pal lab there are 3 PCs and 2 Macs. Most of us prefer to do graphics etc on Macs - we have had enormous problems shifting/converting files between Macs and PCs, especially Kaleidograph files, which get corrupted if copied by PCs. Life would have been an aweful lot simpler if we could have just had Macs (or PCs) here. Because we all contribute to the same chapter on each hole, we are all going in and out of shared word processing, excel and other files. It is inconvenient, at times impossible, to shift from a PC to a Mac or vv for different tasks. T'would at least make life easier (if the ship is going to continue with both Macs and PCs to have PAL running on both.

ODP WISHES THAT COULD HAPPEN, BUT FOUND EARLY ON IN THE JANUS PROJECT THAT MACS DID NOT INTERFACE WELL WITH ORACLE, USING THE INTERFACE DEVELOPMENT SOFTWARE 'NEURON DATA' RECOMMENDED BY TRACOR. SO UNFORTUNATELY, PAL WILL PROBABLY NEVER RUN ON A MAC.

8. No-one on this leg is going into the databse via JANUS - we are all using PAL and enter the dictionaries from there. The only time we went in via JANUS was to enter the age and datum selections or to add new zones. In some of the fossil groups the zones have been ignored.

Overall a positive reaction - well done.
Bruce

THIS IS GOOD TO HEAR. AGE AND DATUM SELECTIONS AND ADDING NEW ZONES ARE ALL NOW POSSIBLE IN PAL, SO JANUS PALEO IS NOT NEEDED FOR THESE TASKS ANYMORE.

Juliane Fenner (Diatoms)

Dear Jack, Dear Carl,

A few quick comments concerning your querry on the paleontology application spreadsheet:

1. I find it inconvenient to have to search the Leg first whenever I start working on the tables. Can't it be fixed at the beginning of each Leg?

THIS HAS BEEN FIXED

2. It would be nice to have the possibility to add toothpick samples to the list oneself without bothering the curator. Now I do it after I have exported the table to EXCEL. But entering the data there is not as convenient.

THIS CAN NOW BE DONE

3. It is not always appropriate to enter a Zone. Could you create the possibility to enter datums?

THIS HAS BEEN DONE

4. As not always specialists for all microfossil groups are onboard during one Leg, one specialist may then be able to recognize at least certain marker species of another group and may want to include them in his table, but slightly offset from the other microfossil group reported on. This could be e.g. the case with nannofossil- or diatom specialists, who find in the slides they are checking through also silicoflagellates, actiniscids,or... Also they may want to list the group abundances for all microfossil groups they encounter in the that same table. Now it can be done only after exporting it to EXCEL.

Regards, Juliane.

LOGGING ON MULTIPLE TIMES WITH THE SAME USERNAME WILL ALLOW MULTIPLE INSTANCES OF PAL OPEN AT THE SAME TIME. EACH INSTANCE CAN BE SET FOR A DIFFERENT FOSSIL GROUP, SO ONE USER CAN MOVE BACK AND FORTH EASILY TO RECORD MULTIPLE FOSSILS GROUPS IN THE SAME SAMPLE AT THE SAME TIME.

Subject: More on Pal program for Jack
From: JRS Bruce Hayward
Date: 9/23/1998 3:16 AM

Another request for minor improvement for the Pal spreadsheet. A small irksome and time consuming point, that could be easily corrected is:

When in a large spreadsheet with many pages of samples; if I go to select taxa to another taxon to the spreadsheet, when click OK and return to the spreadsheet - it does not return me to the place I was at, but always takes me back to the top of the spreadsheet and I then have to scroll down to find the sample that I was working on. It would be much better to return me to where I was when I left.

THIS CAN BE DONE EASILY BY DEFAULTING TO THE BOTTOM OF THE SPREADSHEET WHERE USER'S ARE USUALLY WORKING ON THE LATEST SAMPLE, RATHER THAN THE TOP. HAS NOT BEEN DONE YET, BUT SHOUDL BE RELATIVELY MINOR TO DO.

I see the default in samples has been changed from 200 to 181 on ship and this small improvement makes life so much better for us all. Many thanks

Bruce

LEG 182 COMMENTS

Hi, John,
I have decided that the measure of a good cruise is how much the scientists complain about the database. If it's a difficult cruise, then they have too much else to engage them. If it's a pretty good cruise, then we complain about Janus!
I thought I could pass on a few comments to you and Gil that I pulled together while flying home from the cruise from hell.

1. Extend the length of the comment field associated with each sample. I think you are planning to do this.

THIS HAS BEEN DONE

2. When working on the data entry page, please return to the bottom of the page (not the top) when returning from adding a new sample (or species or whatever). The bottom is where the paleontologist is most often working. It is a pain to scroll back to the working sample every time we fetch another core catcher.

NOT DONE YET. MINOR PROBLEM TO FIX.

3. Abundance is used to characterize species on the data entry sheet (i.e., A, F, R, P). We also need "Reworked" as an option for all fossil groups, including planktonic foraminifers. We had some very messed up Miocene, and this was sorely needed.

WILL BE DONE BY LEG 184

4. The paleontologists need a column for zones that don't have bounding datum levels that are as well defined as the current program demands. (For example, Jenkin's zones). There is a need for this in regions where biostratigraphy is poorly defined and datum levels are suspected of time transgression (high latitudes and marginal seas). It is not adequate to include the information in the comments field. The working paleontologist already has this filled with many kinds of information and the comment field is not printed out on the website. The sedimentologists, paleomagnetists, splicer, chief scientists etc. need to know the zone, and it was a nuisance that they couldn't get this from the web. If you don't want it in the permanent database, then you could easily delete the field. You would make the working paleontologist a lot happier if you had such a field. I know your purpose is to curate data, but I sugggest that making the program friendly to the shipboard user will gain you more cooperation.

WE WILL CHECK 182 SHIP DATA TO MODIFY THE ZONE FIELD, IF NECESSARY, TO ACCOMODATE THESE TYPES OF ZONE DEFINITIONS. NEEDS TO BE PRIORITIZED WITH OTHER WORK.

5. Please consider a field for listing the other constituents in addition to the workers fossil group. This should also be available on the web page. At the moment I put this in the comment field, but this is not recoverable on the web. The constituents holds a lot of valuable stratigraphic information. A field for listing the sand-size constituents allows the comment field to remain a private zone for the paleontologist.

NOT DONE YET. WILL NEED TO ASSESS DB TO SEE HOW TO FIT NEW FIELD TYPE IN, OR TO MODIFY EXISTING FIELD TYPE. THE COMMENT FIELD CAN BE ADDED TO THE EXISTING WEB REPORTS QUITE EASILY (WILL BE DONE BY 184), AND IS PROBABLY STILL THE BEST PLACE TO ADD THIS INFO. OTHERWSISE THIS ADDITIONAL INFO OVERLAPS AND RELATES TO THE CORE DESCRIPTION

DATA COMPILED BY THE SEDIMENTOLOGISTS.

6. One reason the sedimentologists, paleomagnetists, splicer, chief scientists etc. tended not to use the web page and bug us instead is that the web page does not display the data in a very readable form, nor does it export the data in a form that is immediately usable without frustrating reformatting.
a. The web page is not readable in that it is nearly impossible to scan from a species to a sample ID without losing your place (Grid lines would help, or make the sample Ids column a frozen pane so it remains on the screen during scrolling)

GRIDLINES ARE AVAILABLE ON THE WEB REPORT. YOU SELECT OUTPUT TYPE HTML TABLE TO DISPLAY IN A MORE READABLE FORM. THE TEXT FORMAT REPORT IS FOR EXPORTING EASIER TO EXCEL. THIS WAS EXPLAINED TO CHARLOTTE VERBALLY, BUT NEEDS TO BE INCLUDED IN THE PAL USER'S GUIDE.

b. The first page should make visible at one time the ID, zones, ages, preservation. This would be most convenient for the non-paleo users of the data.

THE WEB REPORT FOR RANGE CHARTS, HTML TABLE FORMAT, DOES SHOW THIS ALL IN THE FIRST VIEWABLE PAGE. NOT SURE WHY THIS WAS NOT APPARENT ON SHIP.

c. The exported data should be more user friendly. People wasted a lot of time trying to format things easily, and it seems that every version of excel does something a little different with the output. The species names were a particular hassle with excess spaces and those useless numbers (useless to the user). In fact, people came down and asked me to make a printout for them.

THE EXPORT TO EXCEL PROCEDURE WAS EXPLAINED TO CHARLOTTE WHEN SHE VISITED ODP. THE BEST WAY TO EXPORT IS TO FIRST DO THE WEB QUERY USING A COMMA DELIMITED OUTPUT TYPE. THEN THE DATA CAN BEHIGHLITED, COPIED, AND PASTED INTO EXCEL, WHERE YOU USE THE
DATA...TEXT TO COLUMNS FUNCTION TO PARSE THE DATA USING COMMA DELIMITED TO SEPARATE INTO COLUMNS. THIS WORKS WELL, BUT NEEDS TO BE WRITTEN DOWN IN THE PAL USER'S GUIDE FOR SHIPBOARD USER'S.

THE EXCESS SPACES IN THE SPECIES NAMES WHEN EXPORTED TO EXCEL IS A PROBLEM, THOUGH I DONT SEE ANY "USELESS NUMBERS' ASSOCIATED WIHT THE TAXA NAMES WHEN I QUERY PALEO DATA FROM THE WEB. HOWEVER, GIL MUNOZ WROTE A MACRO FOR EXCEL WHICH AUTOMATICALLY
FORMATS DATA FORM THE WEB INTO A NICE RANGE CHART, WITH SPECIES NAMES TURNED SIDEWAYS, ETC. THIS WAS SHOWN TO CHARLOTTE WHEN SHE VISITED ODP, BEFORE THE LEG, BUT THIS NEEDS TO BE ADDED TO THE PAL USER'S GUIDE.

7. Please print out barren samples on the web page so the user knows that the sample was examined. This caused confusion to both the paleontologists and the users. When recovery was rapid, then samples were skipped, we need to know what is skipped and what is truly barren. At present, only samples with abundance entered in at least one species field are displayed.

THIS CAN BE EASILY ADDED TO THE WEB REPORTS BEFORE LEG 184.

8. Please add an option to the data entry page where one can sort alphabetically by species for species with data entered in the abundance columns.

SHOULD BE A SOMEWHAT MINOR JOB TO ADD TO PAL, BUT NEED TO ASSESS HOW MUCH TIME TO TAKE AND PRIORITY LEVEL.

I am sure there is more, but in the long haul of the cruise, the above is what stood out as most troublesome. We were able to enter subsets of our data, and that was very nice for startup. I am sure the startup process can be smoothed out, but I don't have specific comments on it.

I hope this is helpful.

Cheers,
Charlotte A. Brunner

Subject: Problem regarding PAL and benthics
From: JRS Charlotte Brunner
Date: 10/16/1998 4:21 AM

Dear Mitch,
Ann Holbourn has presented a problem particular to her fossil group. She will use benthic foraminifers in part to augment biostratigraphy during our Leg (though mostly she will use them to interpret paleoenvironment). She has noticed that in PAL her taxon list is not subdivided by age (i.e., Neogene, Paleogene, Cretaceous) so that her list of species is quite long. She can, of course, define for herself a Neogene subset (JANUS), but it looks like when she removes them in the PAL interface, she must enter each specie again to reconstitute a Neogene subset. The same must be done repeatedly for other subsets (Paleogene, Cretaceous). However, she has noticed that in Janus she can define permanent user subsets. Is there a way to get PAL to recognize these subsets so she can use the PAL data entry interface?

THIS HAS BEEN DONE FOR PAL. MULTIPLE TAXA DICTIONARIES CAN NOW BE MADE AND SAVED.

The other workers have a similar question regarding the zones. For example, I would like to define several sets of zones because we are in waters that will likely fluctuate between mid and high latitude zonations. I can do this in Janus, but can I get PAL to recognize other subsets? Must I be content to move zones in and out of the big ODP Zone dictionary?

THIS HAS BEEN DONE NOW FOR PAL. MULTIPLE ZONE LISTS CAN BE MADE AND SAVED.

Ann has also pointed out that there is very little room in the PAL comments section (I think there are 30 spaces). She would like to add paleoenvironmental information in the comments, and this is the primary need for benthic workers. Perhaps this field could be made larger for benthic workers. I (planktonic forams) would like a larger space as well so I can conveniently record the non-foram constituents of the sand-size fraction (bryozonas, etc.). Can Maggie or Chris expand the fields for us?

THIS HAS BEEN EXPANDED TO 2000 CHARACTERS.

Thanks, Mitch for passing this on to Gil and John. I wish they were here!

Charlotte

RESPONSE TO THIS EMAIL BY GIL DURING LEG 181:

Let me try to enumerate the problems and respond:

1. Need ability to maintain and use multiple, distinct user taxa dictionaries. This is a feature I identified in Janus as adding too much complexity for no user gain. I intentionally left it out of PAL. My mistake, I now see why it

was needed. There are some ways we can do the multiple user dictionaries so it is fairly simple. However, this is a major feature to be added to PAL, so it will have to go into phase II. For the time being, there are some work arounds. The best one right now, is to use the export/import functions. You could export a spreadsheet with all the taxa you want for a particular time slice. You could then import that back in when you want to use those taxa. Right now the import requires that you have at least one sample in the file, so you will have to put at least one sample with each spreadsheet you export, but that is ok. Just remove the sample after you import the spreadsheet, and you can select and analyze the samples you do want to work with. There were some problems with the export/import when there are too many taxa in a PAL spreadsheet (too many means that all the names put together plus the names of the other columns go over 2000 characters). I am working on correcting that and on removing the requirement the import has for having a sample in the export/import file. These changes should be finished before you get on site, and I will send you an update.

THIS HAS ALL BEEN DONE.

2. It was mentioned that PAL was not seeing some of the analysis data. We had never seen that problem here on shore, or on the previous leg. The only semi-plausible explanation I can find is that you were on a different fossil group or a different scientist login id. You must remember that PAL is made to let a scientist edit their Paleo analysis data. You might not know this, but the database was built in such a way that everything is tied to a fossil group. So, your login (which determines your identity - scientist id) and your fossil group selection determine what data you see.

THIS PROBLEM HAS NOT RE-OCCURRED, AND DID NOT OCCUR IN THE PRODUCTION DATABASE, ONLY THE TEST DATABASE, SO THERE WAS NOTHING TO DO.

3. Need ability to handle datums. This was intentionally left out of the first phase of PAL. Phase II, pending SCIMP feedback, will include datum processing.

THIS HAS ALL BEEN DONE.

4. Will PAL allow data entry of anything that isn't one of the defined groupings (Common, rare, etc.), such as a ? if the investigator isn't sure of the identification? No. The database does not allow anything but one of the abundance options, a numeric count, or a percentage. However, I remember that there is a separate field (separate from taxa abundance) that is meant to hold a present or absent flag. It is possible that we could let the user specify that a taxa is present ("P" ?) rather than specifying an abundance, and store that fact in the present/absent field. Would that satisfy this need? If so, this will also be a part of Phase II. Currently PAL allows input of just one field per taxa-sample entry. In phase II we plan to add a third dimension to PAL. A user will be allowed to enter all the fields related to a taxa's presence in a sample: numeric count, percent abundance, range abndance, presence/absence, comments, etc.

THIS HAS ALL BEEN DONE.

5. Comments are too small. Yes, I inadvertently limited comments to a small number of characters (45, I think). I will increase that to aroung 250 characters before you get on site. Pending on SCIMP feedback, we might increase that all the way to 2000, but that will not get to the ship during this leg.

THIS HAS BEEN DONE - 2000 CHARACTERS.

So, there are two changes for me to make before you get on site: fix up the import (allow more than 2000 characters in any line of the import file and remove the sample requirement), and increase the length of the comment field to

250 characters. As soon as the changes are made, I will e-mail the updated application to you.

Thanks,

Gil

THIS HAS ALL BEEN DONE.

BELOW, JACK BALDAUF SUMMARIZED COMMENTS HE RECEIVED FROM ICP ATTENDEES, AND AFTER A DISCUSSION WITH JACK, ME, JACK FOSTER, AND GIL MUNOZ, JACK WROTE THE RESPONSES IN ITALICS. THIS REPORT WAS SENT TO TOM JANACEK AND KATE MORAN FOR COMMENT/INPUT IN OCTOBER
98. I HAVE ADDED IN CAPITAL LETTERS THE CURRENT STATUS OF EACH OF THESE ITEMS. ALSO, SEE BELOW FELIX GRADSTEIN'S AND BRUCE HAYWARD'S COMMENTS ON THIS LIST, WHERE THEY MOSTLY AGREE WITH WHAT WE AT ODP DECIDED ON.

Comments concerning the Paleontology Application from ICP attendees.

The Paleontology Application was demonstrated to numerous Micropaleontologist* attending the International Paleoceanography conference which was recently held in Lisbon. The purpose of the demonstration was to obtain a critique of the prototype version of the application and its ability to meet the user requirements while maintaining integrity of the JANUS paleontology database**.

Reaction from the participating scientists was overall positive with most expressing strong enthusiasm for the application based on the increased level of user friendliness. Most individuals having experience with the previous application noted the increased flexibility and the reduced time necessary to complete data entry. This application was viewed as a significant advancement.

The following modifications were suggested as an effort to further enhance the performance of the application. Following the meeting, ODP-TAMU reviewed these comments and provides the comments in Italics below.

1)Reduce sample designation viewed in the primary window to provide additional space for species to be viewed. Creating a separate window to display, Leg, Site, and Sampling code information can complete this. Further space can be gained by having the flexibility to "hide" both age and zone columns. The spaced utilized by the leg, site, and sample code can be reduced, however one will want to keep the leg information for each sample to maintain the flexibility to work on more than one site with each file. Hiding both ages and zone columns would not be difficult.

THIS HAS NOW BEEN DONE

2) Provide the ability for the user to indicate a datum list rather than a zonation. This should parallel the capability currently in the JANUS application. This is possible.

THIS HAS NOW BEEN DONE

3)Provide the ability to query the database for the datum's used to define specific zones. This should parallel the capability currently in the JANUS application. This is possible

THIS HAS NOW BEEN DONE

4) Provide the ability to add new zones or zonations. This is possible and would be useful.

THIS HAS NOW BEEN DONE

5)Integrate datum's, zones and age so when the user automatically defines an event the age and zone automatically are defined. This would be problematic and require significant programming. The difficulty is that such an option requires recognition of species presence and absence of both primary and secondary indicators. We would recommend not implementing this procedure.

WE RECOMMEND NOT DOING THIS. SEE BRUCE HAYWARD'S SIMILAR RESPONSE BELOW.

6)Reduce the effort associated with zones by allowing the user to select a specific zonation. This would eliminate the need to drag each zone of a particular zonation into the user window. This is possible and would increase the user friendliness of the application.

THIS HAS NOW BEEN DONE

7)Provide the user with the ability to add new samples. This is critical for microfossil workers that use toothpick samples for analysis. These samples are not typically entered into the database, but are routinely used for microfossil analysis. This is possible and would increase the user friendliness of the application.

THIS HAS NOW BEEN DONE

8)Provide biochronological templates (Chronology, Datum's, Zones) for given ocean regions. This would result in standard ODP biochronological models for specific geographical regions. The current application allows the user to recall non-proprietary datasheets.

PAL CAN IMPORT SPREADSHEETS OF DATUM LISTS, ZONATIONS, AGES, AND TAXA, IF PEOPLE BRING THESE WITH THEM TO THE SHIP.

9)Allow the user to create species user dictionary, and zonal scheme prior to the cruise and import this information into the application at the start of the leg. In the current version the user will be able to upload species dictionaries using the import function.

THIS HAS NOW BEEN DONE

10)Ensure that the program can operate prior to the entry of data into the curatorial sample program. This can be achieved by providing the user with a test database for use until the curatorial sampling program is activated. Files can be exported from this test file and imported into the leg active file.

THIS HAS NOW BEEN DONE

11)Provide the application to the user prior to leg participation to allow the user the opportunity to initialize the data prior the cruise. Species dictionaries can be initialized as discussed in 9 above. Use of the program currently requires an ORACLE licensee.

SAME STATUS AS COMMENTS IN ITALICS

12)Define the terms used for preservation. This is important to do, but requires input from the Paleontology community.

ODP ASKS SCIMP TO POLL PALEO COMMUNITY FOR WHETHER THEY WANT THIS OR NOT, AND IF SO, THEY SHOULD PROVIDE THESE DEFINITIONS TO ODP.

13)Allow the use of multiple microfossil groups a single screen/file. This can be achieved currently by use of multiple windows (i.e. essentially opening the application for each microfossil group required). This is more efficient then incorporating several groups into one file. This will reduce the amount of scrolling required when using the application.

THIS HAS NOW BEEN DONE

14)Define methodology for assessing integrity of the paleontological dictionaries and the accuracy of new information provided during each cruise. The methodology used in this application is the same as that used for JANUS

NEW TAXA ADDED DURING A CRUISE ARE SENT OUT TO PALEONTOLOGISTS TO CHECK OVER FOR VALIDITY. THEIR RESPONSES DETERMINE WHETHER THESE NEW TAXA ARE ADDED TO THE OFFICIAL ODP TAXA DICTIONARY OR
NOT. THIS HAS HAPPENED ONCE, RECENTLY, SO THE DICTIONARY IS RELATIVELY UP TO DATE

15)Ensure consistency in terms used for abundance. For example "trace" is not an option for all microfossil groups. This can be established and be microfossil specific.

ODP ASKS SCIMP TO POLL PALEO COMUNITY FOR WHETHER THEY WANT TO USE ALL THE SAME ABUNDANCE TERMS FOR ALL FOSSIL GROUPS.

16)Ensure the sample preparation options are specific to the microfossil group. This will reduce the possible errors. . This can be established and be microfossil specific..

THIS HAS NOW BEEN DONE

17)Include the option to indicate the occurrence of dissolution or etching under preservation. Based on discussions during the JANUS development this option was eliminated. Comment fields are available to enter this information.

THIS REMAINS UNDONE. A LIST OF DEFINITIONS OF PRESERVATION TERMS WOULD COVER THESE PARTICULARS, IF THE PALEO COMMUNITY WANTS THESE TERMS DEFINED. IF SO, WE ASK THAT THEY PROVIDE SUCH DEFINITIONS TO ODP.

18) Provide shipboard participants with a user manual prior to the cruise. Sure this is possible and anticipated.

THIS HAS NOW BEEN DONE, BUT NEEDS TO BE UPDATED BEFORE LEG 184 TO ACCOMODATE THE LAST CHANGES TO BE DONE IN JANUARY.

19)The comment line per sample should be longer. It is very easy to increase the comment length up to a certain point. The database currently supports 45 characters for the comment. It is relatively easy to change this window to accept up to 2000 characters. Anything beyond that would require changes to the data model.

THIS HAS NOW BEEN DONE

20)There should be a spreadsheet code for reworked specimens. This can be accomplished relatively easily.

THIS WILL BE DONE FOR LEG 184

21)The percentage classes for the relative abundance will be problematic. Leg 181 paleontologists used rare when a sample is poor and only has a few specimens.

Technically, the application definition would indicate these specimens as abundant. Would suggest switching abundance from percentage to relative abundance, rare, common, frequent, and abundant. The PAL application grabs and uses whatever codes and definitions are in the Preservation_Codes, Fossil_Group_Abundance_Codes, and Preparation_Codes tables in the database. Adjustments to these items call for a decision to be made by the scientific community. Once the decision is made, the appropriate codes and definitions can then be passed on to Database group to put into those tables in the database. Consideration would need to be given to the data which is already associated with the existing codes. That is, there should be a clear, straightforward way to translate the current codes and definitions into the new ones the scientific community decides on, if any.

ODP ASKS THE PALEO COMMUNITY FOR THEIR PREFERENCE ON THIS.

22)In the benthic foraminifer spreadsheet (a) group abundance options says "rare means common" and (b) the abundance option for species is the set for group abundance, instead of the set for species abundance. This is a problem for the database group. It appears the code and definition that are in the ship database are not correctly matched. (b) The program is grabbing what is in the database for fossil group abundances. If it happens to match the options for species abundance, that is just a matter of what is in the database (see comments above regarding codes and definitions). It is possible that the scientist who sent this comment was expecting to see the same codes that were there for a different fossil group they had worked with. Then, seeing the codes matched the codes for taxa abundance, thought that the program was using the taxa abundance options rather than fossil group abundance.

THIS IS AN ERROR IN THE DATABASE TABLE. WILL BE DONE FOR LEG 184.

23) Ensure that when choosing samples to add to the spreadsheet that the default is set at the appropriate leg. This would save significant time by avoiding the need to continuously scroll. Done

THIS HAS NOW BEEN DONE

24) Ensure that the spreadsheet can be saved with the current settings. Done as far as saving the samples, fossil group, selected taxa and data in the spreadsheet. Does not save the user's zone dictionary, or ages. Once we add Datum handling to PAL, I assume the users will also want to be able to export their datum dictionaries. These capabilities will have to be added, and will enhance the usability of the system.

THIS HAS NOW BEEN DONE

*Individuals examining the program include; Jan Backman, Jack Baldauf, Beth Christensen, Jose-Abel Flores, Mark Leckie, Lisa Osterman, Maria-Serra Poli, Isabella Raffi, Andre Schaaf, Ellen Thomas, Phil Weaver, Ulrich Zielinski and the Leg 181 shipboard paleontologists (Juliane Fenner, Felix Gradstein, and Bruce Hayward)

**Note: See document by John Firth for specific concerning the development history of the Paleontology application.

BELOW IS BRUCE HAYWARDS COMMENTS ON THE ABOVE LIST OF ITEMS THAT CAME FROM ICP.
Bruce Hayward (Foraminifers) Comments on Comments:

Here are my comments on the list of comments sent by Jack for comment by us.

1. Age and zone columns can already be hidden by scrolling right. The width of the spreadsheet can be made wider on larger screens by using the mouse arrows on the edges and thus more species can be seen at once - I usually have 3 or 4 screen widths to deal with at one time - it is a small but bearable pain.Maybe the Leg number and sample code columns could be hidden if you really want to.

2. Yes - we are using datums and not zonations on 181, and make a list of our datum levels in excel outside the program - would be useful for ODP to have these in the database.

3. Yes. Would help avoid the need to go into JANUS at all.

4. Yes. Ditto for 3.

5. Do not do - problematic - especially if there is reworking or contamination or mixing.

6. Of no use to us, but might help others. We did choose the standard ages for epochs from a previous cruise.

7. Would certainly help the toothpick paleontologists.

8. I make a plea not to create a rigid ODP standard zonation to be followed in each region - science is continually improving, upgrading, subdividing these. It would be restrictive. We are modifying and creating our own datums as we go along in the cruise, calibrated to paleomag etc.

9. Only of value to a few regular users I suspect.

10. Yes - as happens at TAMU and on our cruise prior to first site.

11. Do not implement - problems with licences etc.

12. Not important - each user has own definition - it is a qualitative assessment. If it is a rigorous scientific asessment then probably should be documented more fully elsewhere.

13. I agree with both sides of the argument. Especially the request to combine forams into one group. By the way where do bolboformids get entered - for convenience we used forams planktonic.

14. Fine. Briefly spell out process in manual.

15. Agreed - commented on previously. I think the programmer has got muddled and in some places used the group abundance options instead of the species abundance options in some groups (eg. benthic forams) or left an option out. CHECK and standrdise all species abundance options to be the same no matter what group.

16. Already is is it not ?

17. I think this could be a valuable adjunct to give a more consistent qualitative assessment of dissolution - a column with standard options.

18. This would only really be useful if one had the program in front of you to play with at same time. See 11.

Hope this helps - these are personal comments - as we are so busy at

the moment we just do not have time to coordinate a joint response.

Bruce

BELOW IS FELIX GRADSTEIN'S COMMENTS ON THE ABOVE LIST OF ITEMS THAT CAME FROM ICP.

Felix Gradstein (comments on comments)

I am afraid, i do not have the time to run through detailed comments on Paleo. My concerns are not realy with the present program that seems quite well applicable to the type of work done on the ship.

From my, long experience with biostrat. programming, and marketing those programs to biostratigraphers, I would not waste time on detailed manuals and free copies, unless everybody can get a full-fledged program. Since it runs under Oracle, i doubt the latter.

My concerns are that Post 2003, if industry would come in, asome vastly different

SCIMP APPENDIX 99-1-2

BOREHOLE RESEARCH GROUP'S LOGGING GUIDE

http://www.ldeo.columbia.edu/BRG/ODP/LOGGING/HELPER/helper.html

PROPONENT'S HELPER

The Proponent's Helper was designed to assist with the preparation of logging-related material for ODP drilling proposals. It is divided into four sections:

If you have additional questions not covered in this guide, or would like assistance in tailoring a logging plan to your specific proposal, please contact ODP Logging Services (phone: 914-365-8672, fax 914-365-3182, email borehole@ldeo.columbia.edu).

General Information

Downhole logs are spatially continuous records of the physical and chemical properties of the formation penetrated by a borehole. Logs are acquired using an active probe or sonde lowered down the hole and then pulled up at constant speed to provide continuous measurements of the surrounding formation. The wireline, a cable comprising one or more conductors, provides real-time communication between the tool and the surface. Some tools, however, record data using downhole memory devices. Occasionally, where the signal-to-noise ratio is particularly low, the tool is stopped intermittently and logs are recorded at discrete stations. Unlike many measurements made on recovered core, log data are acquired in situ, and therefore are unaffected by the physical and chemical degradation of rock and sediment samples that often accompanies core retrieval. Furthermore, although the formations immediately adjacent to the borehole may be affected to some extent by these same processes, logging tools are usually designed to measure rock properties at some distance beyond the borehole wall to minimize the effect of formation damage caused by drilling.

Individual tools are combined into logging strings so that several measurements can be made simultaneously during a single logging run. Standard logging operations consist of two runs - the Triple Combo (also known as the geophysical toolstring) and the FMS-Sonic toolstring. The Triple Combo provides density, porosity, and resistivity data, while the FMS-Sonic provides resistivity and sonic data. In addition, a natural gamma tool is added to each toolstring to provide additional information and to allow correlations between logging runs. A temperature tool may also be added to the Triple Combo.

Additional tools may also be deployed during a cruise. These specialty tools require additional funding and so scientific justification for their deployment must be clearly stated in the proposal. For the most part, each of these specialty tools will require a separate logging run; a fact which must be taken into consideration when calculating the total time required for logging operations.

Data quality is largely determined by the state of the borehole wall. If it is irregular, wide, or there are many washouts, there may be problems with those tools that require good contact with the wall (e.g., density and FMS). Deep investigation measurements such as the resistivity and sonic velocity are least sensitibe to borehole conditions.

The depth of investigation into the formation and vertical resolution are sensor-independent, but are typically between 50 and 100 cm. The sampling interval of Schlumberger tools is usually 15 cm (6 in.), with the exception of the FMS, which is 0.25 cm (0.1 in.). When logged at reduced speeds, the sampling interval in the porosity and density tools can be reduced.

Data Processing:
Shore-based processing of data consists of: (1) depth adjustments of all logs to a common measurement below the seafloor; (2) corrections specific to certain tools; and (3) quality control and rejection of unrealistic values. The depth shifting process is based on an interactive, graphical depth-match program that allows the processor to visually correlate logs and define appropriate shifts. The reference log and the log to be adjusted in depth are displayed side-by-side on a screen. The total gamma ray curve from the NGT or HNGS tool run on each logging string is used in most cases to correltate the logging runs. In general, the reference curve is chosen on the basis of constant ' low cable tension and high cable speed (tools run at faster speeds are less likely to stick and are less susceptible to data degradation caused by ship heave). Other factors, however, such as the length of the logged interval, presence of bottom hole assembly, and the statistical quality of the collected data (better statistics are obtained at lower logging speeds) are also considered in the selection.

Quality control is performed by cross-correlation of all logging data. If the data processor concludes that individual log measurements represent unrealistic values, the choices are to either discard the data outright and substitute the null value of "-999.25," or identify a specific depth interval containing suspect values that must be used with caution. The latter are noted in the text that accompanies all processed log displays.
Much of the log data is sent via satellite from the ship to the shore for processing. This processed data is usually returned to the ship within a week. The remaining data sets are too large to be transferred via satellite and are processed immediately after the cruise.

Proposal Instructions

Two of the proposal forms require logging operations information. The General Site Information form is required for any initial submission. Section C of this page asks for the types of logging operations you anticipate for the cruise as well as the estimated number of days required for logging. There is a check box for standard logging, as well as the most popular types of specialty tools.

The Detailed Logging Plan is required before a proposal can be sent out for review. On this page, you need to identify each type of data that you wish to collect, the scientific objective for collecting these data, and the overall priority of each. This information, combined with additional information from your proposal, will allow the reviewers, Science Survey and Evaluation Panel, and ODP Logging Services to properly review the suitability of the logging plan. Only one form is required for each proposal. If you anticipate considerable differences between the logging operations at various sites, please indicate this in the Logging Operations box at the bottom of the form. A sample form is provided, with links to information pages explaining each tool.

As noted above, it is very important to clearly specify the scientific objectives that your logging plan will help meet. A specail section on the applications of log data is available in addition to the instructions provided on the sample form.

Logging Time Calculations

A simple spreadsheet has been developed by ODP Logging Services to allow proponents to easily calculate the time required for logging operations at each hole. This spreadsheet and accompanying instructions can be downloaded from this web site. This spreadsheet will provide you with a detailed breakdown of the time required. The only parameters that are required are the water depth, penetration, and tools to be run.

Frequently Asked Questions

Pre-Cruise Planning

What is the ODP policy regarding which sites/holes must be logged?
Who will be my main point of contact for logging?
How do I determine logging times?
What is the side-entry sub (CSES)?
What methods are available for correlating core and log data?

Cruise Operations

Is there a special order for deployment of logging tools?
Why do I need to log a deep hole in two stages?
How do log depths relate to core depths?
What is the relationship between Lamont Logging Scientist and JOIDES Logging Scientist?
What if the logging plan needs to be changed while at sea?
What is the relationship between the Lamont Logging Scientist and the rest of the shipboard party?

Post-cruise Procedures

How soon will completely processed data be available?
What formats are data available in?
How do shipboard scientists get data?
What data are included on the log data CD-ROM?
Does the logging scientist always come to the first post-cruise meeting?

SCIMP APPENDIX 99-1-3

STATUS OF SCIMP RECOMMENDATION 98-2-8 (NGDC PROPOSAL TO ARCHIVE ODP JANUS DATA)

Dear members of SciMP. At the June/July 1998 SciMP meeting, JOI and NGDC were charged with investigating the most efficient way to "complete the ODP archive" at NGDC (SciMP Recommendation 98-2-8). As you know, NGDC has an interagency agreement with NSF to provide a formal, long-term archive for data from the drilling program (NSF Policy for Oceanographic Data - see appendices from the July 1998 meeting).

Since the "preliminary proposal" to SciMP to establish a "mirror site" as a mechanism of completing the archive, two things have happened: 1) NGDC has purchased a new, powerful Oracle database server fully capable of handling a copy of the JANUS database. This means NGDC no longer needs funding/resources to accomplish the archive, and 2) After talking with ODP staff, we have determined that for the near future, the most efficient way to proceed is not to construct a "mirror" site, but simply to periodically replicate the JANUS Oracle database.

The current plan, endorsed as "no problem" by the ODP/TAMU database administrator is for ODP/TAMU to run the Oracle "export" utility to produce a copy of the database (in internal Oracle format) on 4mm DAT tapes, and then send the DAT tapes to NGDC for "import." Database exports are already being performed by ODP after each leg in order to update their own shore-based systems, so this would involve minimal ODP effort.

When NGDC receives the tapes, we will run an "import" utility to recreate an exact copy of the JANUS database at NGDC. NGDC will then be responsible for writing all necessary scripts to produce an ASCII copy of the JANUS tables, and for copying these ASCII files to officially sanctioned archive media for permanent storage.

ODP/TAMU and NGDC already have all systems in place to successfully complete these steps. At a later date, if ODP/TAMU develops the capability to remotely replicate the JANUS database for other purposes (for example a copy in Germany), then ODP/TAMU and NGDC would switch to this technology to keep the database updated.

NGDC hopes that the panel is pleased with this simple, no-cost method of completing the permanent ODP archive. I hope to be able to report at the next SciMP meeting that we have successfully performed a test export/import and that scripts to archive data have been tested.

Sincerely,
Carla Moore
NGDC Representative to the SciMP

SCIMP APPENDIX 99-1-4

23rd TEDCOM Meeting held at College Station, 19-20 November 1998

TEDCOM Recommendations to SCICOM

1. TEDCOM RECOMMEND to SCICOM that the development programmes for the Hard Rock Drilling system and the Hard rock Re-Entry system (HDS & HRRS) proceed as outlined by ODP TAMU and, in view of their potential to improve the drilling on Leg 192, that SCICOM give this sufficient priority should any budget review be necessary.

2. TEDCOM RECOMMEND to SCICOM that the development programme for the Advanced Diamond Core Barrel (ADCB) outlined by ODP TAMU at the 23rd TEDCOM Meeting be followed in two respects:
a. Offshore tests with the existing DCB to obtain further operational data
b. Land testing of the ADCB together with conventional bit designs one of which may be a 'retractabit crown type'
TEDCOM DO NOT RECOMMEND further expenditure at present on the RETRACTABIT design or fabrication for ADCB but DO RECOMMEND (b. above) that a bit crown, of the design envisaged for the retractabit be fabricated as one of the conventional bits for land testing, in order to test its coring durability.

Coupled with AHC control the ADCB has the potential to provide a very cost effective way forward for hard rock coring, especially if it is linked in to the Hard Rock Re-entry System (HRRS) for spud-in on bare rock surfaces. Given the tight expenditure and manpower situation at ODP TAMU there is no need to proceed further with retractabit designs, which are only helpful if the ADCB system proves itself, at this stage.

3. TEDCOM RECOMMEND to SCICOM that ODP TAMU be requested to proceed with the procurement of an Active Heave Compensation (AHC) system for control of the Passive Heave Compensator which presently exists on the 'Joides Resolution' as quickly as possible in order that it can be fitted during the 1999 dry-docking of the vessel.
TEDCOM ALSO RECOMMEND that full time-domain simulation studies (Mathcad Simulink) be carried out to best configure the AHC system for the vessel and that PASSIVE HEAVE COMPENSATOR upgrading/servicing be undertaken in conjunction with AHC installation to allow the AHC to perform with best efficiency.

TEDCOM is very clear that AHC has the potential to improve all coring operations on board the 'Joides Resolution' but it wishes to ensure that it is given every opportunity to do so. Therefore the inefficiencies which are present in the existing passive heave compensator should be reduced as much as possible by a thorough overhaul of the system and by modeling and simulation of it, together with the AHC, so that the combined system is set up from the outset in a proper and verifiable configuration.

4. TEDCOM RECOMMEND to SCICOM that the development programme of Measurement While Coring (MWC) outlined by ODP TAMU at the 23rd TEDCOM Meeting be followed and that TAMU should be instructed by SCICOM to ensure that they make every effort to include knowledge gained from downhole

instrumentation and experimentation carried out elsewhere to further this work. In this respect TEDCOM have in mind equipment prepared for the German KTB project, experiments underway with ODP by LDGEO and in opportunities which may be available through industry co-operation.

In making this recommendation TEDCOM advise SCICOM that they consider MWC to be beneficial to both the drilling operation and the science as follows:
Information provided in as near real time as possible to the driller will enable him to drill more efficiently and take avoiding action more quickly if hole sticking occurs. This will benefit hole stability and hence core quality and will also potentially avoid costly loss of equipment.
Information provided to the scientist will allow extra parameters to be input to interpretations and as similar data may be available from wireline logging and actual core measurements a 'historical learning curve' will, in time, assist with real time borehole predictions on lithology etc. from the MWC data.

5. TEDCOM RECOMEND to SCICOM that the facility to utilise Differential Global Positioning Signals (DGPS) be incorporated into the upgrade to the 'Joides Resolution' Dynamic Positioning System interfaces and displays during the 1999 dry-dock.

All modern vessel DP systems have this facility which allows very cheap but highly accurate station keeping from a variety of receiver types and service providers. Installation of the basic equipment does not link ODP into any single vendor or hirer of DGPS systems.

Minutes of Meeting

Members present
H.D. Eickelberg (Germany)
H. Elkins (USA)
D. M. Gearhart (USA)
P. Heinrichs (Germany - alternate)
S. Persoglia (ESF)
F. Schuh (USA)
H. Shatto (USA)
A. Skinner (Chair) (UK)
W. Svendsen (USA)
S. Takagawa (Japan)

Liaisons present
G. Acton (ODP TAMU)
D. Goldberg (LDEO)
B. Hay (SCICOM/OPCOM designate)
S. Humphris (SCICOM/OPCOM)
B. Malfait (NSF)
K. Moran (JOI Inc.)

Guests Present
J. Baldauf (ODP TAMU)
C.A. Bollfrass (ODP TAMU)
J. Fox (ODP TAMU)
M. Friedrichs (ODP TAMU)
R. Grout (ODP TAMU)
G.L. Holloway (ODP TAMU)
B. Jonasson (ODP TAMU)
N. Kyo (JAMSTEC)
T. Pettigrew (ODP TAMU)

D. Schroeder (ODP TAMU)
B. Shoemaker (Sedco-Forex)

A Contact list is attached to the minutes.

Skinner opened the meeting by welcoming all present, especially the new members from ESF and Germany then passed the floor to Jonasson who briefly outlined the logistics for the meeting. This was followed by a self introduction of all present.

Apologies were received from member E. Maidla (AUS …. Korea consortium) and T. Janecek (SCIMP Liaison). The minutes of the 22nd TEDCOM meeting held at College Station in December 1997 were adopted.

An agenda for the two days of the meeting had been prepared in draft but various changes were made throughout the two days. The minutes are therefore grouped under section topics and the working agenda is not included.

TEDCOM Interactions
Susan Humphris explained the JOIDES structure and stressed the need for scientific and technical advice which has to be passed from the various committees in order for the whole to function properly. TEDCOM reports to SCICOM and has an impact on OPCOM and the priorities given to ODP TAMU. A better interfacing is required between TEDCOM and the JOIDES Panels.
In planning for the future TEDCOM need to be aware that it is ODP until 2003 and then something else, presently given the working acronym IODP. Post 2003 it is also planned to have a two ship programme with a riser and a non-riser vessel.
TEDCOM needs to keep the programme aware of technology which can be extracted from industry and also advise what needs to be developed 'in house' to assist the science. Some of these 'in-house' developments could well have an industry application.

Humphris suggested that TEDCOM use their two meetings a year, as follows:

January
1. Conduct a review of FY+2 requirements and advise SCICOM on a priority requirement for the technical developments contained in the preliminary budget estimates.
2. Conduct a review of the technical planning and preparation for IODP.

June
Provide advice on the long term (phase 3) science direction (which will have been reviewed by SCICOM in March). Advise SCICOM what can be done FY+2 ahead and also what new industry or university research developments are in train and may be relevant.

Finally, when considering membership Humphris suggested that we should try to include persons from university drilling engineering departments. This was strongly supported and backed by the observation that the present trend was closure of 'in-house' industry research departments with subsequent uptake of the work by the universities on a contract basis.

All the above comments and observations were accepted by TEDCOM. Svendsen remarked that we need to be clear as to what science wants and the direction it wants to go in. Schuh felt that specific issues rather than generalities are required if we are to get better at doing things we can't presently do and spend R&D monies wisely. We may have to focus on specific leg issues. Gearhart remarked that we have to get much better at communicating and closing the loop of communication. Fox would be very happy to have TEDCOM make the major decisions of one system vs. another before it came to the development stage - this may involve TEDCOM in project arbitration in tight funding situations. Skinner remarked that research funding was often linked to completely new developments and not to modification of existing ones. There was strong support from the meeting to use the ODP as a basis to solve some of those problems and to highlight gaps which need to be filled in future tool development.

Eric Maidla in a written response said that he would like to see more drilling and tool information coming back from the ship via the internet. He felt that this sort of information was helpful both for assessing current situations and as an archive for achieving better performance in similar areas again. Currently there does not seem to be a database of drilling information on a hole-by-hole basis available for future planning or historical analysis.

Jonasson had no further comments to add on behalf of ODP TAMU and Skinner asked that Members, Liaisons and Guests consider all the points made here and review them in the light of the meeting now taking place for an assessment of the way forward for TEDCOM in the future.

Past Cruise Reports

Ron Grout summarised the legs 176-181 and details of each are in the meeting folder. Critical technical problems in the period included:

Heave compensation problems on leg 176 at hole 735B where the operation suffered severely from working in bad weather and eventually broke a drillstring connection. There was some discussion as to whether a bumper sub may help in those situations.

Leg 177 encountered problems with the guide horn. The guide horn was modified for Leg 178 and allowed drilling in difficult Antarctic formations with a modified operating procedure. It was rebuilt in Capetown before Leg 179 which delayed sailing in order that the work could be completed. This gave a reduced time for hammer drill trials which also suffered from other logistics problems reported elsewhere.

In Grout's opinion Leg 181 encountered the worst weather ever on an ODP leg.

Brian Jonasson then concluded with some comments on earlier legs 174 and 175.

174 was poor formation drilling, much of it in sandy formation. LWD tools were used and became stuck from time to time but were retrieved. This leg also had DP problems due to the shallow water and a problem with the top drive which was efficiently repaired on board the vessel while the 2nd top drive was brought into use to continue operations.

175 was an extremely successful leg with high core recovery. One wireline logging tool was lost downhole.

Forthcoming Cruise Reports

Susan Humphris outlined the scientific requirement for each leg and Brian Jonasson indicated the tools/preparations in hand to meet the scientific goals.

Leg 182 - currently underway and attempting to unravel the history of southern ocean circulation by studying the history of cool-water carbonates. The leg has encountered bad weather, it is drilling in shallow and deep water areas and has encountered H2S while drilling.

Leg 183 is looking at the timing and extent of volcanic outpourings and requires hard rock spudding and RCB coring plus a bit drop for logging.

Leg 184 is testing models of climate/tectonics associated with the east Asia monsoon. APC/XCB and uncased holes will be the norm.

Leg 185 is seaward of the east Marianas trench and a transect through sediment and crust to assess materials and volumes going down the trench is planned. As the water depth is 5600-6000m problems are anticipated with the drillstring deployment.

Leg 186 is aimed at providing two drilled holes near the Japan Trench for seismometer and other instrument installation as part of the global seismic network and to study subduction processes. Deadlines of 3rd party tool development and any required ODP interfacing for operations are seen as the likely problems for this leg.

Leg 186E is intended as a hammer drill engineering leg.

Leg 187 is planned to obtain information on a major geochemical boundary in the mantle between the Pacific and Indian ocean. Mantle flow will be examined and 'real time' analysis of the core will determine the drilling pattern.

Leg 188 is to Prydz Bay and is the second of the west/east Antarctica legs. A similar strategy to previously will be used to determine the geological history of the area. An ice support vessel, ice observer and additional weather reports will be required which will incur significant leg costs. Additionally, it is the next planned leg for LWD.

Leg 189 Southern Gateways should be a straightforward APC/XCB leg with uncased holes looking at Circum Polar Current patterns.
Leg 190 is to Nankai and the first of two planned legs looking at the accretionary prism of a subduction zone. The second leg will use LWD and install CORKS. Unconsolidated sediments at the top of the borehole will necessitate drill-in casings to be used on both legs.
Leg 191 is dedicated to placing a seismometer downhole in the west Pacific Ion. It is geographically isolated and the only way to improve the seismic network of the area. A triple casing may have to be used.
Leg 192 is to the Manus Basin which has a different hydrothermal regime to basins already drilled. Brecciated materials are expected and if the hammer drilling system is not ready then bare rock spud in with the RCB will be required. Re-entry sites will be established.
Leg 193 is to Ontong Java and will provide a basement traverse with one bit/hole, plus logging, if all goes to plan.
TEDCOM need to be kept appraised of equipment readiness for these upcoming legs as their recommendations to SCICOM are based on information received from ODP TAMU.

OD21 and JAMSTEC/ODP Co-operation

Shinichi Takagawa outlined the progress being made on the OD21 riser drilling vessel project. A December 1998 submission of funding requirement for a first phase of the project will be considered in the March 1999 Diet for government funding. This should allow commencement of OD21 development. The total budget is likely to be in excess of 400mUS$ so the budget plan will be split into three phases and phase 1 will be the ship's hull. A General Arrangement of the vessel has been specified and a preliminary design stage is ready to proceed. No detailed vessel design work has yet been carried out. It is anticipated to have a 2500m riser drillship by the year 2003. Technology developments highlighted in the recent industry conference on deepwater drilling and risers in Houston (17-18 November) suggest that there is still much review of systems to be made. The size (diameter) of riser is still not fixed and other drilling systems (hydraulic ram-rig as opposed to draw-works) could be an option. Similarly hydraulic riser tensioners are also now being considered by industry.

A separate small budget has been secured for a three year programme of core sampling systems development and for the re-entry systems required for long term observatories in boreholes.

Brian Jonasson concluded this presentation by informing TEDCOM that JAMSTEC and ODP TAMU have had a two day meeting on coring technology initiatives and that there is likely to be a co-operation between JAMSTEC and JOI which would allow the joint development aims of ODP and IODP to progress simultaneously with, for example, the advanced diamond corebarrel (ADCB) which is required by ODP to collect core in hard formations and by IODP on a riser equipped vessel to core deeper after a 9" casing has been emplaced in a borehole.

Hard Rock Drilling System (HDS) and Hard Rock Re-entry Systems (HRRS)

Tom Pettigrew presented the results of the offshore trials with the HDS. Although the trials were dogged by logistic problems, the ship having sailed without all the hoped-for spares or alternatives and then being unable to take them onboard from the delivery boat due to bad weather, there is good evidence that the hammer system can be of tremendous benefit for minimising the existing problem of hard rock spud-in. Two main problems occurred - resonance within the drillstring and destruction of the hinged wings of the drilling bit designed to underream for drill-in casing strings. The resonance problem occurs at certain mud pump flow rates and there appears to be a number of possible ways to minimise or alleviate it. Frank Schuh in particular has had experience of this in the past. The bit problem requires re-design work and possibly different cutting materials. A possible problem with SDS regarding bit manufacture for the hammer drill may preclude ODP trying out all the possible options available to help solve this problem - Mitshubishi Materials and Sandvik were other possible players but SDS will not allow other bit manufacturers details (or the supply?) of their special bit shank. Discussions will be taking place with SDS to try and resolve the impasse and SDS themselves may come up with a good bit solution but would obviously be sole vendor. It is possible that TEDCOM member Eric Maidla may be able to assist in an

acceptable solution to both parties which will allow what are in effect experimental bits to be manufactured for ODP by whoever seems best capable of making them. Clearly the hammer is not viable without an acceptable underreaming drilling bit. A well-tried conventional hammer bit design (which would not be able to emplace casings while drilling) demonstrated, during this trial, the potential of the hammer for making hole quickly in difficult formation.

Leon Holloway outlined the basic concepts used in the Hard Rock Re-Entry System which is based on the HDS and how the development is progressing. The casing option was not tried on the offshore trials so is as yet untested. Pettigrew thinks it may take another two iterations of trials to get the full system to an acceptable working level. Although there are problems with the vendor (SDS), ODP TAMU said that there was no question of going away from this hammer design at present and this was fully endorsed by TEDCOM. A design had been selected from a number reviewed and the one with best potential for ODP was chosen. Apart from the stalemate with the bit designs there is good co-operation with the vendor on improving other components which failed upon test. One hammer was lost during the trials, probably due to a bare rock spud-in associated with ships heave.

There was general discussion around the hammer concept, the pressure pulse problems and the bit problems. TEDCOM felt that the development was going according to plan and had already yielded evidence of its potential to cut down spud-in time on bare rock surfaces. Maintaining the present schedule of the development programme is to some extent related to the outcome of the bit discussions with SDS but there is a clear science goal relating to Leg 192 where the HRRS would be of great benefit. Explanatory and position papers backing up those two excellent presentations were contained in the meeting folder.

TEDCOM RECOMMENDATION No. 1 provides the TEDCOM advice to SCICOM on the ADCB development.

Advanced Diamond Core Barrel (ADCB)

Leon Holloway introduced this system and the further potential development of a retractable core bit for it. Explanatory and position papers were also made available to those present. A demonstration of a concept model for the retractable bit was also given by the manufacturer. This new concept has only 13 moving parts and is operated by the standard wireline overshot.

The diamond coring system is required in order to attempt to get more, and better quality, core in hard and fractured rock formations. The core barrels under development operate on the existing drillstring and do not require a secondary drillstring which was required for the diamond coring system (DCS). Thus, provided core bit designs can accept bit weight variations yet to be determined, a more efficient method of drilling in hard rock may be possible compared to that with the existing single string and RCB.

The concept optimises core diameter to bit diameter as far as possible with existing BHA hardware (6 _") drillcollars and has a realistic development plan provided funding and manpower can be retained on it.

Discussion centered around the requirement for the corebarrel, whether the retractable bit development should be continued in parallel to the core barrel development and testing and whether field tests will show the system benefits science vis-a-vis the existing RCB. Data is still required from the existing Diamond Core Barrel (DCB) to answer some of these questions and this is the first step in the development trials as outlined. TEDCOM did not feel that development of the retractabit should be funded at this stage but that a bit crown, based on the retractabit design, should be included as part of the ADCB conventional bit testing programme to see whether the cutting head is viable in the configuration currently envisaged.

The land tests with Terratec should use realistic parameter boundaries for WOB, RPM and Flushing to ensure meaningful results.

There is an opportunity for sea trials in conjunction with the hammer drill tests in October/November 1999.

TEDCOM RECOMMENDATION No. 2 provides the TEDCOM advice to SCICOM on the ADCB development.

Active Heave Compensation (AHC)

During discussion of the HDS and ADCB the question of good heave control continually came up. TEDCOM have not deviated from their original statement, made over two years ago 'That the provision of more efficient heave compensation on board "Joides Resolution" will improve tool life, bit life, core quality and recovery for all sampling systems deployed'. The original AHC procurement failed due to the vendor backing out. However another vendor has what is considered (by ODP TAMU and TEDCOM) a better product. TEDCOM were not aware of this until this meeting - according to ODP TAMU this was due to the negotiations being confidential. Mike Friedrichs provided mathematical formulae as part of the AHC handout and re-iterated them with a presentation of a classical drillstring analysis in relation to the AHC. It is probably fair to say that Howard Shatto was the only TEDCOM member able to understand it and even he was concerned that it may not be addressing the fundamental (and only) requirement for AHC - will it allow a coring bit to be kept on bottom within acceptable bit weight variation limits?. It is not acceptable for the bit to come off bottom at all during the coring run and if this means that the bit has to take a very large bit weight variation to avoid lift off, then it may not be possible to design a core bit to suit.

No satisfactory answer was forthcoming regarding the lack of simulation studies asked for by TEDCOM of ODP TAMU and which were to be based on those which had already taken place for the DCS. Those simulations showed that the DCS could not work until the passive heave compensation inefficiencies were addressed.

The delay in AHC implementation has allowed for the possible installation of a better system which could ignore inefficiencies in the passive system, it was claimed by ODP TAMU. It was argued strongly by a number of TEDCOM members that inefficiencies in the main passive compensator must also be addressed if the AHC is to operate to maximum efficiency without a huge input of power to the system.

After a lot of discussion and a failure to come to an agreement on whether the work being done would give us the answers required the discussion on AHC was terminated for the day to allow background discussions and clarifications to take place. TEDCOM and ODP TAMU benefited greatly at this meeting from the input of Hugh Elkins and Peter Heinrichs who are manufacturers and service providers of such systems, respectively. Their unbiased and knowledgeable statements of facts were much appreciated.

Brian Jonasson, using the ODP Long Range Plan as a basis for the forward look, demonstrated that all aspects of core recovery need improvements but that this is especially true of hard rock coring. A priority of tasks to this end is already agreed but there are budget limitations on what can be done. Jonasson showed graphs of passive and active heave compensation and stated that, to date, ODP had no real evidence of corers coming off the bottom but that there was evidence of core jamming. It was suggested by ODP TAMU that, if active heave compensation were implemented, then the gross inefficiencies in the existing passive heave compensator could be ignored and thereby approximately $350,000 could be saved by not fitting low friction seals. Both Elkins and Heinrichs disagreed with this statement and stressed that the active heave can only incrementally improve the existing efficiency which has therefore to be as good as it can be.

Low friction seals had been fitted to the Passive Compensator on the 'Joides Resolution' in 1998 but the condition of the compensator did not allow the emplacement of the preferred seals and those which were fitted were apparently not compatible with the compensator fluid and hence they failed. This does not seem to be a good basis for not trying again and Elkins has offered to look into the problem for Sedco. Shatto stressed that simulation studies carried out for the DCS had already shown that the efficiency of the passive compensator was extremely important for modeling and that the simulation model developed by Stress Engineering for DCS should form a good basis for simulation of the 'new concept' AHC now being considered.

Dave Goldberg presented heave and active heave data derived from measurements made for the wireline logging system. This demonstrated both its importance to tool behaviour and data enhancement. It is directly analogous to what would happen while coring.

Wally Svendsen completed the discussions on AHC by demonstrating why weight on bit was so critical to good coring and why, if it cannot be achieved within acceptable limits, this method of core collection cannot be considered.

TEDCOM re-iterated that the subcommittee on AHC still stands and must be used. It will be revised to incorporate TEDCOM Members Elkins, Heinrichs, Shanks, Shatto, Summerour, Svendsen, with Shatto as Chair, to liaise with ODP TAMU (Jonasson, Friedrichs) on all aspects of this development. Shatto will report to TEDCOM on the development and TECOM Chair should be kept informed of meetings/discussions.

TEDCOM RECOMMENDATION No 3. To SCICOM states in unambiguous terms the steps required to implement AHC on the 'Joides Resolution' for the benefit of all aspects of the Science on the 'Joides Resolution'.

Measurement while Coring (MWC)

Deryl Schroeder presented this topic and provided folder details. There is good potential for MWC to improve drilling (avoid costly borehole stuck pipe, improve core recoveries and ROP) by a more educated variation of parameters such as bit weight, RPM and flushing during the coring process. The MWC system would be based around an ODP owned Data Acquisition System but would use industry sensors wherever possible as part of the instrumentation make-up. Marvin Gearheart saw great merit in such a system and thought that it could be easily made 'almost real time' if a simple approach was taken and the tool was not over-complicated. For example a direct reading to the driller of weight on bit would be invaluable - he cited the example of having to shut down the flushing to the Hammer if it came off bottom to avoid damaging the hammer. David Goldberg showed examples of what is going to be attempted in the way of instrumented core barrels over the next few years but they will have memory modules for later analysis of the data. Industry co-operation and potential hardware assistance is possible for this project provided that there are no insurmountable legal impediments. Dieter Eickleberg also pointed out that the KTB deep borehole in Germany had instrumented core barrels and he would find out more details of this for ODP. Dave Goldberg showed what data was being collected while the logging string was in operation and there is scope for technology transfer to MWC.

Marvin Gearhart initiated a discussion on what was required from MWC in the context of ODP drilling and asked the question "Have we asked the drillers what would be useful for them to know while drilling?". In his opinion their input would be valuable and we need to canvass it by some form of questionnaire.

TEDCOM were requested by Humphris and Moran to ensure that they spelt out the scientific benefits which will spin off from these developments so that the scientific community are aware of, and can appreciate the benefits of, spending money on them.

(e.g. downhole string integrity, cost and time savings by avoiding stuck/broken strings, better coring parameters so higher quality cores, direct core, insitu and log data for better formation evaluation.)

TEDCOM RECOMMENDATION No.4 to SCICOM states the TEDCOM position on MWC.

Conocco JIP

Brian Jonasson briefly summarised the status of the riserless drilling project being undertaken by a consortia of oil and service companies and of which ODP is a member. Phase one is completed and a prototype trials package may be run on the 'Conoco Pathfinder' in due course. The package still has a log way to go before it becomes a viable oilfield system but it continues to have direct relevance to the scientific activities of ODP.

'Joides Resolution' Dry-docking

Tenders for the required work went out today (November 20th) and are due back on the 15th of February next year. This will determine where the work will be done. Plans are well advanced

within ODP and SEDCO for the event. Consultants have been engaged by ODP to look into various aspects of the laboratory stack and its proposed modifications. Provision will be made for incorporation of a 20' microbiology container and the ship station keeping and data management systems are all to be upgraded. There are also various laboratory and accommodation upgrades being considered.
Howard Shatto requested that DGPS input be incorporated into the station-keeping upgrade.

TEDCOM RECOMMENDATION No. 5 to SCICOM addresses this issue.

Downhole Tool Developments
Brian Jonasson outlined the way forward which ODP TAMU would wish to adopt in order to maintain existing tools, upgrade then as and when required and make new tools to deal with the requirements of the science. All of this needs a support plan and a maintenance infrastructure which is not presently in place.
He finished by requesting that TEDCOM support ODP TAMU in their bid to the science community for additional staff time and money to undertake this work. Additionally TEDCOM must become more involved in the output from PPG's and deal with conflicts and priorities. This highlighted the ad hoc way that design and engineering time is being used at present when PPG's can come direct to TAMU and they undertake a 'feasibility study' even though any such project has not been approved by any part of the JOIDES structure.
A change of TEDCOM focus would assist with distancing PPG's requests so long as ODP TAMU did not act unilaterally but allowed the committee structure to deliberate, prioritize and direct. ODP TAMU would have every right to focus on already given priorities until such time as the science focus re-directed this, via SCICOM. This will lessen 'ad-hoc' work requiring time and money to be undertaken without the necessary approval of funding of staff or capital purchase.

[However, reading through the folder of data provided by ODP TAMU for this 23rd TEDCOM also suggested to the Chairman that ODP TAMU themselves also undertake various 'feasibility studies' as part of their ongoing programme which utilise finances and staff time yet the information may be available elsewhere and/or they are not directly relevant to the immediate or medium term requirements of the ODP Science Programme. Under the suggested way forward for TEDCOM this would not be a concern for TEDCOM as any work of this nature would be in addition to that agreed with SCICOM for TAMU priority and may not even be reported unless it was brought up for TEDCOM discussion by the Liaison to the meeting.] **Please comment on this - it will not go in the minutes but we need to know all the implications on any change of focus.**

IODP
Alister Skinner asked Bruce Malfait if he could say anything about the changeover from ODP to IODP and how this may impact on tool development or the programme in general. Malfait replied that NSF in the US and STA in Japan were already looking at the way forward and JOIDES has been given (and accepted) the lead in the science planning for post 2003.
The ship operations will be different as it is planned to be a two ship operation with the Japanese vessel and a 'JR Type vessel. It is likely that all aspects of the present operation will have to be re-opened to competitive tender, this may also include JOI.
Therefore a hiatus in drilling is almost certain but there will still be downhole tools needed and TEDCOM is likely to have a critical role during this period.

Other activities relevant to TEDCOM
HYACE
Skinner gave a brief presentation on HYACE which is the European project to build a pressure core sampler based on the ODP PCS but with push, percussive and rotary motivation configurations. The project is one year into its three year life and about to commence purchase of hardware for a prototype build. Tests have been made with Dutch-modified Russian Hammers and results have been good. Tests have been conducted with new design pilot bits for the core sampler

and these have also had good results. A concept laboratory transfer chamber has also been designed and background geophysical, geological and geotechnical reviews have been made to establish hydrate criteria necessary for tool design together with operational constraints which will determine tool lengths etc. for operations from all types of drilling vessels. It is not intended to be solely an ODP 'Joides Resolution' tool. Skinner expressed surprise that Kate Moran and, in particular, Tom Pettigrew, who is on the steering committee for HYACE, were not fully aware of the EU mandate at award of project or of the progress to date and has said that he will look into this. On questioned by Pettigrew he confirmed that the HYACE tool was being built for a variety of BHA's, was not going to be solely a tool for use with ODP and thus may require some interfacing to operate with ODP. The original ODP tool would not be modified as this did not belong to HYACE and was on loan to them from ODP for development purposes.

'Piggy Back' coring

Skinner outlined a drilling system installed on 'Norskald' for shallow water drilling - up to 1000m maximum string length on this configuration.

A heave compensated Wirth top drive is used to drill in an API drillstring with a casing shoe to refusal at rockhead where it is torqued up and left, or clamped at the seabed. The intention in each case to stop it moving. A secondary (mining) drill unit with its own top drive, in this case also a Wirth unit, is positioned on top of the API equipment and drills as if on land being installed and operated above the heave compensated API string. 6m pipe lengths can be handled with 500m total string being held in the derrick in one pipe rack. Pipe racks are interchangeable or individual rods can be picked up from deck. This system is analogous to the ODP DCS system.

BGS 5m Rockdrill and BRIDGE 1m oriented rockdrill

Skinner finished by showing some illustrations of the BGS seabed core drills used on Atlantis Bank, close by the 'Joides Resolution' during her Leg 179. The large drill collects up to 5m of core by computer control of drilling parameters through a 2000m umbilical. The small drill on its first field test operated successfully and collected thirteen fully orientated and scribed cores for palaeomagnetic investigations via a 10km cable length. The small drill has a camera link and is rated to 4000m water depth. This spatial collection of cores will assist with determining the variation of igneous rock composition on the Atlantis Bank.

Discussion of the Meeting and the way forward

The discussion at the end of day one highlighted the following:

Humphris, Skinner and others - Need more industry/academic co-operation

SCICOM need to know of any changes to an engineering development plan - it may make it inappropriate to science or at least lessen the priority.

Howard Shatto - Simulation for the AHC needs to be assessed

Wally Svendsen - Weight on bit control needs to be modeled.

Many - Where are we with AHC compared to two years ago?

Bill Hay - TEDCOM must spell out to SCICOM what is dependent on what (e.g. hard rock corebits require AHC if they are to survive, ADCB may not work without it.)

Kate Moran - ODP need to know the cost benefit analysis of any development measured in science potential (e.g. does a 1.2m$ AHC have real benefits for science or would it be better to improve the quality of measurements on core which we can collect with existing techniques?). Jonasson felt that this would be very difficult to do for ODP development projects.

Comments made at the end of the meeting endorsed much of the above and the following points were re-inforced.

Susan Humphris re-iterated the TEDCOM mandate.

It is workable in its existing form if TEDCOM does what it says.

There is no need for detailed critiques of technical details or full discussions or project management issues at TEDCOM meetings.

TEDCOM does not spend enough time deliberating long term objectives of ODP. Frank Schuh says if we do this then it has to be with specifics not generalities which simply produce meaningless technological direction).

Use the TEDCOM members to report on ODP TAMU projects - assign liaisons

TEDCOM need to ensure that objectives to 2003 are met
TEDCOM need to forward look beyond 2003. They need to start now to make the transition from detailed reviews to what industry is doing and where it is going and how ODP and IODP can benefit from this by forward planning.

Kate Moran emphasised that we need more of the forward technology thinking to come from TEDCOM. - for example is it realistic to be planning gas hydrate legs into the schedule for years 2001 and 2002 when we don't have a proper tool to collect hydrate samples. Skinner said that existing developments made it likely that options may be available by that time.

Bill Hay suggested that it would be a good idea to take one scientific topic onboard for each meeting and discuss the technology required to bring that project closer to fruition. An example could be the deep Biosphere which has many technology challenges.

Don't have all meetings at College Station was suggested by some, on grounds of both expense to get there and to introduce other insights to the technology as well as ease the administrative/preparatory load of the ODP TAMU engineers. Skinner stated that if only one person from ODP TAMU was then to come to meetings outwith College Station it would have to be an Engineer. Ideally there should be more than one person. The representative will also have to be fully briefed on all aspects of each development project so that he can answer to TEDCOM in addition to the TEDCOM Member who would be briefed on a topic for discussion.
It was also thought that we could meet in Houston instead of College station to save money - ODP have a facility there which could help. All were agreed that, if the meetings format suggested by Humphris were to be implemented then TEDCOM/TAMU interaction and communication would have to improve dramatically and this in itself would be a good thing.

Skinner would like to see the format of SCICOM Liaison and Tamu Liaison providing the science/technology post leg review and forward leg look at other meetings - it worked well here for the forward view by succinctly putting it all in perspective. It also focuses the scientific requirement to the technology success or otherwise and any deadlines for future leg work.

Svendsen sees problems if TEDCOM is simply rubber stamping one members' evaluation of a development project so discussions cannot be too short. Papers can certainly be circulated before hand and this would help.

SCICOM and TEDCOM chairs will liaise on the format of TEDCOM for the next meeting. A position paper will be prepared for the next TEDCOM meeting and a limited set of Member reporting on ODP TAMU Activities will be conducted - probably on the AHC, HDS/HRRS, ADCB and MWC as they are readily identifiable as priority items on which communication is required and likely 'champions' can easily be identified. TEDCOM Members will be consulted on this early in the New Year.

Membership
Humphris will clarify the availability of Alex Summerour and Earl Shanks regarding continuing availability for TEDCOM membership.. Earl is no longer with Mobil but now with Transocean.
TEDCOM needs more members with coring expertise and members such as a senior drilling engineer with offshore drilling expertise
All TEDCOM members, Liaisons and Guests are invited to submit names and brief CV's of potential candidates to the TEDCOM Chair. He will circulate the names and CV's to TEDCOM members for their comment. He will then inform the relevant ODP National committee to see what can be done about additional participants. This is dependent on the country. While there can only be one member, and possibly an alternate, from non-US countries this should not preclude having a pool of experts who can be called upon if required. Skinner also said that the present UK panel system would not allow him to continue indefinitely - three years was the norm, even for TEDCOM which did not always conform in any of the countries due to the lack of available candidates. The situation in the US is more flexible and TEDCOM is below the permissible

complement of US members anyway. JOIDES would liaise with USSAC on names put forward by TEDCOM.

Other Business
Thanks were expressed by the chairman to Marvin Gearhart for buying the meal enjoyed by all of us the previous evening and to Susan Humphris who has now attended her last panel meeting as SCICOM Chair. Susan's efforts and assistance with TEDCOM over the past two years have been greatly appreciated by the TEDCOM Members.

Date of next Meeting
To be determined after weighing up the factors below and those already discussed but probably in late May-early June.
TEDCOM should attempt to get a new format meeting structure off the ground quickly and also try to link into other meetings where possible. There is a SCIMP meeting in Vancouver in late May 1999 and it may be possible to link into that. We will attempt to have the next TEDCOM alongside the SCIMP meeting and members will be advised of the dates in late January or February but they may already be advertised on the ODP Website.
Eric Maidla who has to travel from Australia had a preference for meetings linked into the IADC/SPE meetings which he normally attends but these do not link up at all with the January/June meeting dates suggested by Humphris and which seem to tie in best with the rest of the meeting structure.

The meeting then closed at 1500hrs. Skinner thanked everyone for their attendance and patience during the discussions. Jeff Fox, on behalf of ODP TAMU, thanked everyone for attending and emphasised the benefits which TEDCOM brought to the programme through their efforts on its behalf.

SCIMP APPENDIX 99-1-5

SCIMP MESSAGE BOARDS--

Below are some basic (and detailed) instructions about how to use the SCIMP message boards along with examples from several of the SCIMP message boards.

Basic instructions for using the message boards

The URL for entry into into the LWG message boards is:

http://www-odp.tamu.edu/mboards/lwg/

You will be prompted for a username (scimp) and password (lwg). After you enter the page you will see a list of message boards. Select the one you want to read. When you get there you will be able to read any messages displayed but to reply to a message or post a new thread you will have to register as a user. To register, simply enter one of the message boards (forums) from the URL above. In the line under the forum name you will see three links. Click the one that says register and fill out the form (use a username something a bit more cryptic than your last name). To set your email notification options click that link. Rather than give you any more instructions refer you to the user guide on the web at the following URL: http://www.lilikoi.com/instruct.html. Note that File Attachment size has been limited to 200 KB.

MORE DETAILED INSTRUCTIONS.....

The Messageboard Users' Guide

The message index

This software generates a message index in which replies are indented below the original message in chronological order. This type of hierarchical organization is called threading.

Each message is listed in the index on a single line that indicates the date on which the message was posted, followed by the title, which is a hyperlink to the actual message, then the author and finally, in parentheses ( ), a counter that records the number of times the message has been opened. An additional "digest" counter appears in braces f I at the end of the first, or root, message of each thread. The digest counter records the number of times that the thread was expanded

Sat Aug I 11:09am No title! Richard **J.** Hughes (154) (211
Sat Aug I II: 12am **This message is history** Darth Vader (29)
Sat Aug I 11:21am In the rin2 with bingu bullies Wise guy (397)
Sat Aug I 11:44am Hey this is cool! Jean Scally (123)
Sat Aug I 12:07pm This should be written in BASIC! Bill Gates (0)
Sat Aug I 12:28pm Get the picture? Richard **J.** Hughes (I 17)

To read a message, click on the message title, the hypertext link.
Tip! If you click on the message title with the right mouse button, you can choose to open the message in a new window. That way you can have both the message index and the message contents on the screen at the same time.
Messages that have been deleted, but still have a reply, won't have a hypertext link. To post a new message, i.e., start a new thread, click on

Registration
Each time you post or reply to a message you will be prompted to enter a usemame or to post as a guest. Registering costs nothing and frees you from having to enter your name each time you post or reply to a message. In addition, your hyperlinked e-mail address is automatically added to each message to facilitate a private response. Finally, only registered users can edit or delete messages they have posted.

Choose any usemame of four or more characters that you can remember. Don't forget it!

If the administrator allows, you will optionally be able to bind your IP address to Ceilidh's registration database or to store a cookie on your browser to save you from having to enter your usemame in the future.

Writing a message
By default, all messages are automatically set not to expire. We will revisit this as time goes by. When you write your message, just write normally. Ceilidh automatically translates line breaks into hypertext, freeing you to concentrate on what you want to write. If you like, though, you can include HTML tags. When you're done writing, click on

I SUBMIT

and the formatted message will appear.

Bu don't leave yet. Your message hasn't been added to the index!-

Check your message.

... look good?

All right, if it looks good, click on "Validate / Edit"

If this message is acceptable, you should validate it now

IValidate/Editl 0 Validate 0 Edit to add the message to the index.
If you spot an error, simply click on the "edit" radio button and then on "validate/edit" to return the message to the composition screen.

Unlimited edit cycles are permitted prior to addition of the message to the index. You never have to cross your fingers when you post a message.

The message itself

If, after clicking the VALIDATE button, you return to the index page to find that your new message hasn't appeared, don't panic! The browser is caching the old index. Simply have your browser reload the page and your new message will appear.

You can write private replies to registered authors. Just click on the e-mail address hyperlink that appears beneath the name of registered authors.

Jane Smith
jsmith'Plilikoi.com

At the bottom of each message is a toolbar

The date indicates when the message was posted.
The counter records the number of times the message has been read.

DIGEST appears only on the first message of each thread if there are any replies. It opens on a single page all the messages within that thread.

EXAMPLES FROM SCIMP MESSAGE BOARDS

INITIAL LOGIN PAGE

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ODP Lab Working Groups

These message boards are intended for the use of members of the following lab working groups and are password protected.

- Chemistry
- Computers
- Core Description
- Curation
- Downhole Tools
- JANUS Database
- Microbiology
- Paleomagnetism
- Paleontology
- Physical Properties
- Publications
- Underway Geophysics
- Scientific Measurements Panel (Please use for general or multilab issues)

ODP Homepage
Science Services Homepage

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EXAMPLE OF LAB WORKING GROUP PAGE

Core Description Lab Forum

Chemistry • Computers • Curation • Downhole Tools • JANUS • Microbiology • Paleomagnetism • Paleontology • Physical Properties • Publications • SciMP • Underway Geophysics

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You can [register], change your [e-mail] notification or your [registration] options.

POST

- Mon Jan 4 **Minolta CM-2000 Series Update** Joseph D. Ortiz (16)
  - Mon Jan 11 **Re: Minolta CM-2000 Series Update** Brad Julson (10)

This forum is powered by Ceilidh
(*"kay-lee"*, a CGI-compliant C discussion engine)

Chemistry • Computers • Curation • Downhole Tools • JANUS • Microbiology • Paleomagnetism • Paleontology • Physical Properties • Publications • SciMP • Underway Geophysics

Return to Science Services
Return to ODP Homepage

SCIMP APPENDIX 99-1-6

Science Operator's Report to the JOIDES Scientific Measurements Panel

STATUS OF RECENT ODP OPERATIONS: LEGS 180 - 182

Woodlark Basin (Leg 180; Darwin Australia – Sydney, Australia; June 7 to August 11, 1998)

The primary objectives of Ocean Drilling Program (ODP) Leg 180 were to (1) characterize the composition and in situ properties (stress, permeability, temperature, pressure, physical properties, and fluid pressure) of an active low-angle normal fault zone to understand how such faults slip, (2) determine the sedimentology, magnetobiostratigraphy, physical properties, and vertical motion history of the northern margin of Woodlark Basin, including the nature of the forearc basin (and basement?) sequence and hence the pre-rift history, and (3) determine the internal structure and composition of Moresby Seamount, including the nature of basement (rock type, P-T-t, structural fabric, and deformation history). These parameters will be used as input into regional models for the extensional deformation of continental lithosphere, particularly the mode, timing, andamount of extension prior to spreading initiation.

Discussion of the depositional history of the sites drilled during Leg 180 can be conveniently divided into, first, those on the hanging wall and northern margin of the active rift basin (Sites 1108, l109, 1110—1113, 1115, and 1118) and, secondly, those on the footwall (Sites 1114 and 1116). The hanging wall sites are relatively little deformed, well dated, and can be correlated accurately using seismic reflection data. By contrast, the footwall sites are more highly deformed, less well dated, and difficult to correlate using seismic stratigraphy. In addition, owing to faulting, differential sedimentation, and erosion, the footwall and hanging wall sites cannot be correlated with confidence across the rift basin.

Middle to late Pliocene abundant volcanogenic material (mainly volcaniclastic) was recovered at Site 1118, in contrast to Site 1109 and Site 1115, where only minor input was dominated by airfall silicic ash. Furthermore, a prominent episode of mainly volcaniclastic sediment took place at Site 1109 in early Pleistocene time, but this was not recorded at Site 1115 further north. Finally, the Pleistocene at both Sites 1109 and 1115 was marked by abundant, dominantly silicic, airfall ash of platy and bubble wall type indicating a phase of explosive volcanism. The probable source was adjacent volcanoes, located in the vicinity of the D'Entrecasteaux Islands and the Trobriand forearc (e.g., Amphlett Islands and Egum Atoll).

At all sites, dip-slip normal faults are predominant, but usually coexist with both oblique and strike-slip faults. The proportion of strike-slip faults markedly increases from the northern sites toward the Moresby Seamount, in agreement with probable oblique motion on west-northwest-trending normal faults that affect the seamount. This oblique motion, inferred to be left lateral, is in agreement with the north-south extension deduced from earthquake fault plane solutions and GPS measurements.

The chemical composition of the interstitial water in the sediments of the Woodlark Rise is influenced by a series of sedimentary diagenesis reactions. The alteration of volcanic matter whether as ash layers or dispersed throughout the sediments, carbonate recrystallization reactions mediated by the microbially driven oxidation of organic matter, as well as silicification reactions, all contribute to the observed profiles of pore-water constituents.

Bacteria were present in all samples analyzed at all three of the deep "northern" sites drilled during Leg 180 (Sites 1109, 1115, and 1118). Near-surface bacterial populations are similar to those at other sites with similar overlying water depths and near-surface organic carbon concentrations. Population numbers decrease rapidly with increasing depth and conform to the general model for bacterial distributions in marine sediments, although in the deeper, more indurated sediments from Leg 180 there is an indication that numbers are decreasing more rapidly than the model predicts.

The activity of deep subsurface microbial populations is evident in geochemical data from these sites. Pore-water sulfate concentrations are depleted in the uppermost sediments, below which methane concentrations increase rapidly as methanogenic bacteria gain a competitive advantage over sulfate-reducing bacteria for common organic substrates. Biological decomposition of organic matter is also evident from the accumulation of ammonia in pore waters.

There were 23 holes cored at 11 sites during this leg. The primary deep triple-cased reentry

hole was not attempted due to hydrocarbon safety considerations. Unstable sediments at alternate locations prevented relocation of reentry site. Although there were frequent stuck pipe incidents, no drill pipe or BHAs were lost.

Southwest Pacific Gateways (Leg 181; Sydney, Australia – Wellington, New Zealand; August 11 to October 8, 1998)

Leg 181 drilled seven holes in the eastern New Zealand region in order to attempt to reconstruct the stratigraphy, paleohydrography, and dynamics of the Pacific Deep Western Boundary Current (DWBC) and related water masses. The sites composed a transect of water depths from 393 to 4460 m and spanned a latitudinal range from 39°S to 51°S. Leg 181 drilling has provided the data that are needed to study a range of problems in Southern Ocean Neogene paleohydrography, sedimentology, paleoclimatology, and micropaleontology.

1. The DWBC is today one of the largest single contributors to the deep waters of the world's oceans, and, therefore, deciphering its history is of fundamental importance to global ocean paleohydrography.

2. The stratigraphic record of the eastern New Zealand Plateau and its abyssal margins is the best available for deciphering the history of development of Pacific Southern Ocean water masses and of the sediment drifts that they deposited.

3. The gateway region includes two major oceanic fronts, the Subtropical Convergence and the Subantarctic Front. Thus, the region is in a prime position to allow determination of the migration of these boundaries, the forcing processes that cause them to move, and the environmental response to their movement.

4. The stratigraphic record from Eastern New Zealand oceanic sedimentary system (ENZOSS) is of interest in its own right, as a major geological and sedimentary system within which sources, sinks, and material fluxes can all be quantified. The ENZOSS record is also directly relevant to one of the most important unresolved problems of Cenozoic climatology, namely the timing and precise nature of the development of widespread glaciation on the Antarctic continent. In turn, it is, of course, these same glacial events that contribute source water to the DWBC and its companion flow, the Antarctic Circumpolar Current (ACC), which forces the boundary current south of 49°S.

The Leg 181 drilling schedule included 51 days at sea with drilling operations at seven sites. We began by drilling shallow-water sediment drifts on the upper continental slope near South Island New Zealand, moved south in difficult weather conditions to drill sites on the central Campbell Plateau, and, at its eastern foot, turned north to drill a deep hole through the levee sediments of the Bounty Fan, and finished by drilling two holes through sediment drifts on the north side of the Chatham Rise, and one into the shallow rise itself. Overall, we recovered 3600 m of core, and made over a million shipboard measurements. The material collected on Leg 181 will lead to a better understanding of the history and evolution of the Pacific ACC-DWBC system and related oceanic fronts and to the important role they play in global ocean circulation. Finally, that the stratigraphic and paleontologic information retrieved on the cruise contained many surprises was itself predictable, given the paucity of previous drilling in the Southwest Pacific area. This information will provide a vital database for the targeting of future drilling legs in the Southern Ocean.

Great Australian Bight (Leg 182; Wellington, New Zealand - Fremantle, Australia; October 8 to December 7, 1998)

Sediments recovered during Leg 182 record carbonate deposition in a mid-and high latitude setting against the background of an evolving Southern Ocean and northward drift of the Australian continent. Approximately 3.5 km of sediments were recovered from nine sites in water depths ranging from 200 to ~4000 m. Most drilling took place on the upper slope and outermost shelf, in 200 to 1000 m of water, through a mainly carbonate succession. Two distinct groups of strata, Eocene to middle Miocene and late Miocene to Quaternary in age, form the upper part of the continental margin. The older succession consists of Eocene shallow-water terrigenous sands and carbonates that deepen upwards into Oligocene and early-middle Miocene pelagic ooze and chalk. The younger, wholly Neogene package is a large, seaward-dipping wedge of carbonate sediment that downlaps onto the older sediments and has been prograding seaward onto the Eyre Terrace since late Miocene time. The contact between the two successions is represented, particularly the late Miocene and especially the Pliocene, by slumps, sediment gravity flow deposits, or unconformities. Such erosion, corrosion, and/or mass-wasting and redeposition processes reflect periods of margin instability, seismicity, or lowered sea level. The Neogene succession is dominated by an extraordinarily thick wedge (> 500 m) of slope sediment that is nearly all Pleistocene in age. Rates of accumulation exceed 40 cm/ky, equivalent to many shallow-water tropical carbonates and twice the rate of Bahamian slope sedimentation. The green and gray material is surprisingly uniform in composition, made up of fine carbonate sand and silt composed of skeletal fragments, mainly delicate bryozoans, ostracodes, benthic and planktonic foraminifer tests, tunicate sclerites, nannofossils and siliceous sponge spicules. The facies transition upslope into shallower water is marked by the presence of numerous bryozoan-rich buildups. These mounds, in water depths of ~200-350 m, are dominantly muddy and characterized by the prolific growth of numerous and diverse bryozoans. These are among the first modern analogs to similar mounds that were an important part of the carbonate depositional systems in earlier, Phanerozoic time.

One of the most significant discoveries of Leg 182 was the presence of a brine, varying in salinity between 80 and 105, within and underlying seven sites. The brine was present at relatively shallow depths in the deeper water sites, whereas at the shallower water sites maximum salinities were not encountered until ~ 400 mbsf. The Cl- distribution at three of the shallow-water sites from the eastern edge of the Leg 182 drilling area suggests that the top of the brine has a common depth below sea level, and therefore, crosscuts sequence boundaries. Although the origin of the brine has not yet been established, pore fluids in the Pleistocene portion of the sediments from the shallow-water sites possess a Na^+/Cl^- ratio in excess of that of seawater, suggesting that the fluids in the sediments had been involved in the dissolution of NaCl. These three sites also exhibited high concentrations of H_2S and CH_4, combined with high values of alkalinity. As a result of the high sedimentation rates and the location close to the continental shelf, these sites contained a initial high concentration of organic material. The high salinity brines underlying and within the Pleistocene succession provide up to three times the normal sulfate concentrations, and therefore with sufficient organic material, significantly higher amounts of hydrogen sulfide can be formed. In addition, the relatively low concentrations of iron in these carbonate-rich sediments means that the H_2S is not sequestered as iron sulfides. Consequently, concentrations of H_2S are able to reach very high levels, in excess of 150,000 ppm at one site. The oxidation of organic material also has an important influence on the process of carbonate recrystallization, which is occurring at higher rates than previously thought possible for cool-water carbonates.

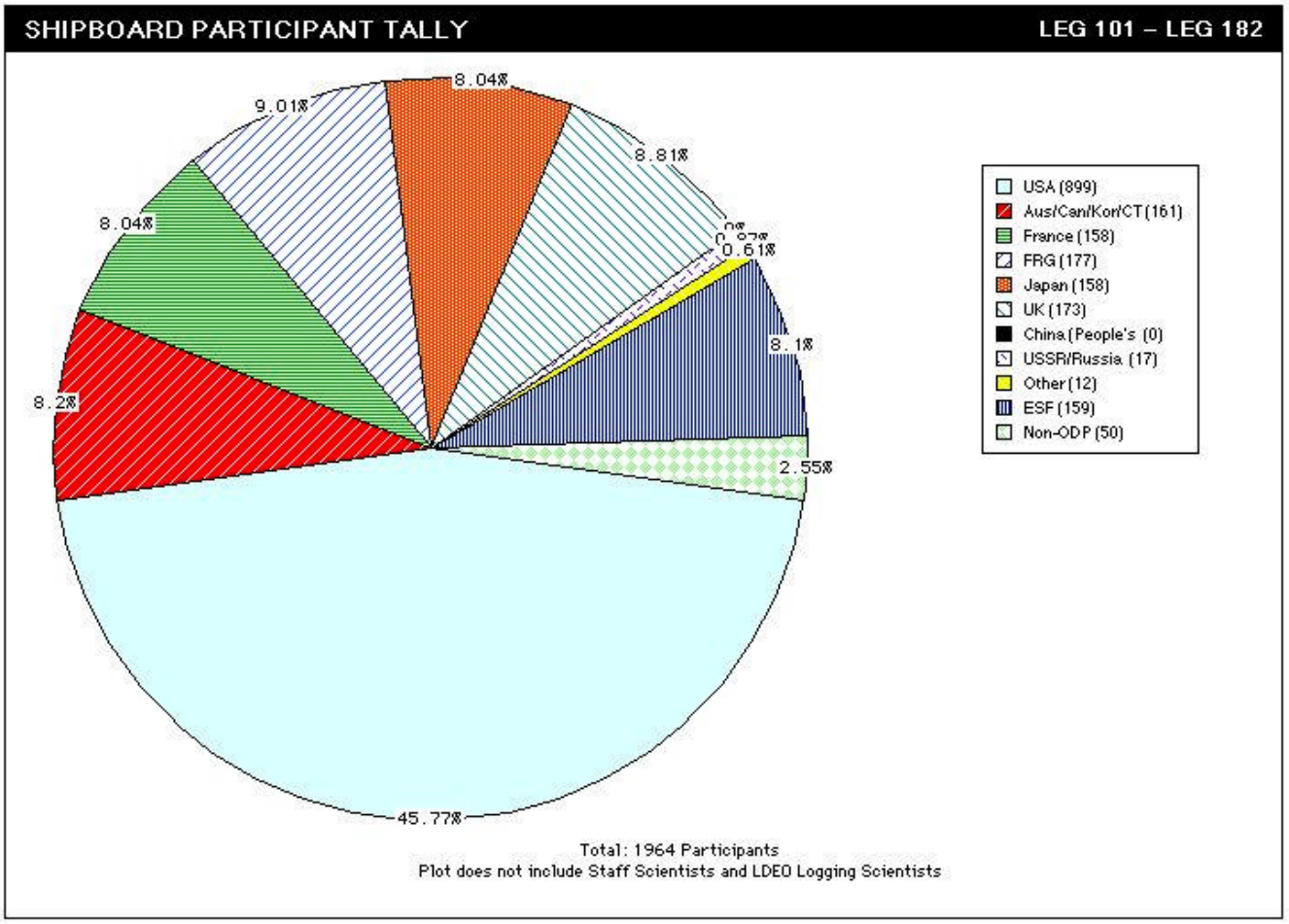
Status of Planned ODP Operations: Leg 182 – 192

	Area	Ports	Cruise Dates	Co-Chief Scientists	Staff Scientist	Staffing
	Kerguelen	Fremantle-Fremantle	December 1998-February 1999	Dr. Millard F. Coffin Dr. Frederick A. Frey	Dr. Paul Wallace	Completed
	East Asia Monsoon	Fremantle-Hong Kong	February-April 1999	Dr. Warren Prell Dr. Pinxian Wang	Dr. Peter Blum	Completed
	Izu-Mariana	Hong Kong-Tokyo	April-June 1999	Dr. John Ludden Dr. Terry Plank	Dr. Carlota Escutia	Underway
	W. Pacific Seismic Net-Japan Trench	Tokyo-TBN	June-August 1999	Dr. Kiyoshi Suyehiro Dr. I. Selwyn Sacks	Dr. Gary Acton	To be determined
	Dry dock	TBN	August-October 1999	N/A	N/A	N/A
	HD Engineering Leg	TBN-Sydney	October-November 1999	TBN	TBN	To be determined
	Australia-Antarctic Discordance	Sydney-Fremantle	November '99-January 2000	Dr. David Christie TBN	Dr. Jay Miller	To be determined
	Prydz Bay	Fremantle-Hobart	January-March 2000	TBN	Dr. Carl Richter	To be determined
	Southern Gateways	Hobart-Guam	March-May 2000	TBN	Dr. Mitch Malone	To be determined
	Nankai	Guam-Tokyo	May-July 2000	TBN	Dr. Adam Klaus	To be determined
	W. Pacific Ion	Tokyo-Guam	July-August 2000	TBN	Dr. Carlota Escutia	To be determined
	Manus Basin	Guam-Guam	August-October 2000	TBN	Dr. Jay Miller	To be determined
	Ongtong-Java	Guam-Suva	October-Decemeber 2000	TBN	Dr. Paul Wallace	To be determined

Staffing Information

Staffing through Leg 185 is essentially complete, with just a few places remaining to be filled on Leg 185. Leg 185 will be the first leg where we will be able to conduct contamination tests essential to the deep biosphere initiative. Staff Scientists and Operations Managers for Legs 186 through 193 have been designated and staffing for Leg 186 is in progress. Staffing for Legs 187 and beyond is awaiting appointment of Co-Chief Scientists before proceeding.

With the continued help of all partners, we have been able to maintain a reasonable overall balance of scientists from participating countries.



PROGRAMMATIC PROJECTS: IMPROVED CORING

The Program is presently involved in an integrated technology development strategy focused on better recovery of core under a range of challenging environmental conditions. The acquisition of an Active Heave Compensation (AHC) system will improve ODP's operational capability across a broad front. The development of the Hard Rock Reentry System, the Advanced Diamond Core Project and Measurement While Coring are initiatives that will allow us to make hole and/or recover core in hard rock formations where the Program has historically had problems.

Activation of the Drill String Compensator aboard the *JOIDES Resolution*

Project Overview

Activation of the drill string compensator is planned for the 1999 Dry Dock. An acceptable bid is being reviewed for award by January of 1999. An active heave compensator is seen as the first step in improving downhole tool performance and in extending the operational weather window aboard the JOIDES Resolution for all tools. The project development plan is to emplace a hydraulic power assist system on the existing passive compensator that monitors ship heave and compensator displacement with the target of eliminating the effect of ship heave on the drill string.

Project Objectives

To significantly reduce vertical motion in heavier seas thereby:

- Eliminating hammer drill lift off
- Reducing hole swabbing deterioration
- Improving multiple packer emplacement in deep holes
- Extending tool life by reducing to bit bounce or torque shock
- Improving APC core quality
- Improving operation of existing RCB and XCB bits
- Enhancing benefits of diamond bits
- Improving drilling/coring BHA configuration

Status

- Activation of the drill string compensator is planned for dry dock in August 1999.
- During the first four months of 1999 a simulation program will be run to provide a time domain reference to compare AHC to passive performance with respect to weight on bit control.
- ODP is investigating the installation of low-friction seals on the heave compensator so that the responsiveness of the AHC can be enhanced under certain conditions (i.e., drill off in calm seas).

Milestones

- 4-98 Bidders survey ship at Sydney port call.
- 1-99 Competent bid received October 98.
- 1-99 Finalize by mid-December 98.
- 2-99 Award to meet dry dock mid-January 99.
- 2-99 Vendor ship survey Leg 184 Fremantle port call.
- 4-99 Installation/training during dry dock and sea trials September/October 99.

Hard Rock Reentry System II

Project Overview

Drilling and coring operations in fractured hard rock must overcome many challenges not

confronted in piston coring operations. One of these is the establishment of a reentry hole on sloping hard rock. The ideal system should be capable of (1) initiating a hole on sloping hard rock, (2) then concurrently deepening the hole while stabilizing the upper part of the hole with casing, and (3) withdrawing the bit through the casing string, leaving behind a funnel for future reentries. To accomplish this, a hammer drill is necessary and retractable or ring type bit is required to cut a hole with a greater diameter than the casing. After the hole is established, the casing string can be cemented in place, and coring can then proceed. Subsequent casing strings could be installed by reaming the existing cored hole to open it up for casing installation. This secondary casing string, if employed might use a smaller HRRS or possibly a conventional underreamer type bit since the hole has been established.

Project Objectives

- Eliminate the need for any form of independent seafloor guidebase
- Allow boreholes to be spudded on sloping hard rock
- Reduce the operational restrictions due to thin sediment cover, debris or rubble near the surface.

Status

- Leg 179 tests indicate that the hammer drill itself shows great promise of being able to penetrate
  subsea hard rock environments at a fast rate (approximately 6 m/hr)
- Additional tests of the HRRS are warranted for further evaluation of the complete system (hammer,
  bits, drill-in casing).
- The bits deployed on Leg 179 resulted in overloading the tungsten carbide buttons on the
  underreaming arms and thus rendered the bits ineffective to cut an over-size hole necessary to
  install the casing.
- A number of bit manufacturing companies have been approached concerning working with ODP in
  developing bits for SDS's hammer drill.
- licensing agreements between SDS and these other companies have resulted in what presently appears as an impass. The controversy centers on SDS insisting that these bit companies allow SDS to
  manufacture all future bits after the prototype has been tested during the land test program scheduled in February 1999.
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  manufacture all future bits after the prototype has been tested during the land test program scheduled in February 1999.

Milestones

- 1-99 Review bit design & hammer modifications.
- 2-99 Plan and execute onshore testing program.
- 2-99 Decision of whether bits/hardware are acceptable for Leg 186E.
- 3/4-99 Plan leg and prepare remaining equipment.
- 10-99 Leg 186E to test the HRRS.

Advanced Diamond Core Project (ADCB)

Project Overview

The existing Diamond Core Barrel (DCB) provides the user with an alternative method to the Rotary Core Barrel (RCB) system for obtaining hard rock cores. The DCB was developed in 1990 but has seen limited use. The DCB uses the same inner barrel as the RCB but is packaged inside 6 3/4" drill collars. It was recognized early on that a thinner kerf on the bit would provide a longer bit life as well as a larger core. This new project centers around making improvements to and testing the DCB system. This new core barrel is named the Advanced Diamond Core Barrel (ADCB). We are engaged in a three phase program to improve diamond-coring techniques for the Ocean Drilling Program.

Project Objectives

Reasons listed below provide the reader with why a robust diamond core barrel should be considered/used over a rotary core barrel (RCB) in certain applications. These include:

- Improved core quality
- Better hole stability
- Increased core recovery
- Less hole disturbance
- Smaller size hole than RCB
- Less susceptibility to become stuck (flush OD connections instead of upset tool joints)
- Smaller cuttings

The development program will provide a thorough test of the existing ODP hardware before modifications begin on the new system. This will allow a benchmark to be set so that tangible results can be compared to track improvements in the system. The three phases of the ADCB project include:

- Phase I – Leg 185 DCB evaluation
- Phase II – Development and land testing of the ADCB in the spring of 1999 and sea trials in October 1990
- Phase III – Development of the Retractable ADCB.

Status

- 48 hours have been added to the Leg 185 operational schedule to test the DCB.
- Designs of the ADCB outer barrel have been completed.
- Award for the outer core barrel components is expected before December 1,1998.
- Land testing at a Salt Lake City, Utah facility is tentatuively sheduled for March/May 1999.
- Sea trials for the ADCB are currently anticipated to occur in conjunction with the mini-hammer drill leg scheduled for October/November 1999.
- Down Hole Technologies, Ltd. has submitted a pre-feasibility study dealing with a retractable core bit for the ADCB.

Milestones

- 1-99 Complete feasibility study of Retractable ADCB
- 2-99 Fabricate ADCB
- 3-99 Onshore test of the ADCB
- 4-99 Prepare ADCB hardware for sea trials
- 10-99 Perform sea trials/evaluation of ADCB (Leg 186E)
- 01 Decision to proceed w/retractable ADCB

Measurement While Coring System

Project Overview

The Measurement-While-Coring project will implement and modify existing measurement while drilling technology into ODP coring operations. This is seen as a way to substantially improve efficiency and effectiveness of coring operations in poorly consolidated formations and hard rock.

The project development plan for the MWC system consists of 1) a retrievable downhole telemetry

tool with a surface data acquisition/processor system, 2) a downhole sensor sub, and 3) a wet-mateable datalink between the telemetry tool and sensor sub. The current plan is based on ODP generation, operation and maintenance of all units, a participation with an MWD company for the telemetry tool and ODP collaboration between TAMU and LDEO in system configuration.

Project Objectives

- To improve the driller's ability to react to changing drilling and coring conditions by providing real-time information from sensors resident in the BHA (i.e., annulus pressure, weight on bit, torque on bit) as well as the sensors mounted on the rig floor (i.e., pump pressure, pump rate, hook load, top drive torque, top drive rpm).
- To provide downhole data to engineers and scientists for post processing the correlation between borehole conditions and core recovery.

Status

- Three potential MWD vendors are being evaluated for suitability of adapting their telemetry system for the Downhole Telemetry Tool.
- TAMU and LDEO met on November 9-10 to begin coordinating efforts for implementing an MWC system on the *JOIDES Resolution*.

Milestones

- 1-99 Select MWD vendor for Downhole Telemetry Tool.
- 1-99 Begin development of Downhole Sensor Sub.
- 2-99 Leg 185 drillstring heave test (TAMU/LDEO).
- 2-99 Select rig instrumentation vendor - base system.
- 2-00 Begin field test Downhole Sensor Sub memory only.
- 10-00 Leg 192 MWD demo w/Anadril to establish a proof of concept.
- 01 Install rig instrumentation on *JOIDES Resolution*; start with a basic measurement (e.g.

  weight on bit) to establish validity of design and efficacy of results for enhanced drilling.

PROGRAMMATIC PROJECT: DRY DOCK

A major ODP project, which culminates in October 1999 when the *JOIDES Resolution* leaves dry dock, is a major phase of refurbishment and enhancement of the ship's systems and the laboratory complex. Planning for this project and procurement of long lead time equipment has been going on during the last fiscal year. The Dry Dock Project is on schedule and the salient characteristics are outlined below.

Dry Dock Timing and Location

The ship is scheduled to go into dry dock at the end of Leg 186 (mid August) and is scheduled to be finished, including sea trials, 42 days later. The bid documents were sent out to seven shipyards on November 20, 1998. All the shipyards are located in the Western Pacific, the prospective bidders have been invited to inspect the ship in Fremantle in early December. Sealed bids are due back on February 15, 1999.

JOIDES Resolution: ODL Project Status

Engineers at Overseas Drilling Limited are planning the upgrades and enhancements to the *JOIDES Resolution.* The final project list is an outgrowth of a long deliberative process involving ODL and ODP and represents a mix between major capital equipment enhancements (e.g. Automatic Station Keeping System and Data Management System) and extensive refurbishments of existing equipment. The projects are designed to contribute to anyone or all of the following: safety, capability, efficiency and habitability. As part of the renewal of the 1999-2003 operations contract extension, NSF has contributed $6,000,000 US. Approximately 50% of this amount has been encumbered and ODL has maximized the return of this investment in the ship's capability by carrying out as many projects as possible during port calls and during scientific legs. By written agreement, ODL is responsible for any costs incurred above $6,000,000 US.

Laboratory Stack: ODP Project Status

In FY99 ODP has budgeted $309,042 for improvements and upgrades to the Laboratory Stack. The list of projects to being consideredwill cost in aggregate much more than there are funds available. However, until the costs for the proposed projects are defined by the bid process, and until the total amount of funds available for projects has been identified (additional funds may be identified as a result of mid-year savings; third party funds could be found to support special projects like the creation of a new 8th floor of the laboratory stack to support the Deep Biosphere initiative) the project list can't be finalized. One of the major tasks that ODP will address is a total reworking of the 7th floor Core Lab to improve core flow and handling. The majority of this work will be done by ODP Marine Lab Technicians during dry dock but the costs for their support is not included in the $309,042 US budgeted for dry dock.

There is a great deal of interest to add an 8th floor to the laboratory stack to enhance the Program's capability to pursue the Deep Biosphere initiative and to implement more advanced downhole measurements. In this regard, ODP contracted Ocean Design Associates, Inc. in FY98 to assess stability and structural design issues related to the Lab Stack and the addition of an 8th deck. This naval architect design firm has an intimate knowledge of the *JOIDES Resolution* as members of the company worked with Earl & Wright on its initial design for Sedco.

Based on Ocean Design's stability and station-keeping assessment, and from discussions they had with the American Bureau of Shipping, there is no stability problem with adding an 8th deck to the lab stack. In addition, structural assessment indicates there are no problems, or need for structural reinforcement, with adding a microbiology van to the roof of the Lab Stack or with stacking the core liner boxes two high, from either a stability or structural viewpoint.

ODL proposed projects	Cost estimate
ASK	$1,347,396
DMS	$ 909,099
Accommodation	$ 465,256
Salt Water System	$ 343,035
Hull	$ 333,500
General Service	$ 332,200
Thrusters	$ 316,080
Drilling Equipment	$ 293,424
Cranes	$ 260,960
Tank Cleaning & Gas Freeing	$ 218,000
Main Generators	$ 174,155
Shafts	$ 169,300
Tanks & Voids	$ 128,875
Lifesaving & Fire fighting	$ 110,000
Other	$ 89,260
Rudder & Steering Gear	$ 87,000
Maintaining Class	$ 80,000
Communications	$ 79,870
QA/QC & Testing	$ 58,000
Environment	$ 50,000
HVAC	$ 48,158
Switchboard	$ 45,000
Mooring	$ 30,000
Laundry	$ 28,000
DC Motors	$ 22,778
Lab stack	$ 21,563
Bilge System	$ 17,975
Thyrigs	$ 17,162
Galley	$ 11,352
Total	$6,087,398

ODP proposed projects	Cost estimate
Core Lab Modifications	$ 75,000
Casing Hold Lift	$ 55,000
Casing Hold Storage Decks	$ 49,500
Sonar Dome	$ 44,000
Fume Hoods	$ 33,000
Microbiology Van	$ 25,000
Reefer Conversion	$ 22,638
Cabinets and Countertops	$ 11,000
Aft Transducers	$ 5,500
Doppler Sonar	$?
Main Deck Access	?
Fantail Maintenance	?
Forward Drill Collar Rack	?
Lab Stack Foundation	?
Core Lab Doors	?
Core Lab Ventilation	?
HVAC Cleaning	?
CATWALK Replacement	?
Total	$ 320,638

ODP discussed projects

Lab Stack 8th level (full)
Lab Stack 8th level (shell)
Lab Stack 8th level (partial)
Convert Library to staterooms
Bridge deck offices
Storeroom to Library
Storeroom to conference area
'Tween deck Stores to offices

* Cost estimates are based on an internal estimate and more accurate numbers and prioritization await the bidders response.

PROGRAMMATIC PROJECT: IMPROVED DATA MANAGEMENT

During the last six months a major three year ODP initiative to develop a new relational database has been concluded and the system is now operational and the Program has taken over the responsibility of maintenance and system improvement as requirements expand.

JANUS Applications Development

JANUS Phase I

The JANUS Phase I application continues to be maintained with enhancements being made as requested and as time permits. Any errors which are found are being corrected. Several errors have been found in recent legs associated with the data uploaders which take data from the various instruments and place these data into the JANUS database. These problems are being worked on and solved. Overall, the system continues to perform well and is very instrumental in collection of leg-related scientific data.

JANUS Phase II

The complete Visual Core Description (VCD) application which will contain hardrock support is planned for deployment on Leg 184. An initial release of VCD which supports sediments has been in use for several legs now. Problems have occurred with the uploading of the VCD data, but these problems are currently in the process of being resolved. Tracor has completed all of their work on the VCD import/export functions and these are currently in the process of being tested. AppleCore, which is the final piece of VCD, has been delayed in delivery due to a death in family of the subcontractor developing AppleCore. Currently the delivery of the final version of AppleCore is planned for mid-January.

JANUS Web

Reports and queries continue to be added to the JANUS Web application as well as enhancements being made to existing items based on feedback being received. Two web applications have been added. These are: a) the End of Leg questionnaire to be completed by scientists at the end of each leg; and b) the Precruise Site Name to Site Number application which permits a site number to be assigned to the precruise site name when the site is actually drilled.

Paleo Phase I (Spreadsheet oriented application)

This application was developed to provide a spreadsheet type input form for use by paleontologists who requested this addition to the JANUS Paleo program. It has been used on the past two legs and feedback is being obtained in order to provide additional functionality as part of a Phase II undertaking.

Sedimentary Smear Slides

The initial version of this application has been completed. It has been deployed on the ship for usage and feedback.

Sedimentary Thin Sections

Work is almost complete on this application and will be deployed on Leg 183.

Improved Depth Utility

Work is almost completed on an improved depth utility which will permit easy attachment of depths to data files without the use of the JANUS application.

Paleo Phase II (Spreadsheet application finalized)
Feedback has/is being received and planning is being done for implementation of the final phases of this project. It is anticipated that Phase II will be completed by January 1, 1999.

Curation Application
Development and testing continues on this application to provide comprehensive support for sample request tracking, sample tracking, repository project planning, and various reports required by the repositories and curation personnel.

JANUS Database Services

JANUS database - The JANUS project with Tracor officially ended in September 1998 and we have received the final data model, database management scripts and JANUS maintenance manual from them. All database maintenance and new development is now happening at ODP/TAMU.

The quality of data has consistently improved over the past two years since the initial JANUS data management system was first installed on the ship on Leg 171. This has been due to an ongoing improvement in the system as well as a better understanding and acceptance of the system by the staff and the scientists. The new data received from the ship after each leg is entered in to the central database at College Station and becomes available on the web within two weeks of the end of the leg. The JANUS database now has Legs 171 through 181 data -- Legs 171 through 175 are public and available on the web, but Legs 176 through 181 are still proprietary and available only to the participating scientists. The beginning-of-leg (BOL) and end-of-leg (EOL) database procedures during the port calls have also consistently improved since Leg 171 and are now routine.

Data Migration - We are currently working on the migration of Multi-Sensor Track data from Legs 101 through 170 to the JANUS database. We have started with the GRAPE data from Leg 170 and are working backwards. The work is progressing well. The data migration code is being written in Java. We have tested some off-the-shelf software, e.g., Data Junction, but it did not meet our needs for data migration. One FTE is dedicated to the data migration efforts at this time. The ODP core and sample data from Legs 101 - 170 and DSDP core data from Legs 1 - 96 were migrated to the JANUS database in FY97 and FY98.

PROGRAMMATIC PROJECT: ELECTRONIC PUBLICATIONS

After three years of analysis and evaluation, last December the Program successfully brought to a close plans for reformatting the *Proceedings* volumes. During 1998 the Publication Services department began development of the new electronic format for the *Initial Reports* volumes. Beginning with Leg 176, all IR volumes will be published with a spiral-bound, hard cover booklet that contains one chapter summarizing the leg, a user guide, and a CD-ROM. The CD-ROM will include the leg summary chapter, all other volume chapters, visual core descriptions, digital core images, and smear-slide and thin-section tables.

On the CD-ROM, all volume material will be in PDF format. The CD will also contain a free copy of Adobe Acrobat Reader, the software used for viewing the PDF files. This material will be accessible on Mac, PC and Unix computers. In addition, many CDs will contain data sets in ASCII format and some will contain supplementary files, such as QuickTime movies.

The volume format is designed so that the volume can be viewed on screen, but also printed. The volume files will be set up with active links from text to figures and tables within a chapter, from chapter-to-chapter, or from chapter to ASCII data sets. Core photos will be represented as 300 dpi color digital images. (Higher-resolution versions of the core images are available via the ODP Data Librarian for members of the scientific community who wish to use the images for research.)

The first volumes published in the new format, *Initial Reports* Volumes 176, 177, and 178, will be distributed in early 1999. Shortly after the distribution of these volumes in the booklet/CD format, they will also be published on the Internet.

Volume Production

From June through December 1998, the following *ODP Proceedings* volumes were produced and distributed:

Initial Reports
Book and CD-ROM (PDF version): 172, 173, 174A, 174AX, 174B, 175
WWW (PDF version): 171A, 171B, 172, 173, 174A, 174AX, 174B,

Scientific Results
Book and CD-ROM (PDF version): 159, 159T, 160
WWW (PDF version): 156, 157, 159, 159T, 160

Notes:
1. CD-ROM and WWW versions of the above volumes are replicas of the *ODP Proceedings* books in PDF format. The first volumes published in the new format, *Initial Reports* Volumes 176, 177, and 178, will be distributed in early 1999. Shortly after the distribution of these volumes in the booklet/CD-ROM format, they will also be published on the Internet.
2. To date, replicas of the following *ODP Proceedings* books have been published on the Internet in PDF format: *Initial Reports* 166–173; *Scientific Results* 150X, 152, 154–160. In addition, users can now access the 300 dpi color core images either via the on-line versions of the *Initial Reports* volumes or via JANUS Web.

From January through May 1999, the following *ODP Proceedings* volumes are expected to be printed and distributed:

Initial Reports
New booklet and CD-ROM version: 176, 177, 178, 179
WWW (PDF version): 175, 176, 177

Scientific Results

Book and CD-ROM (PDF version): 161, 162
WWW (PDF version): 161

Note: The SR schedule was extended from three-years postcruise to four-years postcruise between volumes 160 and 164, which lead to longer periods (>2 months) between the publication of each volume.

New Volume Format Development

Initial Reports: During summer/fall of 1998 the Publication Services Department worked on the style refinement and production of the first three *Initial Reports* volumes to be produced in the new electronic format. Electronic and printed samples were highlighted at the ODP booth during the December 1998 AGU meeting.

Scientific Results: JOI has supported the SCIMP Recommendation 98-2-5, which included the creation of a printed booklet that contains a leg synthesis to accompany each all-electronic SR volume in the future. This makes the new format for the *Scientific Results* (SR) volume parallel to the new *Initial Reports* format. Discussions are underway to determine when this new format should be initiated. There are several other issues related to future SR submissions that will need to be discussed at the upcoming SCIMP meeting, including guidelines for plates and data submissions in electronic volumes.

ODP Proceedings Distribution

The Department has continued to distribute free sets of volumes to academic institutions that do not already have accessible sets of DSDP and ODP volumes if they agree to pay shipping costs. Between June and December 1998, 10 institutions in 5 countries were sent volume sets (U.S.A.–6, Chinese Taipei–1, Malaysia–1, Italy–1, Columbia–1).

Status of Action Related to SCIMP Recommendation 98-2-6

SCIMP Recommendation 98-2-6 stated "SCIMP recommends that the science operator investigate the cost and tasks involved in compiling and maintaining a comprehensive list of publications resulting from DSDP and ODP research, in order to assess the significance and impact of the scientific drilling program."
ODP/TAMU is working with AGI/GeoRef to create a citation database specific to ODP research. A parallel citation database specific to DSDP research was developed in 1991 and was published on the *Cumulative Index to the Initial Reports of the Deep Sea Drilling Project* CD-ROM. Plans are to update the citation list specific to DSDP research for 1992 and beyond. ODP/TAMU will have a cooperative agreement with AGI/GeoRef to update the database on an annual basis.

WWW Development

New ODP Main Web Page: In September, representatives from all areas of ODP met to reevaluate the structure and design of the Program's web sites. The primary goals were (1) to create an integrated site that scientific community members could navigate around seamlessly, (2) to streamline the content at each site to eliminate duplication, (3) to develop an efficient system for updating information and lists, and (4) to design a new "entry point," or front page for the Program's site. In addition to achieving these goals, the committee designed a new ODP logo that will be integrated in all portions of the ODP web site and on all Program letterhead, business cards, etc. The new entry point for the Ocean Drilling Program web site will open in early 1999 at http://www.oceandrilling.org

SCIMP Message Boards: Message boards have been developed for all SCIMP subcommittees. SCIMP members will have read/write privileges; all other Program participants will have read-only privileges.

***Proceedings* Volume Web Hits:** A list of the most recent volumes now available on the WWW (replicas of the printed volumes in PDF format) can be seen above. The following table summarizes the number of hits to specific ODP site URLs relating to the on-line volume replicas.

1998 Statistics	**June**	**July**	**August**	**Sept.**	**Oct.**	**Nov.**	**Dec.**	**Release Date**
ODP main page	3,101	3,438	3,995	4,571	5,055	5,267	4,448	NA
Publications main page	709	727	684	835	1,977	1,059	2,644	NA
INITIAL REPORTS* VOLUMES								
166 IR	60	61	35	34	19	30	20	1 Oct. 1997
167 IR	22	18	13	15	16	19	17	13 Feb. 1998
168 IR	14	7	13	9	10	29	21	23 Feb. 1998
169 IR	38	33	13	16	17	15	11	17 April 1998
169S IR	17	15	19	15	15	28	28	10 April 1998
170 IR	64	27	13	16	21	19	21	24 April 1998
171A IR	13	21	13	14	11	19	24	26 June 1998
171B IR	19	22	31	28	19	23	22	26 June 1998
172 IR		8	50	51	53	54	43	31 July 1998
173 IR				67	67	71	62	4 Sept. 1998
174A								31 Dec. 1998
174B IR								31 Dec. 1998
174AX IR								31 Dec. 1998
SCIENTIFIC RESULTS* VOLUMES								
150X SR		12	35	17	28	27	19	7 Aug. 1998
152 SR	11	11	31	48	52	53	42	8 July 1998
154 SR	76	59	41	64	69	82	52	1 Oct. 1998
155 SR	65	85	48	73	48	79	57	15 May 1998
156 SR			13	31	63	30	23	21 Aug. 1998
157 SR		7	44	42	76	72	51	14 Aug. 1998
158 SR	43	50	42	68	95	79	54	15 May 1998
159 SR								31 Dec. 1998
159T SR								31 Dec. 1998
160 SR						167	98	9 Nov. 1998

* Numbers indicate hits to the first/entry page of each volume.

Internal Laboratory Equipment Capital Expenditure Plan

As part of a programmatic review of capital expenditures, and recognition that current and projected funding cuts had effectively eliminated capital improvement budgets for laboratory equipment on board the JOIDES Resolution, JOI asked ODP/TAMU to provide them with an internal assessment of capital replacement priorities. A list of laboratory equipment that had been pulled together for SciMP information was used as the first iteration, after subdivision into five service categories (safety, ephemeral properties, drilling decisions, additional services, and development projects).

From this list we removed all support items (balances, presses, sample preparation equipment, etc.) and items where the cost to replace is significantly less than $10,000, unless that piece of equipment made a unique measurement. While many of these lower coast items are absolutely required to provide our current level of service, for expediency sake, this list was pulled together assuming that big ticket items were the ones that were constantly under review, while smaller cost items are routinely replaced or repaired within our budget.

ODP Science Services ranked each piece of equipment or service according to the following priories:

1- We consider this system will require replacement in the near future. Items given this priority are all accompanied with a short justification statement.

2- This system is currently fully functional, but failure will require replacement. This also includes systems that we consider require funds for development as the next step in their evolution, rather than merely repair and maintenance.

3- We do not envision the need to replace this system, however upgrades and maintenance will be required and catastrophic failure may require revision of our prioritization.

(see SCIMP Appendix 99-1-8 of January 1999 SCIMP report for Lab Equipment Capital Replacement Plan)

Proposed modified guidelines for third-party tool development

In response to the revision of the ODP advisory structure, and the mandate of the Scientific Measurements Panel (SciMP), we propose the following modified guidelines for third-party tool development (See SCIMP APPENDIX 99-1-7 and section K of this January 1999 SCIMP report for more details on Proposed Third Party Tool Guidlines). The exisiting third party tool guidelines have been modified to reflect the fact that the Science Operator (ODP/TAMU) and the Logging Contractor (ODP/LDEO-BRG) are responsible for assisting with and monitoring third-party tool developments and reporting status to SciMP. These guidelines indicate a general progression through which new tools are introduced to ODP operations.

Lab updates

Core Description

The latest version of AppleCORE (which includes the hard rock and structure packages) is scheduled to be delivered for testing prior to Leg 184 (on or about January 27). The package will be tested at ODP/TAMU, and if acceptable it will be deployed on Leg 184 for evaluation (Eve Arnold, core description package committee chair from JANUS Steering Committee will be sailing on Leg 184). An ODP programmer will sail on Leg 185 (first hard rock recovery leg after deployment) to ensure proper interface with JANUS and create report functions.

Chemistry

As part of routine maintenance and with funds made available by fuel savings and from vacant technical support positions new gas chromatographs (GCs) for the chemistry lab have been purchased.These GCs are our primary safety and pollution prevention hardware and were scheduled for replacement as the highest priority special operating expense (SOE) item in the FY'99 budget. However, this item was victim to the heavy budget cuts we realized last winter. The new GCs are undergoing specialty plumbing at this time. They will be delivered to ODP/TAMU for training and deployment is targeted for the Leg 185 portcall.

Downhole tools

ADARA

3 functional ADARA APC shoes, 3 broken, and 3 at ADARA undergoing repair/calibration.
LWG needs to evaluate long term maintenance, repair, calibration of tools. Can these be repaired, maintained in house or by other vendor? Do we need to be considering a replacement tool?

DVTP

1 tool is fine, the second was damaged and returned to developer for repair in November 1998.
ODP/TAMU is funding the repair/upgrade as well as production of an additional housing.
Tool primarily returned for upgrade to implement pressure sensor for accurate depth measurement and hopefully formation pore pressures. Targeted for possible deployment on Nankai (Leg 190; May 2000).
Third party tool status:

- Existing tool documentation has been provided.
- ODP-TAMU needs to evaluate documentation provided to determine exactly what additional documentation is required to proceed to mature ODP tool.

Also LWG should evaluate need for a 3rd tool. Estimated cost ~$18.5K.

WSTP

Data loggers

"NEW" WSTP ADARA data loggers
1 on ship, 3 at TAMU, 2 nonfunctional at ADARA
"OLD" DCDL data loggers

Other LWG issues that relate to all the tools (ADARA, WSTP, and DVTP) include
Mechanical hardware, thermistors, software, calibration, upcoming high(er) temp legs

Underway Lab
Winfrog upgrades continue as each new version requires debugging, and commonly newer versions do not include utilities present on previous versions.

A principal concern of the UWLWG is the lack of use of the seismic equipment has had over the last few year and the corresponding loss of personnel familiar with the task. The demand placed on Leg 184 for days worth of survey will be a challenge for that crew. Personnel turnover coupled with sporadic use has resulted in whole teams of marine laboaratory specialists who have never participated in a seismic survey and who can not take the lead setting up for a VSP experiment. When seismic profiling was done nearly every leg we couldintroduce a new technician to the routine. It takes regular practice to launch and retrieve the guns smoothly and safely. There is high pressure air and there are plenty of cables and bundles under tension that new people do not see and are unaware of. Without practice, because of operator inexperience and seldom used equipment, the handler can end up with a couple hundred pound gun tube-locked or dumped on the deck instead of smoothly placed into the storage cradle. New people invariably stand or step into a line bite where either a line could fail or, because of inexperience at the hose handlers, line suddenly let out.

Shipboard computers/networks
The Operations Server is now on-line and the final server installed.
New computers installed: 16 PC's, 16 Macs, and a SUN Unix station for the Splicer application.

One item that will need to be addressed (possibly during the dry dock or at least when there is a week long transit when the database is not needed) is the upgrading of the operating system on the DEC Alpha's. The upgrade will solve the problem of Y2K compatibility.

APPENDIX 99-1-7

Proposed modified guidelines for third-party tool development

Downhole measurements form an integral part of the technology that is routinely used in ODP. In addition to the standard downhole tools that are available on all ODP scientific legs, ODP has historically drawn upon tools developed outside the framework of its primary contractors. These tools are known as “third-party” tools.

Support for the development of third party tools can come from a variety of sources. In the United States, third-party tool development has generally been supported by the National Science Foundation, using funds earmarked for ODP and allocated to highly ranked, unsolicited proposals. International partners operate similar procedures.

Tools that are developed with this type of funding are specifically intended for deployment in ODP. However, scientists sometimes wish to use existing tools that have been developed externally for different purposes. In both cases, it is important that third-party tools are certified as satisfying all the operational and safety criteria that ODP applies to its own in-house tools.

Third-part tools are required to make a transition from the development stage to certification for deployment downhole in ODP under the management of either the ODP Logging Contractor (for wireline tools) or the Science Operator (for all others). To facilitate this transition, a set of guidelines has been formulated for the overall process of bringing third-party tools to the development stage. The aim is to improve communications between ODP and those outside investigators who wish to develop a third-party tool, with the objective of preserving ODP’s safe, secure, and scientifically beneficial operations.

In response to the revision of the ODP advisory structure, and the mandate of the Scientific Measurements Panel (SciMP), the following guidelines for third-party tool development have been modified to reflect the fact that the Science Operator (ODP/TAMU) and the Logging Contractor (ODP/LDEO-BRG) are responsible for assisting with and monitoring third-party tool developments and reporting status to SciMP. These guidelines indicate a general progression through which new tools are introduced to ODP operations. More detailed technical specifications are available from the ODP Science Operator and Logging Contractor.

1. Classification

ODP defines three types of third party tools: development tools, certified tools, and mature tools. A development tool is either a tool that is under development externally for use specifically in ODP or a tool that has been developed outside ODP for other purposes and is being considered for ODP deployment. A certified tool is a tool that has been developed outside ODP, either for specific ODP application or for other purposes, and is now deemed to satisfy all the criteria for scientific deployment in ODP. Where there is likely to be a long-term requirement for the data provided by a certified tool, it may be a candidate to become an ODP mature tool. A mature tool is an established tool that has become part of the range of tools operated routinely by the Science Operator or Logging Contractor. Such a tool will effectively be owned by ODP and will no longer be a third-party tool.

2. Development tool

For a tool to be considered a development tool, several criteria must be satisfied.

(1) There must be an identified Principal Investigator who is the primary proponent for the use of the tool in ODP.

(2) The Principal Investigator should formulate a development plan in consultation with the Science Operator or the Logging Contractor, as appropriate.

(3) The development plan should:

- indicate the usefulness of the proposed measurements and the financial and technical feasibility of making them.
- include a brief description of the tool, schematic diagram(s), details of the operational procedure, and technical specifications such as dimensions, weight, temperature and pressure ratings, cable-length restrictions, cable type, etc.
- identify development milestones in terms of both the level and the timing of technical achievements
- make provision for initial testing on land
- satisfy safety considerations
- specify shipboard requirements such as the data processing necessary to make the information accessible on board ship, any special facilities(emphasizing where the tool is not compatible with existing hardware and software), and appropriate technical support
- make provision for transporting tools for shipboard testing, in terms of both cost and time
- contain a signed (pro forma) statement of (a) agreement with these requirements and (b) intent that the tool would be available for post-development deployment in ODP.

(4) The development plan must be submitted for approval to the Science Operator or Logging Contractor as appropriate. The Science Operator or Logging Contractor is responsible for reporting to SciMP the submission of development plans. SciMP will bear the responsibility of determining action on these submissions relative to the panel mandate. SciMP could, as appropriate, assign a watchdog from the panel to act as a contact for advice to the Science Operator or Logging Contractor regarding further tool development.

(5) If the Science Operator or Logging Contractor and SciMP when appropriate endorses the development plan, a liaison will be appointed by the appropriate contractor to monitor the tool's progress through the development plan.The tool liaison will be charged with providing status reports of the tool's progress to SciMP, via the panel liaison.

(6) An ODP development tool can be scheduled for testing during an upcoming leg. Development tools must be deployed in test mode. By their very definition they are not certified or mature tools, and therefore the scientific success of a leg should not be contingent upon the proper functioning of such a tool.

(7) Where it becomes apparent that the development plan is seriously behind schedule and that the tool is unlikely to have satisfied all the above criteria prior to its planned deployment, the shipboard test should be canceled and agreement reached on a revised schedule. In particular, if a development tool has failed to satisfy all the above criteria six months before the start of the test leg, The Science Operator of Logging Contractor (as appropriate) has the right to withdraw the tool from further consideration for that leg.

(8) It is incumbent upon the Principal Investigator to ensure that the Science Operator or Logging Contractor, as appropriate, is fully advised of the tool's status before the six month deadline.

(9) A tool cannot be regarded as an ODP development tool, and therefore cannot be scheduled for testing in future legs, if the above procedures have not been followed. A development tool cannot be deployed on an ODP leg unless the ODP Science Operator or the Logging Contractor are fully satisfied that the terms of the development plan have been fully met.

3. Certified tool

For a tool to be considered an ODP certified tool, the following criteria must be met.

(1) The tool must have satisfied all the requirements for an ODP development tool.

(2) The tool must have been tested at sea during ODP legs and performed satisfactorily in the opinion of the Science Operator or Logging Contractor.

(3) The Principal Investigator should formulate a request for certification in consultation with the Science Operator or Logging Contractor, as appropriate.

(4) The request for certification should:

- be prepared in coordination with the contractor's tool liaison (or designate) to ensure adequate communication between the developer and the contractor
- indicate the cost of routine shipboard operations including data processing
- outline the operations requirements for routine deployment and data processing
- detail the availability of spare components
- provide information on adequate maintenance facilities
- include an operating and maintenance manual
- satisfy safety considerations
- confirm the long-term usefulness of the data

(5) The request for certification must be submitted for approval to the Science Operator or the Logging Contractor.

(6) If the Science Operator or the Logging Contractor and SciMP when appropriate endorses the request for certification, a certificate confirming the satisfactory conclusion of tests and compliance with all requirements will be issued to the Principal Investigator. A copy of this certificate should be forwarded to the SciMP chair.

(7) An ODP certified tool remains the charge of the third party. It can be scheduled for deployment during an upcoming leg and would be expected to contribute to the scientific success the leg.

(8) Tools that do not possess a certificate cannot be programmed for scientific deployment on future legs.

4. Mature tool

For a tool to be considered an ODP mature tool, the following criteria must be met.

(1) The tool must satisfy all the requirements for and ODP certified tool.

(2) A mature tool proposal should be submitted for approval to the Science Operator or the Logging Contractor. SciMP will be apprised of the submission of mature tool proposals and will advise the Science Operator or Logging Contractor on the long-term scientific benefits of the proposal.

(3) If the Science Operator or the Logging Contractor and SCICOM endorses the mature tool proposal, on direction from JOI, the Science Operator or the Logging Contractor will proceeded toward acquisition of the tool for ODP.

(4) Contractor required or desired changes to certified tools prior to granting mature tool status should be handled on a case-by-case basis, with advice from SciMP.

(5) When several certified tools are competing for the same mature tool slot, the Science Operator or the Logging Contractor, with advice from SciMP, will determine which of these tools is most appropriate for routine operation. The contractors are charged with providing regular status reports to SciMP for their consideration and with seeking advice from SciMP when appropriate.

(6) Tools that have not undergone this process cannot be adopted by ODP as mature tools and will therefore remain third-party tools.