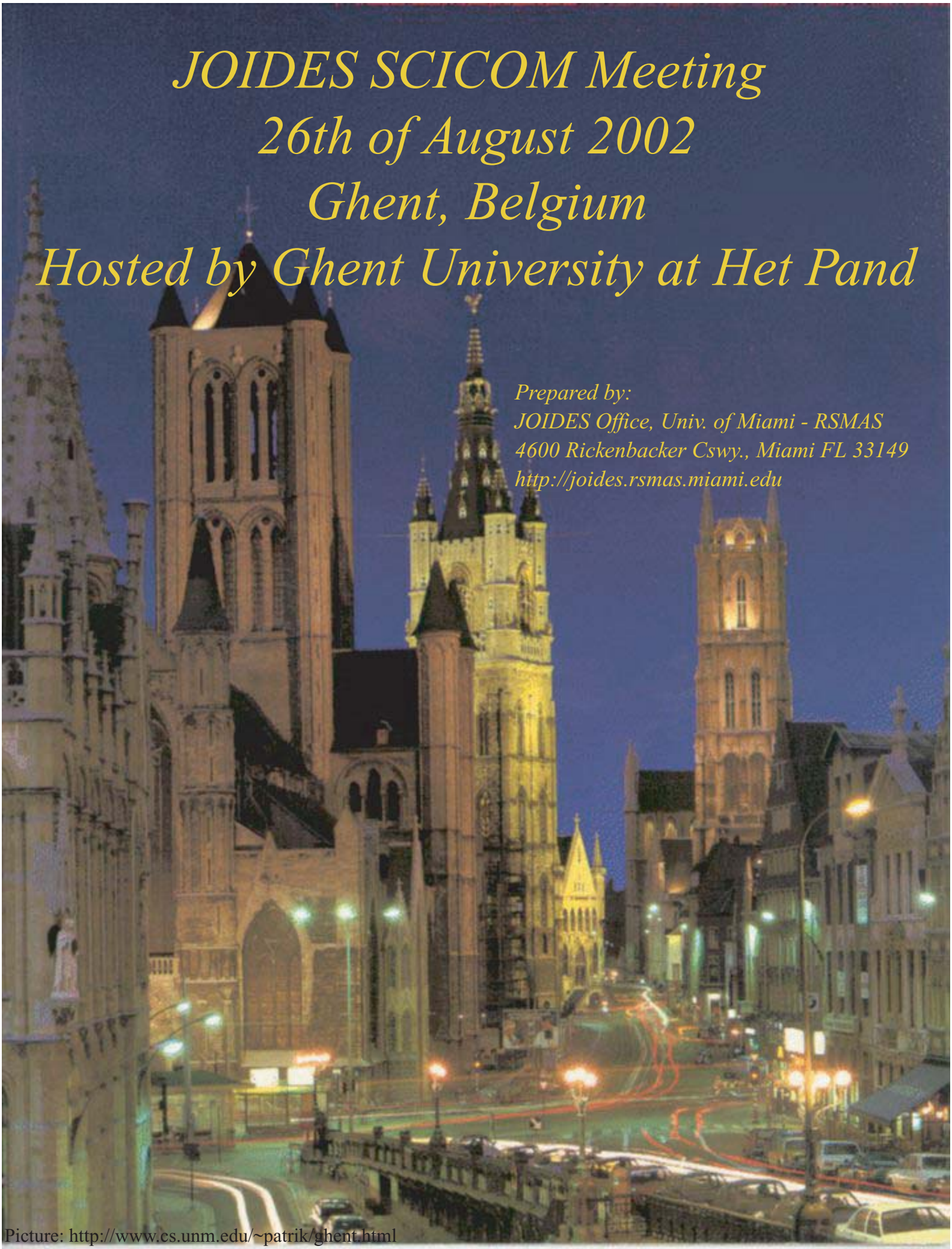
JOIDES SCICOM Meeting
26th of August 2002
Ghent, Belgium
Hosted by Ghent University at Het Pand

Prepared by:
JOIDES Office, Univ. of Miami - RSMAS
4600 Rickenbacker Cswy., Miami FL 33149
http://joides.rsmas.miami.edu



Picture: http://www.cs.unm.edu/~patrik/ghent.html

SCICOM Meeting Agenda - August 26, 2002

A.	Welcome and Introductions	Becker, group	**p. 3**
B.	Logistical Announcements	Kenter, Henriet	**p. 5**
C.	Approval of Agenda		**p. 2**
D.	Approval of March 2002 Minutes		**p. 7**
E.	ODP Agency and Prime Contractor Reports		**p. 30**
	NSF	Dauphin	**p. 30**
	JOI	Pisias/Farrell	**p. 33**
F.	ODP Operator Reports		**p. 36**
	ODP-TAMU	Baldauf	**p. 36**
	LDEO-BRG	Goldberg	**p. 68**
	Coffee Break		
G.	EXCOM Report	Becker	**p. 75**
H.	SSEPs Report	Byrne/Camoin	
I.	Service Panel Reports		**p. 76**
	TEDCOM	Skinner	**p. 76**
	PPSP	Becker for Claypool	**p. 83**
	SCIMP	Allan	**p. 88**
	SSP ?		
J.	Leg Science Reports		
	Leg 197	Tarduno	
	Leg 198	Premoli-Silva	
	Lunch at appropriate break during leg science reports		
	Leg 199	Wilson	
	Leg 200	Stephen	
K.	Legacy Issues		**p. 112**
	Legacy Holes	Becker	
	Greatest Hits	Urquhart	**p. 114**
	How well have we done?	SCICOM	
	JOIDES History	Becker	
L.	Matters arising, new business		
M.	Next meeting: the final SCICOM meeting? Austin, TX, week of March 17, 2003		
N.	Adjourn to traditional SCICOM wine tasting		

A. Welcome and Introductions

JOIDES SCIENCE COMMITTEE
26 August, 2002
Hosted by Ghent University at Het Pand, Ghent, Belgium

SCICOM Members:

Jamie Austin	University of Texas, USA
Keir Becker (Chair)	RSMAS, University of Miami, USA
Sherm Bloomer	Department of Geosciences, Oregon State University, USA
Steve D'Hondt	Graduate School of Oceanography, University of Rhode Island, USA
Andrew Fisher	Dept. of Earth Sciences, University of California at Santa Cruz, USA
Patricia Fryer	School of Ocean and Earth Science and Technology, University of Hawaii, USA
Hans Brumsack*	Institut für Chemie und Biologie des Meeres, Germany
Teruaki Ishii	Ocean Research Institute, University of Tokyo, Japan
Jeroen Kenter	Dept. of Sedimentary Geology, Vrije University, Netherlands (ECOD)
Larry Mayer	Center for Coastal and Ocean Mapping, Univ. of New Hampshire, USA
Chris MacLeod	University of Cardiff, UK
Delia Oppo*	Woods Hole Oceanographic Institution, USA
David Rea	Department of Geological Sciences, University of Michigan, USA
Matt Salisbury	Dalhousie University and Bedford Inst. of Oceanography, Canada (PacRim)
Will Sager	Texas A & M. University, USA

*Delia Oppo substitutes for Frederick Sarg
*Hans Brumsack substitutes for Peter Herzig

Associate Member Observers

Philippe Pezard	ISTEEM (CNRS), Universite de Montpellier, France
Zuyi Zhou	Tongji University, Peoples Republic of China

Liaisons:

Jamie Allan	SCIMP Co-Chair, Appalachian State University, USA
Jack Baldauf	ODP-TAMU Science Operator, USA
Tim Byrne	ISSEP, University of Connecticut, USA
Gilbert Camoin	ESSEP, IRD Centre de Noumea and CEREGE, France
J. Paul Dauphin	NSF, National Science Foundation, USA
Dave Goldberg	ODP-LDEO, Wireline Logging Services, USA
Alister Skinner	TEDCOM, British Geological Survey, UK
Nick Pisias	JOI, Joint Oceanographic Institutions, Inc., USA

Guests:

Steve Bohlen	JOI, Joint Oceanographic Institutions, Inc., USA
Brad Clement	NSF, National Science Foundation, USA
John Farrell	JOI, Joint Oceanographic Institutions, Inc., USA
Marc Faure	Ghent University, Belgium
Jeff Fox	ODP-TAMU, Science Operator, USA
Jean-Pierre Henriet	Ghent University, Belgium
Isabella Premoli-Silva	Leg 198 Co-Chief, University of Milan, Italy
Ralph Stephen	Leg 200 Co-Chief, Woods Hole Oceanographic Inst., USA
John Tarduno	Leg 197 Co-Chief, University of Rochester, USA
Paul Wilson	Leg 199 Co-Chief, Southampton Oceanography Centre, UK

Guests from the iPC Meeting

Andre Droxler	iSSP, Rice University, USA
Harry Doust	iILP, Vrije Universiteit, The Netherlands
Nobuhisa Eguchi	iSAS Office, JAMSTEC, Japan
Kathy Gillis	University of Victoria, Canada
Hisao Ito	iPC, Geological Survey of Japan, Japan
Kenji Kato	iPC, Shinshu University, Japan
Barry Katz	iPPSP Chair, ChevronTexaco, USA
Hajimu Kinoshita	iPC Co-Chair, JAMSTEC, Japan
Shin'ichi Kuramoto	iSSP Co-Chair, Geological Survey of Japan. Japan
Jörn Lauterjung	ICDP Liaison, GeoForschungsZentrum Potsdam, Germany
John Ludden	CNRS, France
Hitoshi Mikada	iSSEP Co-Chair, JAMSTEC, Japan
Yoshiro Miki	JAMSTEC International Liaison, Japan
Ted Moore	iPC Co-Chair, University of Michigan, USA
Kate Moran	iTAP Chair, University of Rhode Island
Tomohisa Nawate	OD21, JAMSTEC, Japan
JoAnne Reuss	University of Michigan, USA
Jeffrey Schuffert	iSAS Office, JAMSTEC, Japan
Kiyoshi Suyehiro	iPC, JAMSTEC, Japan
Ryuji Tada	iPC, University of Tokyo, Japan
Yoshiyuki Tatsumi	iPC, JAMSTEC/IFREE, Japan
Robert Whitmarsh	InterMARGINS, Southampton Oceanography Centre, UK
Minoru Yamakawa	iSAS Office, JAMSTEC, Japan
Yasuo Yamada	JAMSTEC, Japan

JOIDES Office:

Aleksandra Janik	JOIDES Science Coordinator, RSMAS, University of Miami, USA
Elspeth Urquhart	JOIDES International Liaison, RSMAS, University of Miami, USA

B. Logistical Announcements

MEETING HOST
Prof. Dr. Jean-Pierre Henriet
Renard Centre of Marine Geology
Department of Geology and Soil Science
Ghent University
Krijgslaan 281 s.8
B-9000 Gent, Belgium
Tel: +32-9-2644585
Fax: +32-9-2644967
Email: jeanpierre.henriet@rug.ac.be
http://allserv.rug.ac.be/~jphenrie

MEETING LOCATION
Het Pand, main meeting hall
Onderbergen 1
9000 Gent (next to Saint-Michael church)
Info-desk Congress & Cultural Center:
Tel: +32 (0)9264 83 05
fax: +32(0)9264 83 96
pand@rug.ac.be
http://aivwww.rug.ac.be/~kvermeul/PAND_nieuw/html/indexeng.html

GROUND TRANSPORTATION
From Brussels Airport to Ghent:
There are direct trains from Brussels Airport to Ghent (and back) every hour. To verify the hours you can check:
http://www.b-rail.be/E/index.html

From: Zaventem (Airport)
To: Gent-Sint-Pieters
The approximate cost for the train is one way: 6.50U.S.D. or 7.50 Euro.
At the Sint-Pieters station the tramway can take you to the city center or you could taxi to your hotel. Please see each hotel's web site for further directions on travel from Gent-Sint Pieters to your hotel.

MEETING DATES & TIMES
August 26 SCICOM 08:30 – 17:00 (iPC Members welcome as observers)
August 27 iPC 08:30 –17:00 (SCICOM Members welcome as observers)
August 28 iPC 08:30 –17:00 (SCICOM Members welcome as observers)
August 29 iPC 08:30 –17:00 (SCICOM Members welcome as observers)

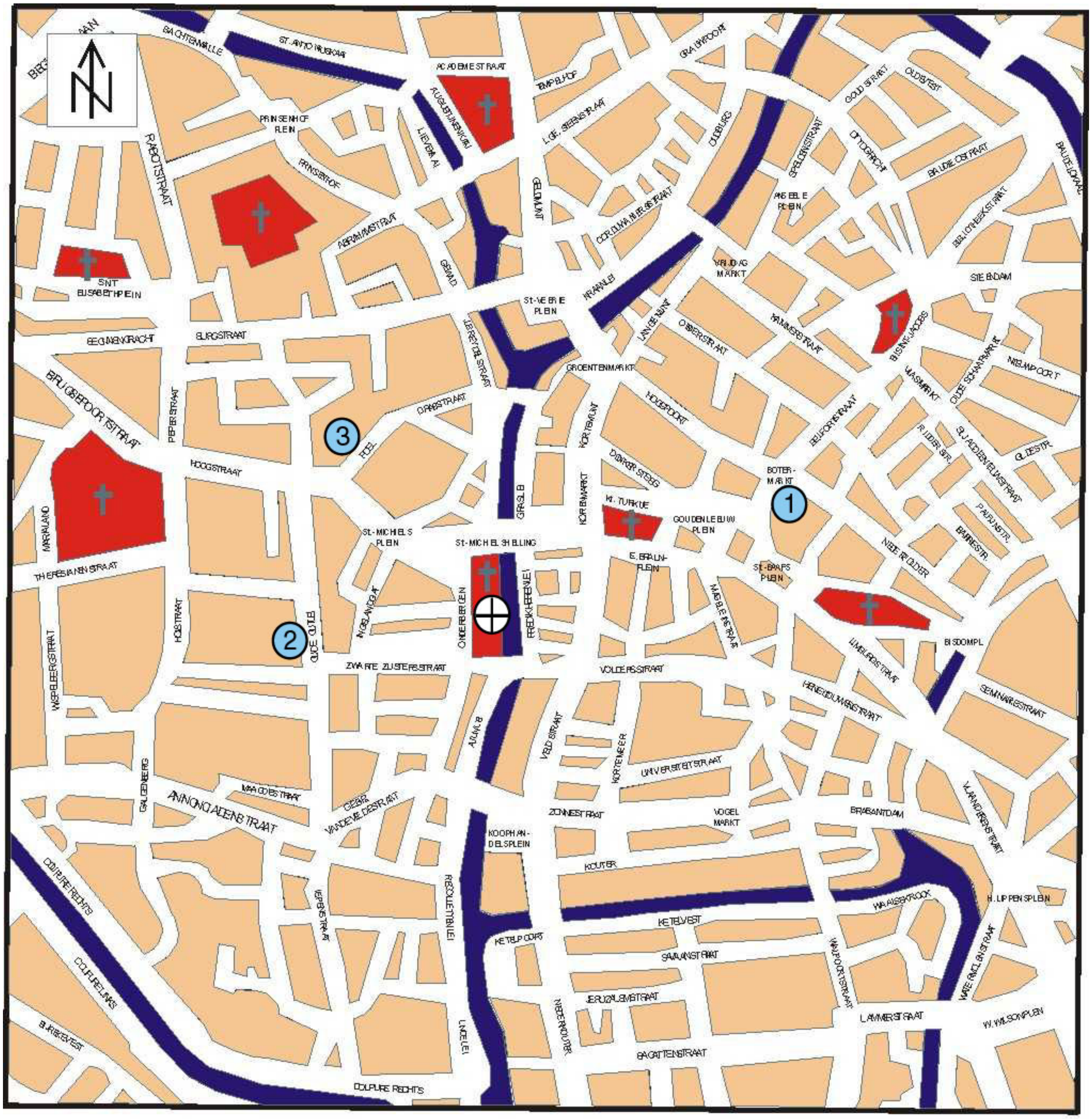
LODGING ACCOMMODATIONS (all hotels are within walking distance from the meeting venue)

St. Jorishof	Poortackere	Erasmus
Botermarkt 2, 9000 Gent	Oude Houtlei 50-58, 9000 Gent	Poel 25, 9000 Gent
tel: +32 (0)9 224 24 24	tel: +32 (0)9 269 22 10	tel: +32 (0)9 224 21 95
fax: +32 (0)9 224 26 40	fax: +32 (0)9 269 22 30	fax: +32 (0)9 233 42 41
courstgeorges@skynet.be	reservations@poortackere.com	hotel.erasmus@proximedia.be
http://www.courstgeorges.com	http://www.poortackere.com/	http://www.proximedia.com/web/hotel-erasmus.html

FIELD TRIP
A two-day field trip to the famous Paleozoic carbonate mud mounds (Devonian, Carboniferous) of Southern Belgium (Couvin and Frasnes type localities, Waulsort type locality) will be proposed on Saturday 24th and Sunday 25th August, prior to the meeting. This field trip will be led by Frédéric Boulvain of Liège University, one of the main experts in this field, but the field trip will also be shaped into a forum of discussion and confrontation between examples of the geological past and highlights of the newly discovered recent mounds in the modern ocean, a.o. object of a proposal for ocean drilling. Dr. Christian Dullo from GEOMAR Kiel will join the field trip for bringing all his expertise in modern reefs. An overnight stay in an enjoyable hotel in the scenic Ardennes will offer ample opportunities for debates around a local drink.

Participants to the field trip should arrive in Ghent by Friday evening 23 August. A participation fee - to be covered by the participants at cost level – will meet the costs of a hotel night, meals and transport. Optimal group size should preferably not exceed 15. Pre-registration is appreciated to ascertain the local hotel reservation and bus size, but details about the fee and place of stay will be optimally confirmed by the organizers after an additional reconnaissance on the spot, early summer. Please RSVP to Marc Faure Marc.Faure@rug.ac.be on or before May 31 with a copy to Jean Pierre Henriet jeanpierre.henriet@rug.ac.be.

Map of the Area



LIST OF THE HOTELS:

1. Hotel St-Jorishof (Cour St-Georges)
2. Poortackere Monestarium
3. Erasmus

Het Pand: IPC-SCICOM meeting venue

Churches

D. Approval of March 2002 Minutes

JOIDES SCIENCE AND OPERATIONS COMMITTEES
19 - 20 March, 2002
Yokohama Institute for Earth Sciences
Japan Marine Science and Technology Center
Yokohama, Japan

DRAFT MINUTES
http://joides.rsmas.miami.edu/files/scicom_02_01.pdf

SCICOM Consensus 02-01-01: SCICOM approves the meeting agenda.

SCICOM Motion 02-01-02: SCICOM approves the minutes of its August 2001 meeting in Portland.

Mayer moved, Salisbury seconded, 13 in favor, none opposed, 1 abstention (Austin), 1 absent (Herzig).

SCICOM Consensus 02-01-03: SCICOM has considered SCIMP recommendation 01-2-03 concerning data archiving, database mirroring, and the formation of a data legacy working group. SCICOM agrees with SCIMP that maintaining the integrity of ODP data in perpetuity, and assuring future access to this resource, is essential to the ODP legacy. SCICOM would also like to be sure that a functional database system is transferred to IODP as seamlessly as possible.

SCICOM therefore recommends that SCIMP plan for formation of a data legacy working group, including an evaluation of what expertise is needed and available (both within and outside SCIMP) and what the working group mandate should be. Issues to be addressed by this working group may include identification of (a) critical archiving gaps with present data sets, (b) challenges associated with storage of metadata, and (c) problems that could be avoided during development of IODP data bases, policies, and storage procedures. We ask SCIMP to consult with the interim director of JOI, who has considered many of the relevant issues, and (informally) with appropriate iSAS panels as necessary, and to report back to SCICOM by August 2002 with a plan for formation of this working group as part of the broader issues of ODP legacy and ODP-IODP database transition.

SCICOM Consensus 02-01-04: SCICOM reaffirms the importance of all ODP samples as an integral part of the ODP legacy. Therefore, SCICOM requests that the Science Operator take all necessary steps to maintain the integrity of the entire ODP sample collection as the ODP phase-out approaches. This includes the thin section collection as noted in SCIMP recommendation 01-2-11. In addition, SCICOM endorses SCIMP recommendation 01-2-9 encouraging host +countries of Micropaleontological Reference Centers to underwrite costs of maintaining these centers.

SCICOM Consensus 02-01-05: SCICOM accepts the following SCIMP recommendations and applauds the efforts already made by the ODP Operators to address them:

SCIMP recommendation 01-2-01 concerning hard-drive support for digital core data
SCIMP recommendation 01-2-06 concerning the IESX Joint Pilot Study
SCIMP recommendation 01-2-07 concerning the legacy technical summary documents
SCIMP recommendation 01-2-08 concerning core resistivity measurements
SCIMP recommendation 01-2-12 susceptibility point measurement for AMST

In addition, SCICOM endorses SCIMP recommendation 01-2-04 concerning potential development of a high-resolution downhole magnetic susceptibility logging tool for ODP and IODP.

SCICOM Consensus 02-01-06: SCICOM accepts the Leg 210 contingency plans.

SCICOM Consensus 02-01-07: SCICOM records its approval and excitement at the progress being made by the joint JOI/JEODI effort toward implementing SCICOM's top-ranked proposal (Lomonosov Ridge, Arctic) as an IODP program.

SCICOM Consensus 02-01-08: SCICOM accepts Jamie Austin's invitation to host the March 2003 SCICOM/iPC meeting in Austin, Texas.

SCICOM Consensus 02-01-09: SCICOM expresses its great appreciation to Julie Morris for her extraordinary service as chair of ISSEP. ODP was fortunate to have the service of Julie's considerable talents at a particularly important time for the program. She worked not only to shepherd the last set of ODP proposals through the advisory process, but also helped lead the effort to plan for the IODP and to preserve the legacy of 17 years of ocean drilling. Julie, in partnership with Neil Lundberg, set an outstanding example of how to work cooperatively, collaboratively, and effectively across disciplines. She was always ready with thoughtful, clear, and insightful information about the proposals in her charge and about the concerns and desires of the SSEPs. It was a great pleasure for all of us to work with her and we look forward to her participation in the next phase of scientific ocean drilling.

They say Julie Morris lacks height,
But SCICOM doubts not her might.
At herding a SSEP,
She proved quite adept,
We'll all greatly miss her insight.

SCICOM Consensus 02-01-10: SCICOM thanks our hosts – Ishii-san and the ODP-Japan Office, Yamada-san and the OD21 Office – for the wonderful arrangements for the SCICOM/iPC meeting.

JOIDES SCIENCE AND OPERATIONS COMMITTEES
19 - 20 March, 2002
Yokohama Institute for Earth Sciences
Japan Marine Science and Technology Center
Yokohama, Japan

ATTENDEES

SCICOM Members:

Jamie Austin	University of Texas, USA
Keir Becker (Chair)	RSMAS, University of Miami, USA
Sherm Bloomer	Department of Geosciences, Oregon State University, USA
Kevin Brown*	Scripps Institution of Oceanography, University of California at San Diego, USA
Andrew Fisher	Dept. of Earth Sciences, University of California at Santa Cruz, USA
Peter Herzig	Freiburg University, Germany
Teruaki Ishii	Ocean Research Institute, University of Tokyo, Japan
Garry Karner*	Lamont-Doherty Earth Observatory , Columbia University, USA
Jeroen Kenter	Dept. of Sedimentary Geology, Vrije University, Netherlands (ECOD)
Larry Mayer	Center for Coastal and Ocean Mapping, Univ. of New Hampshire, USA
Chris MacLeod	University of Cardiff, UK
Delia Oppo*	Woods Hole Oceanographic Institution, USA
David Rea	Department of Geological Sciences, University of Michigan, USA
Matt Salisbury	Dalhousie University and Bedford Inst. of Oceanography, Canada (PacRim)
Will Sager	Texas A & M. University, USA

(* Brown, Karner and Oppo substituting for Fryer, Sarg and D'Hondt respectively, on a one-time basis; Shipley substituting for Austin on March 19)

Associate Member Observers:

Phillipe Pezard	ISTEEM (CNRS), Universite de Montpellier, France
Zuyi Zhou	Tongji University, Peoples Republic of China

Liaisons:

Jamie Allan	SCIMP Co-Chair, Appalachian State University, USA
Jack Baldauf	ODP-TAMU Science Operator, USA
Tim Byrne	ISSEP, University of Connecticut, USA
Gilbert Camoin	ESSEP, IRD Centre de Noumea and CEREGE, France
J. Paul Dauphin	NSF, National Science Foundation, USA
Dave Goldberg	ODP-LDEO, Wireline Logging Services, USA
Alister Skinner	TEDCOM, JAMSTEC, Japan
Nick Pisias	JOI, Joint Oceanographic Institutions, Inc., USA

Guests:

Steve Bohlen	Joint Oceanographic Institutions, Inc., USA
Nobuhisa Eguchi	iSAS Office, JAMSTEC, Japan
John Farrell	Joint Oceanographic Institutions, Inc., USA
Jeff Fox	Science Operator (ODP-TAMU), USA
Kathy Gillis	(iISSEP), University of Victoria, Canada
Hisao Ito	(iPC), Geological Survey of Japan , Japan
Kenji Kato	(iPC), Shinshu University, Japan

Hajimu Kinoshita	(iPC Co-Chair), JAMSTEC, Japan
Yoshihisa Kawamura	OD21, Jamstec, Japan
Yayoi Komamura	iSAS Office, JAMSTEC, Japan
Shin'ichi Kuramoto	(iSSP Co-Chair), Geological Survey of Japan. Japan
John Ludden	CNRS, France
Bruce Malfait	National Science Foundation, USA
Tadao Matsuzaki	OD21, JAMSTEC, Japan
Hitoshi Mikada	(iSSEP Co-Chair), JAMSTEC, Japan
Yoshiro Miki	JAMSTEC, Japan
Osamu Miyaki	OD21, JAMSTEC, Japan
Ted Moore	(iPC Co-Chair), University of Michigan, USA
JoAnne Reuss	(iPC), University of Michigan, USA
Izumi Sakamoto	International Working Group (IWG) Support Office, USA
Jeffrey Schuffert	iSAS Office, JAMSTEC, Japan
Kiyoshi Suyehiro	(iPC), JAMSTEC, Japan
Ryuji Tada	(iPC), University of Tokyo , Japan
Narumi Takahashi	Ministry of Education, Culture,Sports, Science & Technology, MEXT, Japan
John Tarduno	University of Rochester, USA
Yoshiyuki Tatsumi	(iPC), JAMSTEC/IFREE, Japan
Noriko Tsuji	iSAS Office, JAMSTEC, Japan
Toshiya Uenoyama	Ministry of Education, Culture,Sports, Science & Technology (MEXT), Japan
Yasuo Yamada	OD21, JAMSTEC, Japan
Daisuke Yoshida	Ministry of Education, Culture,Sports, Science & Technology, MEXT, Japan
Minoru Yamakawa	iSAS Office, JAMSTEC, Japan

JOIDES Office:

Aleksandra Janik	JOIDES Office, Science Coordinator
Elspeth Urquhart	JOIDES Office, International Liaison

March 19 - SCICOM/OPCOM joint session, with iPC welcome as observers

A. Welcome and introductions

Becker welcomed all attendees to the SCICOM meeting. He noted that Brown, Karner and Oppo were substituting on a one-time basis for Fryer, Sarg and D'Hondt, respectively. He added apologies from Pisias, who was not able to attend the meeting due to a family medical situation.

B. Logistical announcements

Yamada-san welcomed the attendees and briefly outlined the meeting logistics and social events. This was followed by the welcome address by Ishii-san, who also encouraged everybody to sample the numerous excellent restaurants in Yokohama and enjoy the cherry blossoms, which were just starting to bloom.

C. Approval of SCICOM agenda

Becker recalled that the August 2001 meeting had been run strictly according to Robert's Rules of Order, but noted that no conflicts of interest were expected at this meeting so it could be run a little less formally. Becker announced two changes to the agenda. First, John Tarduno sent apologies, and his Leg 197 report will be deferred to the August 2002 SCICOM meeting. Second, added to the agenda was a preliminary discussion of an APL received three days earlier for the March 15 JOIDES proposal deadline. Copies were distributed and Becker asked the SCICOM members to read them that evening, so the review procedure and the APL could be discussed the following day. With those changes, the agenda was approved:

SCICOM Consensus 02-01-01: SCICOM approves the meeting agenda.

D. Approval of August 2001 SCICOM minutes

SCICOM Motion 02-01-02: SCICOM approves the minutes of its August 2001 meeting in Portland.

Mayer moved, Salisbury seconded, 13 in favor, none opposed, 1 abstention (Austin), 1 absent (Herzig).

E. ODP agency and prime contractor reports

NSF

Dauphin reported that the FY02 budget for ODP was approved on October 1st at the level of $47.698M, consisting of $46.198M plus $1.5M carried over from FY01. The $1.5M represents uncommitted funds left from FY01 budget due to the fact that the fuel costs did not increase as

much as originally projected and because some savings were realized on Costa Rica CORK purchases. NSF provides 65% of that budget, and the other members' financial contributions are as follows:
- Germany, Japan, UK – full
- ESF – 99.57%
- France, China – 2/3 and 1/6 (associate members)
- PacRim – not yet determined.

NSF anticipates a 1% increase in its total FY03 budget from $4.796B in FY02 to $5.0353B in FY03, and the final sum should be known by October. Dauphin then diagrammed the reorganized NSF-OCE program structure, in which the Division of Ocean Sciences is subdivided into 3 sections: the Marine Geosciences Section headed by Bruce Malfait, Integrative Programs Section, and Oceans Section. The Marine Geosciences Section is composed of two programs: Ocean Drilling Program and Marine Geology and Geophysics Program. Paul Dauphin is now Program Director of Ocean Drilling Program; the second ODP Program Director position is vacant with the advertisement for this position currently announced. Dr. Jim Yoder recently became the new director of the Division of Ocean Sciences.

Regarding the funding for final year of ODP operations and the ODP phase-out, JOI and the ODP Operators (TAMU and LDEO) have submitted the FY03 Program Plan and the FY04-07 Phase-out Plan to NSF, and these plans are now undergoing the review process.

Mayer asked if there was a contingency plan for excess carry-over funds (e.g. $1.5 M), if there is no increase in the fuel costs. Dauphin answered that the funds would stay in program for other contingencies and would be carried forward. Fox added that $450k is already targeted for hardware for the Costa Rica leg. (After the meeting, Pisias clarified that a significant portion (~$0.6.M) of the $1.5M is designated for the possibility that fuel prices will rise above the budgeted amount, and most of the rest is being used for FY03 purchases.)

JOI

Bohlen reported that Dan Weill resigned as an ODP Director due to health reasons and Nick Pisias agreed to act as Interim Director until JOI's future plans are clarified and a new Director is found. Bohlen added that conceivably Pisias could be Interim Director until the end of the program. JOI had asked for a budget increase in FY02 to cover the day rate increase and insurance costs, and this has been approved by NSF. (After the meeting, Pisias clarified that the FY02 budget adjustment approved by NSF was $407k to cover increased insurance costs following September 11 and day rate issues.) The FY03 and FY04-07 budgets are being reviewed at NSF now. Bohlen added that after October 2003 the total cost of the program and phase-out activities will be provided by NSF.

Becker asked about JOI's plans for involvement in IODP. Bohlen answered that JOI BoG has decided to compete for the leadership of US national activities in IODP, and JOI will respond to NSF's RFP for science operations of the new non-riser ship. By August, any JOI institution that wishes to participate in management of ship operations will have submitted a letter of intent to JOI. The ship operation proposals will be reviewed by a committee of the corporation, which will consist of present and incoming USSAC Chairs, 2 people from USGS, one individual from industry and one US senior oceanographer. The committee will meet in September 2002 to provide their

assessment of the proposals to the JOI BoG. Subsequently, the JOI BoG will meet to provisionally select the successful bidder. That bidder will work with JOI to submit a proposal to the NSF in response to their RFP. Bohlen added that JOI will also compete for the successor program to the US Science Support Program.

Concomitantly with these activities are efforts by representatives from the JOI BoG to discuss with Japanese and European representatives the formulation of a legal framework for the development of the CMO. However, concluded Bohlen, at this point, more is unknown than known about the future.

Mayer asked for clarification as to whether or not the establishment of the legal framework for the CMO was JOI's responsibility. Bohlen explained that it is not JOI's corporate responsibility. Bohlen also said that we know from IWG that the CMO has to be run by an organization that is unbiased, neutral, a legal entity committed to IODP science, and therefore following those guidelines the world has to come to grips as to who, what, when, where, how, and why. Mayer asked if aside from those ad hoc efforts, is there a framework established? Bohlen said that neither he nor JOI BoG are aware of any framework.

F. ODP operator reports

ODP-TAMU Science Operator

Baldauf presented overview of the ship operations during Legs 198-201.

<u>Leg 198 – Shatsky Rise</u>

- Investigation of the abrupt climate changes in Cretaceous and Paleogene
- Successful APC, XCB, MDCB, XCB center bit and RCB coring at 8 sites
- Complete composite record from 140 Ma ago to present including numerous critical intervals: early Aptian OAE1a, MME, K/T boundary, LPTM, Eocene/Oligocene
- Geotek digital core images very helpful
- Logging at 2 sites
- Some problems with cherts and two storms

<u>Leg 199 – Paleogene Equatorial Transit</u>

- Investigation of development and change in Equatorial upwelling system
- Successful APC, XCB coring at 8 sites – 7 sites sampling Paleogene, and 1 site Eocene-Oligocene
- Development of improved biostratigraphy
- Core orientation at most sites and ADARA at 5 sites
- Logging at 2 sites
- Problems with core barrel at 3 holes

<u>Leg 200 – Hawaii-2 Observatory</u>

- ION Site 1224 - reentry and casing 30 m into basalts, the total hole depth 64 m
- Coring at Site 1223 to investigate of Nuuanu slide – several volcaniclastic intervals recovered

Leg 201 – Deep Biosphere (ongoing)

- Several sites along Peru margin and two deep sites
- Some sites – return to previously drilled holes (Leg 112 and 138) because of known geochemical environment
- Very new sampling program of microbial communities
- Radioisotope van installed on the ship
- Operations Manager departed at Galapagos for family emergency, replaced by DSD Manager
- Tools tested: FPR (Fugro Percussion Corer) – no pressure maintained, PCS – successful

Sager asked about details of HYACINTH tool testing and the implications for Leg 204. Baldauf said that no comments have been received yet from the HYACINTH consortium regarding the testing, but the general result was that core had been recovered although pressure had not been maintained. A May meeting is being organized in light of the results from Leg 201 to redefine strategy for Leg 204. Allan asked if the problem was lithology related; Baldauf responded that this was possible but environments and lithologies can't always be predicted. Salisbury wondered if there possibly was a problem with seals as in earlier HYACE testing. Fox said that Fugro Percussion Corer (FPC) had not been previously tested on the JR. During Leg 194 it was the other HYACE tool that was tested, and this could not have been tried again on Leg 201 because it was not ready yet.

Becker asked how the partnership with HYACINTH endorsed at the August 2001 SCICOM meeting was developing. Baldauf said that the cooperation is very positive and both ODP and HYACINTH are working hard to ensure the tools successful on Leg 204.

Austin inquired about ODP cooperation with the ION project and if ODP was going to receive a report from ION regarding the progress of population of the ODP holes with instrumentation. Becker noted that 4 sites have been already instrumented off Japan, and there are plans to instrument other sites drilled as ION holes. For example, in the Indian Ocean there are Japanese-French plans to for installing instrumentation at the NERO site. For H2O and the Equatorial Pacific ION site (Leg 203), Becker understood that Americans will propose to NSF to install instrumentation by wireline reentry. Austin said that would be useful to have a document summarizing those efforts. Becker agreed that was a good point and noted that some of that documentation is included in Kiyoshi Suyehiro's contribution to the Achievements and Opportunities legacy publication. Austin replied that a more extensive report is necessary.

ODP-LDEO Wireline Operator

Goldberg started with an overview of the 3rd party tools used during recent legs, e.g. the high-resolution gamma ray tool (MGT) used on Leg 198, and Gottingen 3-component magnetometer on Leg 197. Goldberg then reported on the logging highlights of completed and scheduled Legs 198-204, adding that lots of focus currently is being placed on preparation for the Gas Hydrates Leg 204.

Leg 198 – Shatsky Rise

- 2 Sites logged with standard logging and high-resolution gamma ray (3rd-party MGT)
- FMS worked well in detecting the chert layers and estimating the volume of chert missed by coring

Leg 199 – Paleogene Equatorial Transect

- Standard logging and high-resolution gamma ray (3rd-party MGT)

Leg 200 – Hawaii 2 Observatory

- Standard logging
- Synthetic seismograms calculated

Leg 201 – Peru Biosphere

- Standard Logging
- Recovery 50%, so some intervals not recovered were well imaged on logs
- HYACINTH (3rd-party) – 7 runs of Fugro with core barrel acceleration tool attached to help to diagnose what is happening with the tool

Leg 202– Southeast Pacific Paleoceanographic Transects

- Standard logging and high-resolution gamma ray (3rd-party MGT) planned

Leg 203 – Equatorial Pacific ION

- Standard logging planned

Leg 204 – Gas Hydrates

- Standard logging, VSP, offset VSP, density and imaging LWD, MWD, HYACINTH (3rd-party) plus DSA tool, RAB coring tool planned

Goldberg then reviewed the results of the Leg 196 active heave compensation experiment, showing significant decrease in downhole weight-on-bit variations when the heave compensator was on. The experiment will be repeated during Leg 204. Another ongoing project is the resistivity-while-coring tool developed jointly by TAMU and Anadrill, which was used as an LWD tool on Leg 196. Currently the tool is being modified, so the inner MDCB core barrel sleeve can pass through it. The field trial is planned for mid-May in Houston. If successful it will allow placement of the core at the correct depth and orientation. Goldberg also reported that 17 technical tool summaries have been posted online, the IESX Report has been accepted by SCIMP, and an interface has been installed between the ODP Log Database and the LDEO Multibeam Database allowing for example quick log plots and simple graphical site selection. Finally, Goldberg noted the 30% increase in the LDEO-ODP web access in the last year.

G. EXCOM report

Becker reported that EXCOM did not assign any major tasks to SCICOM during its January 30-31 2002 meeting in Santa Cruz, California, and then he briefly discussed the most significant EXCOM motions. He grouped them into 3 categories:

I – ODP Legacy

EXCOM Consensus 02-1-6: The JOIDES Executive Committee thanks the JOIDES Science Committee for excellent work done on the ODP Legacy Project. The Executive Committee waits with anticipation to see the final results of the various projects, including the Achievements and Opportunities publication, ODP's Greatest Hits vol. II, database of publications and technological summaries.

Becker noted that EXCOM is now quite happy about the progress made on ODP legacy issues.

II – FY03 Science Plan and FY03-07 Program Plan

Becker reported that FY03 Science Plan and FY03-07 Program Plans have been approved.

EXCOM Motion 02-1-8: The JOIDES Executive Committee approves the FY03 Science Plan
Silver moved, Orcutt seconded; 14 in favor, 1 abstained (Detrick).

EXCOM Motion 02-1-9: The JOIDES Executive Committee approves the FY03 Program Plan and Budget
Orcutt moved, Falvey seconded; 13 in favor, 2 abstained (Detrick and Silver).

EXCOM Motion 02-1-10: The JOIDES Executive Committee approves the FY04-07 Phase-out Program Plan and Budget.
Detrick moved, Opdyke seconded; 13 in favor, 2 abstained (Mutter, Prior).

Becker also noted that an article he had written after the August 2001 SCICOM meeting on the scientific plans for the final year of operation is now in press in EOS, with publication imminent.

III – ODP-IODP

EXCOM Motion 02-1-3: In the context of the transition from ODP to IODP, the EXCOM wishes to ensure a positive perception of scientific ocean drilling having both:
1. delivered important environmental and scientific outcomes through ODP, and
2. prepared for a new, and still more exciting phase of research through IODP.

EXCOM therefore asks JOI to work with colleagues in JAMSTEC and ECORD/JEODI to develop a transition plan for public affairs for the period 2002 to 2004. This strategy should target the scientific community, industry, the public, and funding agencies.
Orcutt moved, Silver seconded; 15 in favor.

EXCOM Consensus 02-1-5: Whereas the Central Management Office (CMO) must be an independent, legal entity committed to implementing IODP science, and whereas the Central Management Office must be prepared to execute the IODP by mid-2003 as directed by science planning from the Science Advisory Structure (SAS), international parties, other than the JOIDES Executive Committee, must act expeditiously and in concert to establish an international corporation, or its equivalent, to govern and operate the CMO.

Becker emphasized that EXCOM would like to make sure that transition between ODP and IODP would be perceived as a true transition and not merely as the end of the ODP. EXCOM also realized that for the greatest benefit of the future program, the CMO needs to be set up soon and in the proper way. Becker also reported that EXCOM applauded Japan for launching of *Chikyu* as a great IODP facility.

Finally Becker noted that EXCOM confirmed that it will cease to exist together with the JOIDES Science Advisory Structure September 2003. There will be two more EXCOM meetings, one in June 2002 in Granada, Spain and the last one in July 2003, most probably in Bermuda to coincide with one of the last port calls of *JOIDES Resolution.* Becker noted that, unless new matters arise, there probably would be three more SCIMP meetings, one more PPSP meeting, and at most one more TEDCOM meeting (in conjunction with the initial meeting of iTAP). The SSP did not meet in February, so its last formal meeting may have been in July of 2001.

H. Service Panel Reports

Becker presented the TEDCOM recommendation regarding the demobilization of JR and its possible use post-October 2003:

TEDCOM recommendation #01-2-1to SCICOM
TEDCOM urge SCICOM to take any steps necessary to defer demobilization of the JOIDES Resolution until such time as the outcome of the RFP for future IODP drilling is known.
Jeff Fox, ODP-TAMU, highlighted that the JOIDES Resolution could be completely demobilized immediately after October 2003. While contractually this is a possibility it should be considered as a last option until other factors are known regarding the new program. It is not in the interests of any party to embark upon an expensive demobilization until future program direction and non-riser vessel requirements are clearer.

Becker said that SCICOM probably does not need to respond immediately to this recommendation because the situation is currently beyond the SCICOM purview. Nevertheless, he noted that, for SCICOM information, such post-2003 possibilities for use of JOIDES Resolution would be discussed on the following day.

Regarding the time allocation for engineering development recommended for each leg by TEDCOM and SCIMP at the August 2001 SCICOM meeting, Becker noted that there are many development efforts already included in the operational plans for the final scheduled legs. For example: (1) Legs 206 and 210 will utilize advanced casing systems, and (2) Leg 209 will utilize the hard rocks reentry system and ADCB. Becker noted that TEDCOM was satisfied that the program is on track in fulfilling the TEDCOM recommendation for time for engineering development through the end of ODP operations.

Finally Becker reviewed the technical legacy tool summaries, which TEDCOM approved at its December, 2001 meeting. LDEO-BRG has 17 two-page tool summaries already posted on its website, and Fox added that the ODP-TAMU tool summaries are in process of being posted.

PPSP

Claypool reported that 4 legs (204-207) were reviewed during the last PPSP meeting in Miami and the discussion is in the PPSP minutes that are included in the Agenda Book for this SCICOM meeting. PPSP spent a lot of time on discussing recommendations to iPPSP regarding transition and the riser drilling safety issues. The recommendations have been prepared and transmitted to iPC, and will come up for discussion at the iPC meeting.

SCIMP (ODP matters only; IODP matters deferred to iPC)

Allan started with the report from the visit to the ship during the last SCIMP meeting in December 2001 in Hawaii. SCIMP found the ship in good shape, with laboratories in excellent condition, and noticed that more emphasis had been put on shipboard safety. The only minor problem was the lack of the sufficient counter space in some labs.

Allan then presented to SCICOM the SCIMP recommendations regarding ODP issues. The section below records the discussions in the order in which Allan presented the recommendations. Following the discussions, three SCICOM consensuses were drafted overnight and actually approved on the following day, but these consensuses are recorded in this section of the minutes.

SCIMP Recommendation 01-2-08
SCIMP recognizes the need for resistivity measurements on cores which are reliable, and preferably continuous and easy to make. SCIMP recommends TAMU facilitate a collaborative pilot study of the Geotek non-contact resistivity measurements system during Leg 204. We note Geotek has agreed to provide a sensor and technical specifications to TAMU prior to Leg 203 to enable integration with the MST to be completed prior to the start of Leg 204.

Becker asked if TAMU intends to facilitate this pilot study, and Baldauf confirmed that it will be carried out on Leg 204.

SCIMP Recommendation 01-2-07
SCIMP applauds the production of 1-2 page technical summaries by ODP operators in response to SCICOM's recommendation for the production of legacy documents.

SCIMP Recommendation 01-2-06
SCIMP congratulates ODP logging services and Site Survey Data Bank personnel on the successful implementation of the IESX Joint Pilot Study. SCIMP recommends acceptance of all the recommendations arising from the study.

SCIMP Recommendation 01-2-03
SCIMP recommends that a JANUS Mirror site be established at NGDC, and the JANUS database be transferred to NGDC as a collection of flat ASCII files as the official long-term archive. SCIMP further recommends that a data legacy working group, composed of both SCIMP and non-SCIMP members, be established to: assist TAMU in setting data migration priorities, assist TAMU in generation of the critical metadata, and determine the content and structure of the archive files.

Allan reported that since that last meeting the SCIMP responsibility regarding data migration has been clarified, but the recommendation still has merit. SCIMP discussed JANUS database transfer to archive and it was recognized that metadata issues were the most complex and that some descriptive data are still not in the database. Some questions remain to be answered, for instance what should be saved in terms of descriptive files and how electronic publications should be archived. The recommendation reflects that SCIMP feels that a working group should be established to oversee the archiving process.

Baldauf noted that this recommendation should be addressed in two separate steps, one dealing with the Janus mirror at NGDC and the other dealing with the details of archiving the metadata. Farrell noted that according to the content of the TAMU report in the Agenda Book, there is no need to

mirror Janus in NGDC. Fox and Baldauf explained that there is already a mirror site in Japan, and that the UK and Germany are also engaged in discussions to host Janus mirror sites, so there is actually no urgent need for another mirror facility at NGDC. Farrell asked if NGDC had given any indication that it would provide a Janus mirror site. Fox was not sure about any commitments at this time, and he added that this was a somewhat controversial issue at NGDC.

Becker wondered how SCICOM should respond to this SCIMP recommendation, i.e., whether the working group should be set up now or whether SCICOM should wait until after the next SCIMP meeting at which more information would be gathered. Allan said that the core of the matter at this point is deciding what is worth archiving and what is not, which is a judgment decision that must be made carefully. He said that the best approach would be first, to decide if there should be a mirror site at NGDC, and second to gather information regarding the different aspects of metadata archiving, so an informed decision can be made at the next SCIMP meeting as to whether a working group is needed or not.

More discussion followed about the Janus mirror site at NGDC and Mayer said that Janus does not fulfill the NGDC requirements for the data archive because it is software dependent. Alternatively, when the data are output as flat files, they loose functionality as a database. Allan reminded SCICOM that data legacy is not limited to just Janus, and at this moment the priority is to solve the metadata issues. Fisher said that we should not delay a working group too near to the end of the program; the issues should be specified and the working group should start working on them as soon as possible. Bohlen added that Interim Director Pisias, absent at this meeting, is strongly committed to the ODP data archive matters and could be expected to follow up actively; and that he (Bohlen) would prefer deferring forming a working group until after the next SCIMP meeting in order to give Pisias some time to address the issues.

Discussion continued and Sager emphasized that SCICOM must distinguish the two kinds of data arrangements at NGDC – mirroring and flat archives. Fox also reminded that in the phase-out plan the relational database is to be handed over to the new program, so there will be seamless transition from the point of view of data users. Austin added that Fisher's comment was very important and SCICOM should recognize that we need to identify people to help with handover of Janus.

MacLeod wondered if the difficulties with establishment of a Janus mirror are due to resource limitations at NGDC and if perhaps ODP could provide those resources for them. Fox clarified that this is not built into ODP budget, and it is NGDC that is supposed to provide the fee for Oracle license and the hardware (server). It was restated that the flat files would be archived at NGDC. Mayer wondered if it would be possible to recreate the functional database from flat files. He also added that considerable thought needs to be put into those matters, but fortunately ODP has a very knowledgeable director.

Fisher, Austin and Mayer were asked by Becker to draft a potential consensus SCICOM response, which was approved the following day as follows:

SCICOM Consensus 02-01-03: SCICOM has considered SCIMP recommendation 01-2-03 concerning data archiving, database mirroring, and the formation of a data legacy working group. SCICOM agrees with SCIMP that maintaining the integrity of ODP data in perpetuity, and assuring future access to this resource, is essential to the ODP legacy. SCICOM would also

like to be sure that a functional database system is transferred to IODP as seamlessly as possible.

SCICOM therefore recommends that SCIMP plan for formation of a data legacy working group, including an evaluation of what expertise is needed and available (both within and outside SCIMP) and what the working group mandate should be. Issues to be addressed by this working group may include identification of (a) critical archiving gaps with present data sets, (b) challenges associated with storage of metadata, and (c) problems that could be avoided during development of IODP data bases, policies, and storage procedures. We ask SCIMP to consult with the interim director of JOI, who has considered many of the relevant issues, and (informally) with appropriate iSAS panels as necessary, and to report back to SCICOM by August 2002 with a plan for formation of this working group as part of the broader issues of ODP legacy and ODP-IODP database transition.

Allan continued with other SCIMP recommendations.

SCIMP Recommendation 01-2-05
SCIMP strongly supports the development of logging-while-coring technology for use in ODP and encourages its testing in remaining ODP legs.

Becker asked Goldberg if cruises post Leg 204 had been identified for possible utilization of resistivity logging-while-coring (LWC). Goldberg explained that LWC will be used for the first time on Leg 204, and if successful and if there is interest, future use could be on another LWD cruise, e.g. Leg 209. Becker reminded SCICOM that this should be decided before the Leg 209 pre-cruise meeting, and he asked for presentation of Leg 204 LWC results at the next SCICOM meeting in August. Goldberg agreed.

SCIMP Recommendation 01-2-01
SCIMP recommends that the Science Operator expand the hard-drive capacity of the Novell network used by shipboard scientists to access and manipulate digital imaging data so that whole-leg data are available and can be routinely accessed. The expanded disk capacity will not substitute for archiving.

Allan explained that during the Leg 199 the shipboard scientific party had run out of disk space to handle working files with the core images. Janecek had suggested during the December 2001 SCIMP meeting that adding more disc space would solve the problem, because these are working data and they don't need to be archived. Baldauf said that this recommendation is being addressed and will be implemented for Leg 202.

SCIMP Recommendation 01-2-12
SCIMP recommends that the susceptibility point measurement (for the AMST) be available on the ship, so that it can be used when needed, especially for paleoceanography legs.

Baldauf said that this recommendation has already been implemented on the ship.

SCIMP Recommendation 01-2-11
SCIMP believes that the current policy regarding borrowing of thin sections is generally adequate and appropriate. Thin sections may be borrowed for a twelve month period, and this loan may be renewed. The borrower is obligated to return thin sections when the research is completed or when requested to do so by the relevant Program manager.

SCIMP recommends that the thin section policy be amended such that failure to keep a loan current or to return a requested section may result in a hold on subsequent sample requests until the sections are returned or the loan is reviewed.

Allan said that some scientists keep thin sections on loan for up to 8 years and the return policy should be reinforced. Users could renew the loan without the thin section being returned. Baldauf explained that actually this is a current policy but the mechanism forcing scientists to return the materials is not strong enough. It is important because the longer the thin sections are away the higher the probability of destruction. Allan said that he understands that this recommendation is in the current policy but SCIMP recognized that the policy is not strong enough. Austin emphasized that the ODP thin section collection is an important part of the ODP legacy and it should be kept coherent.

Allan then presented the SCIMP recommendation dealing with Micropaleontological Research Centers.

SCIMP Recommendation 01-2-09
To support curation of MRC samples and to facilitate integration, documentation, and use of MRC collections, SCIMP encourages ODP member offices to help fund purchase of curatorial supplies and underwrite other MRC costs (*e.g.*, shipping, travel) when possible.

Austin suggested that these two recommendations (SCIMP 01-2-11 and 01-2-09) could be addressed by SCICOM in one consensus. Becker drafted the following consensus that was approved the following day:

SCICOM Consensus 02-01-04: SCICOM reaffirms the importance of all ODP samples as an integral part of the ODP legacy. Therefore, SCICOM requests that the Science Operator take all necessary steps to maintain the integrity of the entire ODP sample collection as the ODP phase-out approaches. This includes the thin section collection as noted in SCIMP recommendation 01-2-11. In addition, SCICOM endorses SCIMP recommendation 01-2-9 encouraging host countries of Micropaleontological Reference Centers to underwrite costs of maintaining these centers.

Allan then presented a recommendation addressed to both ODP and IODP, regarding the need for the logging magnetic susceptibility measurement with resolution as good as core magnetic susceptibility measurements.

SCIMP Recommendation 01-2-04
SCIMP recognizes the scientific benefits of a high resolution downhole magnetic susceptibility tool capable of measurements at a similar resolution to those made on whole core (<10 cm). SCIMP encourages the development of such a high resolution magnetic susceptibility tool, to be available for potential use in ODP and IODP. This development could be a third party tool.

Austin said that as we enter the transition period, iPC will look into these capabilities.

The following consensus was drafted overnight and adopted the following day in response to six of the above SCIMP recommendations:

SCICOM Consensus 02-01-05: SCICOM accepts the following SCIMP recommendations and applauds the efforts already made by the ODP Operators to address them:

SCIMP recommendation 01-2-01 concerning hard-drive support for digital core data
SCIMP recommendation 01-2-06 concerning the IESX Joint Pilot Study
SCIMP recommendation 01-2-07 concerning the legacy technical summary documents
SCIMP recommendation 01-2-08 concerning core resistivity measurements
SCIMP recommendation 01-2-12 susceptibility point measurement for AMST

In addition, SCICOM endorses SCIMP recommendation 01-2-04 concerning potential development of a high-resolution downhole magnetic susceptibility logging tool for ODP and IODP.

Finally, Allan reported on the progress with hard rock description working group that will meet in College Station (May 9-10, 2002) and report to SCIMP at the June meeting. The members of the group are: J. Allan (SCIMP), J. Alt, S. Arai, S. Bloomer, G. Ceuleneer, H. Dick, P. Herzig, E. Kikawa (SCIMP), C. MacLeod, J. Miller, J. Natland, P. Robinson. The meeting agenda will include the following items:

1) Digital Image archive image?
2) 3-D context of information
3) Real-time graphical interface to database
4) Real-time annotation of images
5) Nature of description programs

Becker asked if just one meeting would be enough, as approved at the August 2001 SCICOM, and Allan said that this would be decided at the first meeting. Becker noted with approval that there are two SCICOM members in this working group.

Karner reported that there were problems with MST natural gamma radiation (NGR) measurements collection on the Leg 194, but Allan said that it has not been brought to the attention of SCIMP. This problem compromised most of the acquired MST-NGR data collected. Moore noted that during Leg 199 the MST-NGR generally worked well, but there were some occasional problems. Baldauf promised to follow up on that and report back to SCICOM during its next meeting in August. Allan added that during the SCIMP visit to the ship the issue had not been noticed or reported by technicians.

I. ODP Legacy

Achievements and Opportunities update

Becker updated SCICOM on the progress with the Achievements and Opportunities legacy document, now scheduled to be published as a special issue of the *JOIDES Journal* by June. A CD is also being prepared with pdf proofs of the 16 thematic contributions for distribution during the European ODP Forum in Tromso in April. The printed copies of the special issue should be ready for EXCOM in June 2002. Becker pointed out that the circulation of this particular issue will be higher than usual. Austin hoped that there would really be enough copies for all interested scientists. He also added that ODP should make sure that all the legacy items documenting the 17 years of the program accomplishments should be made as accessible to the public as possible.

When it comes to thematic syntheses beyond the Achievements and Opportunities publication, Becker suggested that these would require dedicated individuals, for example as for the *Ophiolites and Oceanic Crust* GSA Special Paper organized by Yildirim Dilek and colleagues, or an ocean crustal hydrogeology volume being organized by Earl Davis and Harry Elderfield. Becker emphasized that the JOIDES office would help in such efforts. He also asked that SCICOM and the JOIDES Office be informed if such initiatives are undertaken in other ODP themes.

Austin returned to the issue of ODP collaboration with ION project and wondered if perhaps we should have a one page legacy summary presenting where we stand with ION, and other programs like MARGINS and InterRidge, at the end of the ODP program. This would not be a thematic but a programmatic kind of legacy document. Becker acknowledged that this is a good idea and suggested such summaries could be published in the *JOIDES Journal*.

SSEPs report

Byrne briefly presented the recommendations of the SSEPs working group on legacy activities formed during the November 2001 SSEPs meeting in Japan:

- SSEPs note that it is desirable to develop legacy activities that can also broaden IODP constituency and participation, which will be necessary to staff a program that includes MSP, riser and riserless drilling.
- SSEPs recognize and appreciate the educational and outreach aspects of a web-based "Greatest Hits." However, the SSEPs respectfully note that 100-200 contributions are unlikely to all be "Greatest". The SSEPs recommend professional preparation of a high quality printed brochure containing selected contributions for funding agencies.
- SSEPs note that the "Achievements and Opportunities" volume overseen by SCICOM could be a great vehicle for outreach and education of the general public if also published in a place such as *Scientific American*.
- SSEPs recommend that IODP build a web-accessible library of high quality downloadable figures for geoscience educators to use.
- SSEPs recommend the links to the various legacy documents on JOIDES and iSAS websites.

General discussion about the legacy issues followed with Brown noting that downloadable figures would be great. It would be also useful, if the figures from the "Distinguished Lecturer Series" were published on the web for download as well. Bohlen said that lecturers were hesitant to publish preliminary data figures, but Brown clarified that he meant general figures from the lectures.

Finally it was also suggested that there should be a long-term plan to consolidate all the legacy documents on one website in the future. Becker noted that a plan to do so was discussed at the January "ODP Managers" meeting, and such a website would probably be consolidated at JOI after 2003.

Becker added that the JOIDES system of proposal review as part of the ODP legacy will be presented by the SSEPs co-chairs during the iPC meeting. He noted that all unscheduled JOIDES proposals (with only one exception) had been passed to iSAS, representing another key component of the ODP legacy.

Brown wondered about pore fluids since they are part of the sample legacy as well. Discussion followed about the quality of those samples that have been stored for a long time and probable chemical alteration. Brown agreed that some characteristic of the sample chemistry can alter with time but some other properties could still be measured even if the samples had been stored for a long period of time. Becker noted that this could perhaps be recommended to iPC.

J. Leg Science Reports

Leg 195

Salisbury presented the scientific results of the Leg 195 – "Seafloor Observatories and Paleohistory of the Kuroshio Current". The leg three major objectives were:

- Site 1200 - Installation of the geochemical observatory (CORK) to sample fluids from the dècollement below the Mariana forearc
- Site 1201 - Installation of the ION seismic observatory for the purpose of tomographic studies of the deep structure of the subduction zone.
- Site 1202 - Coring of the Kuroshio current sediments for paleoceanographic studies.

Site 1200 is situated in Chamorro Seamount, which is a serpentine mud volcano in the forearc of Mariana Trench that taps fluids coming from deep in the subduction zone. Recovered material included mud breccias composed predominantly of serpentine minerals and xenoliths of serpentinized peridotite. An extensive suite of geochemical measurements revealed pore water signatures indicating the upward flow of fluids from the top of the subducting slab. The installation of the CORK geochemical observatory was hindered by the difficulties in drilling through the ultramafic clasts together with hole collapse, but finally the observatory was successfully installed to about 200 mbsf.

The ION observatory was installed at the Site 1201 for world-wide tomographic applications but particularly to investigate whether the Pacific plate is penetrating into the lower mantle below the 670 km discontinuity under the Mariana Trench but not under the Izu-Ogasawara (Bonin) Trench.

The cored material at that site included 50 m of pelagic sediments at the top and about 450 m of volcaniclastic turbidities originating from the Palau-Kyushu Ridge. The seismometer package was cemented in place at the depth of about 560 mbsf. The observatory was scheduled to be activated about a week after the meeting, during a visit with the ROV Kaiko to make the final underwater connections. Subsequent reports indicate that this operation was successfully conducted and the observatory is fully functional.

Site 1202 was situated under the Kuroshio Current in an area that is shallow compared to the CCD, allowing calcareous microfossils to be preserved. Coring recovered 410 m of calcareous silty clay, and preliminary dating indicated that this environment was characterized by very high sedimentation rates (>3 m/ky). Logging at the site was impossible because of the strong intensity of current-induced drill string vibration.

Farrell wondered who is working on the samples from Site 1202, and Salisbury responded that they include scientists from Taiwan, PR of China, and Germany. Ishii asked about the recovery at Site 1200; Salisbury explained that it was about 70% in the APC section, but was very low in the xenoliths. Fox noted that possibly the ADCB could have helped recovery.

Leg 196

Mikada and Becker presented the results of the Leg 196 – "Deformation and Fluid Flow Processes in the Nankai Trough Accretionary Prism: Logging While Drilling (LWD) and Advanced CORKs". This leg was the second of a two-leg program (Legs 190 and 196) to investigate the inter-relationships of structure, tectonics, deformation and fluid flow in the Nankai Trough, a program which built on Leg 131 coring at Site 808 at the deformation front. Mikada presented the LWD results from Site 808 showing interpreted fractures and borehole breakouts indicating the *in situ* stress measurement. Becker then described the ACORK installation during the second segment of Leg 196. The specific objectives of the Leg 196 ACORKs included monitoring *in situ* pressures and determining large scale permeability across the dècollement at Site 808, the stratigraphic projection of dècollement at the reference Site 1173, and in basement at both sites. The installation went quite well in Hole 1173B, except for premature setting of the bridge plug. However, in Hole 808I deterioration of drilling conditions and under-reamer failure stopped the installation 30 m shallower than planned. This left about 30 m of casing unsupported above seafloor, and this section fell over after the drillstring was withdrawn. Most probably the ACORK data can still be retrieved successfully because the equipment fell to the seafloor in such position that the pressure-monitoring lines were not damaged and the submersible connector faces up. Fox admitted that the under-reamers were under-engineered, but noted that they were the best available on the market at the time. Becker concluded his presentation with interesting videos from the reentry and ACORK at Site 1173.

M. MARGINS Report (moved from next day to this afternoon)

Karner began by stating that MARGINS is an NSF-funded initiative, the goal of which is "to understand the complex interplay of processes that govern the evolution of continental margins." The program strategy is to study the whole active system on multiple scales in multidisciplinary case studies that integrate observational, laboratory and theoretical aspects. The program currently focuses on 4 themes, each including two areas for comparative studies:

1. Seismogenic zone (SEIZE) – Nankai and CostaRica/Nicagarua
2. Subduction Factory (SubFac) – Izu-Bonin-Mariana (IBM) and Costa Rica/Nicaragua
3. Rupturing Continental Lithosphere (RCL) – Gulf of California/Salton Trough and Central/Northern Red Sea
4. Source to Sink (S2S) – New Zealand and New Guinea

Karner briefly discussed each of the initiatives and noted that MARGINS is planned as a 15 years program and currently it is in its 4th year. Some of the program activities include town meetings, workshops and theoretical institutes. An important component of MARGIN operations is the data policy that encourages scientist to make the data public as soon as possible in order to maximize technology transfer across the program, encourage integration of science, coordination of research, and the construction and testing of hypotheses. Finally Karner discussed IODP proposal preparation issues for drilling in the MARGIN focus sites.

March 20 - SCICOM/OPCOM joint session

K. OPCOM/SCICOM action items

- Leg 210 contingency plans (Aug 2001 SCICOM request)

Becker read the SCICOM watchdog letter prepared by Robertson that was sent to proponents of Leg 210 after the August SCICOM meeting requesting specification of a contingency plan. Further discussion was led by Austin, who presented the proponents' response in the form of chart with detailed options. Following the discussion Becker suggested that it seems entirely reasonable to approve this contingency plan. Sager mentioned that SCICOM should avoid such situations in future in order not to set a precedent because normally SCICOM doesn't specifically consider contingency plans for all legs. Becker generally agreed but also noted that the August 2001 SCICOM request was motivated because the success of Leg 210, at least as planned, depended on reaching basement at the bottom of an extremely deep hole. By asking for a fallback plan, SCICOM wanted to ensure a successful finale to ODP in case this couldn't be achieved.

SCICOM Consensus 02-01-06: SCICOM accepts the Leg 210 contingency plans.

SCICOM engaged in a discussion about APL 21, which was received at the JOIDES Office for the March 2002 proposal deadline but requested scheduling very shortly afterward, during summer of 2002. Baldauf suggested that from the operational point of view the program could be implemented

at the ends of the either Leg 203 or Leg 204, with the first representing a better possibility for time becoming available.

Becker first asked for discussion of a suitable review procedure for this APL given the time pressures. He explained normal JOIDES policy, which states that APL's are first reviewed by SSEPs before being considered by SCICOM. The SSEPs co-chairs agreed to arrange for email review by SSEPs subcommittee review within a month, and Becker suggested that after this SSEPs email review, SCICOM could then discuss the APL and come to a scheduling decision by email. Austin concurred with that proposition, as did the rest of the committee. Becker then noted that, given the time pressures, he would circulate ground rules for the SCICOM email review of the APL, with a deadline imposed for responses to ensure a decision in timely fashion and a default assumed in the case of any non-responders.

- possibility of post-contract JR work - implications for ODP

As an information item only for SCICOM, Becker started a discussion about the possibility of using JR for scientific drilling charter work after the ODP contract ends. Bohlen said that JOI continues to pursue such opportunities, including some discussions with Canadian industry and Chevron, with emphasis put on the notion that the academic community must be fully engaged and the potential benefit must be clear to NSF. He noted that only the most preliminary discussions have occurred to date and cautioned against high expectations. Bohlen concluded that it would be good for JOI to catalyze good industry/academia partnership as a future model for IODP, and furthermore it would also help to maintain ODP/IODP focus.

Fox said that after October 1, 2003, ODP does not have a contract with ODL and so the program is not in a strong negotiating position for post-ODP work. Fortunately the ODP relationship with ODL is very good, and an additional advantage is that ODP has the drillpipe and the drilling equipment. Austin asked about possibility of using JR as future non-riser vessel in IODP and he wondered when ODL plans to start using the vessel for other purposes. Fox noted that time was limited, because the corporate discussions about future utilization of the vessel are going on now; obviously, ODL is interested primarily in its corporate goals, so ODP does not have any guarantees. Fox added that another advantage to using the JR for scientific drilling after October 1, 2003 would be to maintain the stability in the ODL crew. If the JR continues to conduct scientific drilling in the interim, then the experienced ODL crew could move later to play a role in a new IODP program.

Becker noted that if there is going to be any post-contract engagement for JR, it is not clear what effect, if any, that might have on the final days of the ODP contract, which now includes a transit and demobilization. He suggested that there might be a remote possibility that additional time could open up for ODP work before the end of the ODP contract, although he noted there is no budget available to support any possible ODP work after Leg 210. He added that, nevertheless, he wants to ensure that SCICOM is not surprised, but is ready with acceptable scientific options, should such remote possibilities come to fruition in the future.

L. JOI update on Lomonosov Ridge Project Management

Farrell reviewed progress made on Lomonosov Ridge Project Management since August 2001, when SCICOM endorsed the joint JOI/European initiative to set up a Lomonosov Ridge Project

Management team (SCICOM Motion 01-02-18). In response to an international RFP, the Swedish Polar Research Secretariat (SPRS) (the only applicant) was endorsed, and in February 2002 NSF approved a JOI-SPRS contract, which was coordinated with JEODI. Farrell presented details of the contract management structure and SPRS planning progress. The most recent developments were: (1) a meeting of drilling, ice and weather management, vessel, and other operations experts in Calgary, March 4-6, 2002; and (2) a March 19th meeting with *Botnica* owner/operator and Russian colleagues. The field program is being planned on a timetable for summer 2004, to prepare for the possibility that iPC will approve it as an early IODP operation. Farrell concluded his presentation with details of another very successful Arctic expedition – AMORE 2001.

Oppo asked about the size of the shipboard scientific party for the *Botnica* operation as being planned. Farrell answered that according to the participants of the Calgary planning meeting, mostly logistical and operational experts, the smaller the better. Kinoshita asked if the costs of the operation have been revisited since originally set out in the 2001 DPG report, because there seem to have been some changes in the operational details. Farrell stated that the costs have not been revised, but are still estimated to be about $9M. Kinoshita then wondered if the program could realistically be mobilized in 2004. Farrell confirmed that all indications are positive, and nothing has come to attention that would indicate it is not possible. Farrell and Ludden also reconfirmed that this is envisioned as a fully international IODP operation open to all scientists, with Europe planning to provide platform operating costs (POCs). Bohlen noted that much is known about the costs and the estimates are very robust. Kinoshita also indicated that some segments of the potential IODP community felt left out of the main communication stream about Arctic planning, so he encouraged distribution of information through a vehicle such as the iSAS office. Kinoshita particularly encouraged use of the iSAS Office in the case of the Arctic program, so all information about this potential early IODP program can be fully shared within the IODP community. Farrell stressed that full and open communication is the intention and the reason he was presenting the report at SCICOM with iPC observers. Becker thanked Farrell for the report on SCICOM's behalf, and suggested a consensus that SCICOM fully accepted:

SCICOM Consensus 02-01-07: SCICOM records its approval and excitement at the progress being made by the joint JOI/JEODI effort toward implementing SCICOM's top-ranked proposal (Lomonosov Ridge, Arctic) as an IODP program.

M. MARGINS (presented previous afternoon)

N. Next meeting, other business, final motions

SCICOM reconfirmed the plan made in August 2001that the August 2002 meeting will be organized by ECOD and France in Belgium. Kenter indicated that the location will be in Ghent. The SCICOM session will occupy one day (26 August) prior to the a three-day iPC meeting 27-29 August.

For the March 2003 SCICOM/iPC meeting it is again the US turn to host, and Austin proposed to host at the University of Texas at Austin.

SCICOM Consensus 02-01-08: SCICOM accepts Jamie Austin's invitation to host March 2003 SCICOM/iPC meeting in Austin, Texas.

Bloomer then presented a consensus to thank Julie Morris, for her outstanding service as the ISSEP Chair.

SCICOM Consensus 02-01-0x: SCICOM expresses its great appreciation to Julie Morris for her extraordinary service as chair of ISSEP. ODP was fortunate to have the service of Julie's considerable talents at a particularly important time for the program. She worked not only to shepherd the last set of ODP proposals through the advisory process, but also helped lead the effort to plan for the IODP and to preserve the legacy of 17 years of ocean drilling. Julie, in partnership with Neil Lundberg, set an outstanding example of how to work cooperatively, collaboratively, and effectively across disciplines. She was always ready with thoughtful, clear, and insightful information about the proposals in her charge and about the concerns and desires of the SSEPs. It was a great pleasure for all of us to work with her and we look forward to her participation in the next phase of scientific ocean drilling.

They say Julie Morris lacks height,
But SCICOM doubts not her might.
At herding a SSEP,
She proved quite adept,
We'll all greatly miss her insight.

Before adjourning, Becker proposed a final consensus of thanks to the Japanese hosts for the first-rate organization of the meeting.

SCICOM Consensus 02-01-10: SCICOM thanks our hosts – Ishii-san and the ODP-Japan Office, Yamada-san and the OD21 Office – for the wonderful arrangements for the SCICOM/iPC meeting.

MEETING ADJOURNED

E. ODP Agency and Prime Contractor Reports

NSF

ODP Management

Since the report in Yokohama there has been an increase in the approved FY 2002 Program Plan.. The events of September 11 have lead to increases in program costs such as insurance, day rates, travel, etc. NSF has increased the 2002 Program plan by $407,000 to cover these impacts on program budgeting and operations. The presently approved 2002 Program Plan budget is $47,985,259. Any additional unexpected Program costs above this level will have to be met by re-budgeting of funds.

For FY 2003, NSF has given JOI a target budget of $45.3 million (a slight reduction below the base 2002 budget of $46.2 million). 2003 will see the last year of operations on the JOIDES Resolution with actual drilling operations terminating by mid-September. The budget reduction reflects the lack of requirement for advance payments or equipment purchases in the latter part of the operating year. Within this target budget level, fuel for the JOIDES Resolution is to be budgeted at no less than $250/metric ton. If the average cost of fuel exceeds this level during 2002, NSF will be prepared to consider a request for additional funding. EXCOM reviewed and approved the 2003 Program Plan at its January 2002 meeting in Santa Cruz, California

Membership Levels:

The Ocean Drilling Program began U.S. Fiscal Year 2002 (on October 1, 2001) with the following identified membership: The United Kingdom, Japan and Germany had committed to full membership participation ($2.95 million; the People's Republic of China had committed to participation at a 1/6th associate member level ($491,667); and France had committed to participation at a 2/3 associate member level ($1,966,667).

Neither the ESF nor PACRIM consortia have been successful in their continuing attempts to return to full membership level. The ESF has committed to continue its participation in ODP at the 99.5% membership level ($2,935,250) for 2002. Although the PACRIM consortium contributed at the 5/6 membership level ($2,458, 333) in 2001, it has only committed (to date) to a contribution of $2,256,010 for fiscal year 2002. The Consortium's Canadian member is seeking additional resources to return PACRIM's contribution to the 5/6th level. EXCOM reviewed the 2002 and 2003 JOIDES status of the ESF and PACRIM consortia at its June meeting. A motion was passed recommending that ESF should retain full member status based on their attempts to add new members to their consortium. Another motion was passed recommending that the PACRIM consortium be given associate member status for FY 2003 unless contribution is raised to the FY 2001 contribution level.

The Ocean Drilling Program has operated under long-term programmatic approval (extending through 2003), but shorter term funding approval from the National Science Board. The present

funding authorization for the prime contract to JOI will terminate at the end of U.S. Fiscal Year 2002 (30 September 2002). NSF has received and reviewed a multiyear Program Plan that will cover the final year of ODP operations (2003) and phase-out of contractor activity (2004-2007). This plan was reviewed and approved by the Executive Committee of JOIDES at its January 2002 meeting in Santa Cruz, California, prior to submission to NSF. A special panel of experts was convened by NSF to review the plan and provide recommendations. Panel Comments and recommendations include the following:

- FY 2003 Drilling Program – The panel commended the excellent plan.
- Vessel demobilization, and equipment refurbishment and maintenance – The panel strongly supported this aspect of the plan.
- Continuation of scientific services – The panel found the plan to be acceptable but expressed concern if initiation of IODP is delayed, therefore it recommended contingency planning for information services and core curation.
- Archival of IODP data – The panel expressed some concerns with the plans and schedule for ultimate archiving of ODP databases and technical material.

These concerns were forwarded to JOI ODP management and based on their formal response NSF is confident that the termination of ODP will be completed in the same thorough and professional manner that has marked the last 20 years of ODP program operations.

The plan will be considered by the National Science Board in August 2002. Although funding approval will be requested for the total phase-out period, it is expected that detailed program plans will be re-formulated and negotiated annually in light of developments, particularly with respect to implementation of IODP.

To the extent possible it is expected that the long-term responsibility for ODP scientific and physical assets will be transferred to appropriate IODP contractor organizations as required during development and implementation of the IODP program.

Based on the above planning framework, it is NSF's intent to support all phase-down activities in the 2004-2007 period without the need for additional international contributions for those years.

To ensure continuing international input to ODP phase-down activities, a performance evaluation committee (PEC VI) will be established in 2004 to evaluate the status and progress on Program phase-out. The mandate and membership for PEC VI was discussed at the EXCOM meeting in Granada.

NSF Country Report

Progress continues to be on track with the acquisition process for the assets (non-riser vessel, repositories, etc.) which NSF intends to make available for IODP and for non-riser operations to begin in early 2005. The Ocean Drilling Program (ODP) in the Division of Ocean Sciences (OCE) is fortunate to have acquired John Walter of NOAA as a visiting scientist/engineer to help with this process. John has experience with government contracting and ship acquisition.

As planning and preparations for U.S. participation in IODP go forward, discussions within the U.S. Congress concerning the NSF budget have been very positive. Members of the Science Committee for the House of Representatives introduced legislation to place the National Science Foundation (NSF) on a track to double the agency's budget in five years. The bill passed the house and will now be considered by the Senate. It authorizes a 15 percent increase for NSF for each of the next three years. From these actions we are hopeful that when the coming year's budget bills are finally passed NSF will actually see a significant budgetary increase.

OCE extended its search for the Program Director position vacated by Bruce Malfait, upon his promotion to Head of the Marine Geosciences Section, as part of an effort to maximize the diversity and extent of the applicant pool. The search was closed at the end of June and selection of a successful candidate should be completed soon.

NSF and MEXT are nearing completion of a memorandum of cooperation defining their participation and interaction as Lead Agencies in IODP.

New field programs supported by NSF/ODP include:

1) The installation of the first permanent seismological observatory in the ocean at Hawaii-2 Observatory (H2O) about halfway between California and Hawaii (28°N, 143°W). By Allan Chave and Ralph Steven (WHOI) and John Orcutt and Frank Vernon (SIO).

2) A program of seismic stratigraphic mapping to examine the evidence for strong western boundary currents in the North Atlantic during the peak of Cenozoic greenhouse climate (Early Eocene Warm Period) led by Dick Norris and Brian Tucholke (WHOI).

3) A seismic, sedimentological, and geochemical study of the Storegga slide, offshore Norway to examine the question of methane release in submarine landslides led by Steve Holbrook (U. Wyoming).

4) A collaborative imaging and modeling program addressing questions concerning the kinematics of large impact craters at the Chicxulub Crater, Mexico. This is a joint US/UK/Mexico investigation and IODP Site Survey led by Sean Gulick and Gail Christeson (U. Texas, Austin) and Jeff Melosh (U. of Arizona).

JOI

JOI Report

1. FY03-07 Program Plan
2. Arctic Planning
3. PEC VI
4. Port Calls
5. DOE and Hyacinth
6. Other

FY03-07 Program Plan Review

- Review Panel met in May 2002
- 11 Primary Recommendations from Review Panel
- Response sent to NSF on 7 June 2002

Creation and preservation of ODP legacy

- Archiving of all data collected by ODP and DSDP.
- Resources for continuous availability of ODP data, website and core repositories.
- Publication of technology/engineering summary sheets.
- Preservation of blueprints in hard copy and digital form.

Legacy Sites

- Generation of detailed inventory of all reentry sites.
- Detailed engineering and hole characterization.
- Develop a system to record use of legacy sites.

Response to NSF - Example Projects and Costs

- Continuation of Repositories ($675K/yr).
- Continuation of Janus ($290K/yr).
- Scanning DSDP Core photos ($418k).
- Micopaleontology data migration ($752k).

Data Migration

Data Type	Duration	Cost
MST		
GRAPE	Completed	NA
P-Wave (PWL)	Completed	NA
Natural Gamma	Completed	NA
Color Reflectance	Completed	NA
Physical Properties		
Moisture & Density	Completed	NA
PWS	Completed	NA
Magnetic Susceptibility	Completed	NA
Thermal Conductivity	Completed	NA
Shear Strength	Completed	NA
Chemistry		
Carbonates	Completed	NA
Interstitial Water	Completed	NA
Gas	9/2003	NA
XRF	Completed	NA
XRD	9/2003	NA
Miscellaneous		
Paleomagnetic Data	9/2004	NA
Down Hole Temperature	9/2004	NA
Splicer	9/2004	NA
MCD	9/2004	NA
ODP Whole Core Photographs	9/2004	NA
DSDP Whole Core Photos	1/2007	$ 418,600
Paleontology	9/2007	$ 752,400

Data Archival

- ASCII Tables of Janus Reports organized by Site and Hole. Tables being reviewed by SCIMP.
- ASCII Tables of logging data.
- Image data could also be archived as tables?
- NGDC would act as permanent repository

Data Archives Include

- Technical notes.
- Laboratory Procedure Documentation.
- Other “meta” data.

Action Items

- SCIMP Meeting 17 June. Presentation of archive tables.
- Meeting of data managers at JOI, Fall 2002.
- Formation of working group to provide guidance from community.
- Review of all plans by PEC VI.

Post-2003 Use of JR

- Canadian Drilling of Newfoundland
- DOE/Industry Hydrates in Gulf of Mexico
- JANOC Hydrates in Nankai Trough.
- Any proposed activities should preserve the general principles of the Ocean Drilling Program.
- There should be no cost to the U.S. National Science Foundation as a result of these proposed activities.
- Any proposed activities should be science-based, and involve the participation of academic researchers.
- Any proposed activities should include the open exchange of data (after some proprietary period).
- Any proposed activities should ensure that the indemnification and insurance coverage for the vessel and the drilling operations are maintained.

F. ODP Operator Reports

ODP-TAMU

Review of Activities
January 2002 through July 2002

Executive Overview

As ODP approaches the last year of seagoing operations, a major emphasis for the Science Operator is on all those activities that support the scientific objectives of each leg. The last five months have been indicative of this commitment, both in terms of implementing legs, as well as planning for future legs that require enhanced engineering. It is very exciting for the program that many of the legs that have recently concluded, or that are scheduled, represent new research initiatives that require enhanced drilling and sampling technologies.

The three legs that have been implemented since the last SCICOM meeting have all been very successful. Leg 201 was a leg devoted to microbiological research and objectives. In order to support the objectives of the leg, a newly designed and built radioisotope van was installed during the Leg 200/201 port call. In addition, during Leg 201 engineering tests of the Pressure Core Sampler, APC Methane tool, and Davis-Villinger Temperature and Pressure Probe were conducted. Although these tools performed well and enhanced the scientific results of Leg 201, the primary objective was to rigorously test these tools in preparation for full deployment on Leg 204 (Gas Hydrates/Cascadia Margin). Leg 201 was a great success; the microbiological capabilities of the JR performed above specifications and the new tools all tested well. Leg 202 was very successful, with a total recovery for the leg of 7081m. These cores have been collected along a north-south transect that extends from the roaring 40's to the equator with a goal to assess climate and oceanographic changes in the southeast Pacific over Neogene time. They include expanded high resolution Plio/Pleistocene to Holocene sections as well as multiple-piston cored Oligocene to Miocene sections. The objective of Leg 203, to case a hole into basement for future emplacement of a seismic observatory, was successfully completed. Casing in Hole 1243A extended through about 100 m of sediment and 100 m of basement. Hole 1243Bcored and logged bout 80 m of basement, with 25% recovery of fresh to slightly altered pillow basalts.

Of the seven remaining legs of the ODP (Leg 204 – 210), six of those legs (Legs 204, 205, 206, 209, 210) require the utilization of technological enhancements, and/or demanding drilling installations requiring the necessity for extensive engineering. On Legs 205 (Costa Rica), 206 (Fast Spreading Crust), 209 (Mid-Atlantic Ridge Peridotite) and 210 (Newfoundland Margin), long strings of casing will be required to stabilize the holes in order to achieve the scientific goals of these legs. In addition to these requirements, on Leg 205 CORKS and a new fluid sampler will be deployed in several holes, and the Advanced Diamond Core Barrel and Hard Rock Reentry System may be required on Legs 206 and 209. Finally, Leg 204 (Gas Hydrates) is shaping up to be the most complex and technologically demanding leg that ODP has ever carried out. A wide selection

of sampling and sensing tools will be deployed throughout the leg that have required advanced engineering support in preparation of the leg and will require the same kind of support during the leg. In particular, the Program's Pressure Core Sampler and a new percussion coring/pressure sampling system developed by the HYACE/HYACINTH consortium will be used extensively during the leg requiring the support of five engineers.

Introduction

In an effort to codify relevant information and to streamline the summary of the Science Operator's activities, as much information as possible is presented in tabular form. These data are presented by functional department.

Science Services

Schedule of Science Operations for the *JOIDES Resolution*: January, 2002 – September, 2003

	Leg	Port (Origin)	Dates ¤	Total Days (port†/sea)	Days at Sea (transit/on site)	TAMU Contact	LDEO Contact
201	Peru Biosphere	San Diego	28 January – 1 April '02	63 (5/58)	23/35	J. Miller	G. Guerin
202	SE Paleoceanography	Valparaiso	1 April – 1 June '02	61 (5/56)	20/36	P. Blum	U. Ninnemann
203	Eq. Pac. ION	Balboa	1 June – 8 July '02	37 (5/32)	16/16	T. Davies	A. Buysch
204	Gas Hydrates	Victoria	8 July– 6 September '02	60 (5/55)	7/48	F. Rack	D. Goldberg, S. Barr
205	Costa Rica	San Diego	6 September – 6 November '02	61 (5/56)	11/45	A. Klaus	K.T. Moe
206	Fast Spreading Crust	Balboa	6 November – 5 January '03	60 (5/55)	6/49	G. Acton	F. Einaudi
	Transit	Balboa	5 January – 13 January '03	8 (2/6)	6/0	N/A	N/A
207	Demerara Rise	Barbados	13 January – 8 March '03	54 (3/51)	13/38	M. Malone	B. Rea
208	Walvis Ridge	Rio de Janeiro	8 March – 9 May '03	62 (5/57)	18/39	P. Blum	P. Gaillot
209	MAR Peridotite	Rio de Janeiro	9 May – 10 July '03	62 (5/57)	17/40	J. Miller	G. Iturrino
210	Newfoundland Margin	Bermuda	10 July – 9 September '03	61 (5/56)	6/50	A. Klaus	H. Delius
	Transit	St. John's	9 September – 21 September '03	12 (1/11)	11/0	N/A	N/A
	Demobilization‡	Galveston	21 September – 30 September '03	9 (9/0)	0/0	N/A	N/A

Notes:
¤ Start date reflects the first full day in port. This is the date of the ODP and ODL crossover meetings. The JR is expected to arrive late the preceeding day. Port call dates have been included in the dates which are listed.
† Although 5 day port calls are generally scheduled, the ship sails when ready.
‡ Demobilization assumes a seven day (+2 day port call) period tentatively scheduled for Galveston.

15 February 2002

Co-Chief Scientists and Cruise Staffing for Science Operations

Co-Chief Scientists for Legs 201-210:

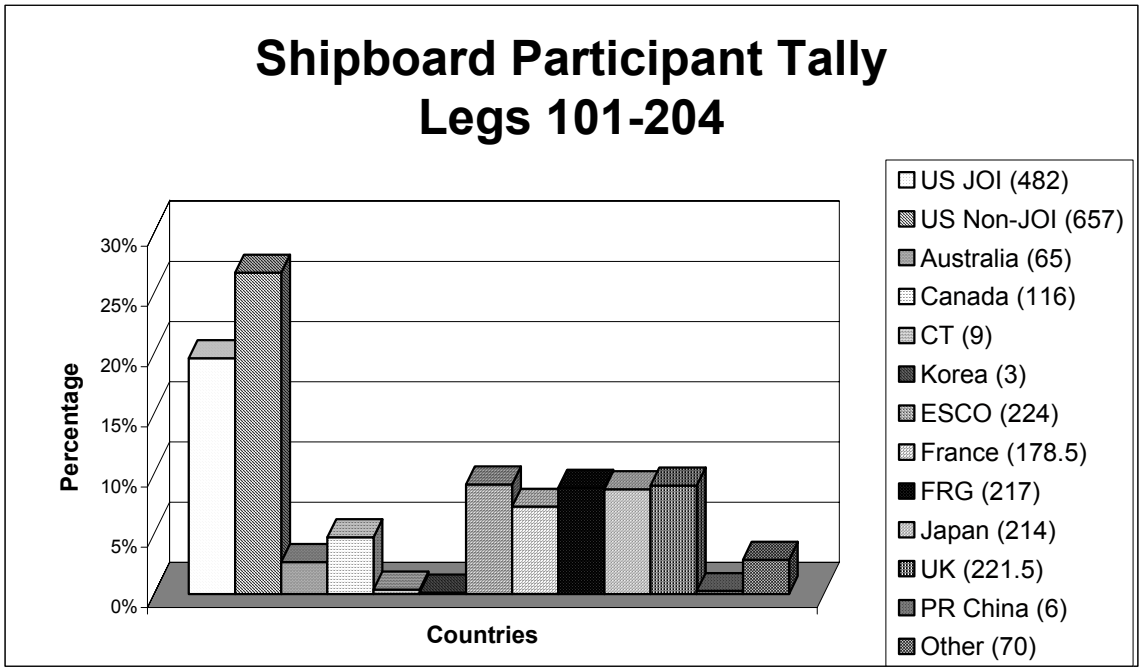
	Leg	Co-Chief Scientists
201	Peru	S. D'Hondt University of Rhode Island B. Jorgensen Max Planck Institute for Marine Microbiology
202	SE Paleoceanography	A. Mix Oregon State University R. Tiedemann GEOMAR, Research Center for Marine Geosciences
203	Eq. Pac. Ion	J. Orcutt University of California, San Diego A. Schultz Cardiff University
204	Gas Hydrates	G. Bohrmann GEOMAR Forschungszentrum fur Marine Geowissenschften der Christian-Albrechts-Universitat zu A. Trehu Oregon State University
205	Costa Rica	J. Morris Washington University H. Villinger Universität Bremen
206	Fast Spreading Crust	D. Teagle University of Southampton D. Wilson University of California, Santa Barbara
207	Demerara Rise	J. Erbacher Bundesanstalt fur Geowissenschaften und Rohstoffe D.C. Mosher Geological Survey of Canada – Atlantic
208	Walvis Ridge	D. Kroon Vrije Universiteit J. Zachos University of California, Santa Cruz
209	MAR Peridotite	P. Kelemen Woods Hole Oceanographic Institution E. Kikawa Japan Marine Science & Technology Center (JAMSTEC)
210	Newfoundland Margin	J.-C. Sibuet IFREMER B. Tucholke Woods Hole Oceanographic Institution

Scientific Party Staffing:
Staffing through Leg 205 is completed and staffing for Legs 206 - 207 is in progress. Tabulated below are the numbers of applications on file as of April 30, 2002.

Legs	Total Applicants	U.S. Applicants	U.S. Students	Non-U.S. Applicants	Non-U.S. Students
203	21	8	3	8	2
204	69	19	12	26	12
205	43	10	10	15	8
206	19	4	3	8	4
207	59	12	8	26	13
208	42	10	6	18	8
209	23	3	2	13	5
210	33	8	4	16	5

Leg 205 is the last leg in ODP concerned with the installation of downhole instrument packages or CORKs, rather than coring. Legs 206-210 are focused on more "traditional" ODP operations – making hole and recovering core. This, coupled with the fact that they are the last legs scheduled for ODP, has stimulated community interest in sailing on *JOIDES Resolution* and resulted in a steady flow of applications for these legs.

Shipboard Participant Tally:
Please reference the table below for a compilation of all sailing participants since Leg 101 through Leg 204.



Status of Lab Stack

Microbiology:
Leg 201 (February-April 2002), which focused on deep biosphere studies along the Peru margin, was the first leg dedicated entirely to microbiological objectives. The sites selected had all been occupied and cored previously by ODP (on Legs 112 and 138) so the basic litho- and biostratigraphy are already known. This enabled us to reduce the shipboard activities in those areas to a minimum and to focus on geochemical and microbiological studies. This departure from more usual ODP activities was reflected in the make up of the shipboard science party which included 15 geochemists and microbiologists, rather than the usual three or four representatives of these disciplines.

The use of radioisotopes on Leg 201 was a new development for ODP. A new van, built to UNOLS standards and specially equipped for radio isotope work was installed on *JOIDES Resolution* during the San Diego port call and was used during Leg 201. The van was removed from the ship after Leg 203 and will be stored for future.

Acquisition and outfitting of the radio isotope van was the culmination of the project to add a microbiological capability to the *JOIDES Resolution* that began with a temporary facility mounted on top of the laboratory stack for Leg 185. We now have facilities for conducting quantitative contamination tests on the cores, for extensive microbiological sampling and for initial processing, including radio isotope inoculation and incubation, of those samples prior to shipment to shore labs around the world, as well as for making the associated chemical measurements. By all reports, Leg 201 was highly successful and utilized the full range of the new facility.

Status of Projects

Digital Imaging:
A GeoTek system capable of imaging four core sections at each pass was installed on *JOIDES Resolution* at the beginning of Leg 198 (end of August 2001). This was a joint project between Science Services and the Information Services departments. Now that the hardware is installed and operating, the next phase of the project involves primarily software development. The Information Services Department has taken the lead in this phase of the project and progress is reported in that part of this report.

Summary of Leg Operations: Legs 199, 200, 201, 202

	Leg 199 Paleogene Pacific 24 October – 17 December '01 Honolulu - Honolulu	Leg 200 H2O Observatory 17 December – 28 January '02 Honolulu – San Diego	Leg 201 Peru Biosphere 28 January – 1 April '02 San Diego - Valparaiso	Leg 202 SE Pacific Paleo 1 April – 31 March '02 Valparaiso - Balboa
Transit/Onsite (day)	14.4/34.6	9.3/28.4	22.6/33.2	18.6/37.7
Sites	8	2	7	11
Holes	21	8	33	38
Water Depth (m)	4837-5406	4255-4978	162-5099	499-4089
Deepest Penetr. (m)	277	175	422	371
Cored Interval (m)	2465	289	3179	7080
Tot. Recov. (m,%)	2197 (89.1%)	100 (34.7%)	2837 (89.2%)	7081 (100.0%)
APC Recov. (m,%)	1881 (101.4%)	18 (90.3%)	2638 (91.3%)	5669 (102.9%)
XCB Recov. (m,%)	316 (51.8%)	14 (23.3%)	191 (51.5%)	1412 (90.0%)
RCB Recov. (m,%)	0	69 (32.7%)	0	0
MDCB Recov m,%)	0	0.2 (110%)	0	0
PCS Recov (m,%)	0	0	15 (51.5%)	0
Fugro PC Rec (m,%)	0	0	4 (50.9%)	0

Review of Operations

Leg 199 (Paleogene Pacific):

- The objective was to core to basement at each of eight high-priority sites.
- Eight sites (21 holes) were cored in water depths from 277-2465 m.
- Despite Eocene chert, which diminished core quality and quantity, 2197 m of core were recovered (89.1%).
- Chert destroyed two 11-7/16 in APC/XCB roller-cone bits and 34 hard-formation XCB cutting shoes.
- Two holes were logged with three tool runs to the bottom of the hole.

Leg 200 (H2O Observatory):

- Primary objective: establish an Ocean Seismic Network (OSN) ION cased hole to emplace a broadband seismometer.
- Secondary objective (if time permitted): determine the depositional history of the Nu'uanu Landslide, a catastrophic landslide from Lo'olau Volcano on the island of Oahu ~2 Ma.

- Established Site 1224D as OSN/ION reentry hole cased with 20 in to 25.5 mbsf and 10-3/4 in casing to 58.5 mbsf (30 m into basement). Total depth is 64.70 mbsf.
- Cored Hole 1224F, following the deployment of a free fall funnel, to 174.5 mbsf in flows and altered basalt (16.9% recovery).
- Cored Nu'uanu Landslide to 41 mbsf through multiple slides and pyroclastic episodes.
- Intense storms in the North Pacific led to consistent heave of >4 m, resulting in 6.1 days waiting-on-weather.

Leg 201 (Peru Biosphere):

- The objective was to explore the distribution, activities, community structure, phylogenetic affinities, and global biogeochemical consequences for microbial communities buried in deep-sea sediments.
- Core handling procedures were changed to expedite core delivery to the science party, and science objectives were achieved at all seven sites.
- The ODP Pressure Core Sampler (PCS) was run 17 times, and 14 runs (82.3%) obtained a pressurized core. Only one of the three failures was due to a tool design problem, which has been corrected for future deployments.
- The HYACE Fugro Pressure Corer (FPC) was field tested seven times in preparation for deployment on Leg 204. Six runs obtained some core recovery, but none of the runs retained a pressurized core back to surface. Based on lessons learned, the tool is being modified by the HYACE team and it will be ready for deployment on Leg 204.
- Undisturbed APC cores were obtained to a significantly greater depth than normal by heavy use of the APC drill-over technique. The APC core barrel was drilled-over 69 times (21.4% of APC runs).
- The risk to the coring equipment was minimized by utilizing the Active Heave Compensator; nevertheless, 10 sections of APC core barrel, 4 core barrel shoe subs, and 11 APC cutting shoes were lost.
- The DVTP tool was run 26 times and successfully recorded temperature data 21 times (80.8%).
- The DVTP-P was run 12 times and successfully recorded pressure data 9 times (75.0%).
- The APC-Methane tool was run on at least one hole at each site, and measured the change in pressure when free methane starts to out gas from the core.

Leg 202 (SE Pacific Paleo):

- The objective was to obtain APC/XCB high-resolution cores at each of eight high-priority sites to study the effect of tectonic events on climate, document the transition from polar warmth to glaciation in Antarctica, and seek a record of rapid climate change events.
- Thirty-eight holes were cored at eleven sites were cored in water depths from 499.5 m to 4089.5 m.
- There were 7080.1 m of sediment cored with 7081.99 m recovered (100.01%). There was an additional 383.6 m of sediment drilled.
- Three piston cored holes exceeded 300 meters. The APC was pushed to its limit as 99 stuck core barrels were drilled over during this leg.
- Drilling sites were situated in the territorial waters of Chile, Peru, Ecuador, and Costa Rica, with observers from the first three.

The ODP/TAMU developmental engineering projects are divided into two categories: surface equipment and downhole instruments. The first category includes Active Heave Compensation (AHC) and the Rig Instrumentation System (RIS), two pieces of equipment that were installed in the fall of 1999. These systems are functioning and continue to undergo refinements as they are incorporated into the daily drilling operations of the *JOIDES Resolution*. The second category consists of downhole tool development projects that are currently underway and include: Davis-Villinger Temperature and Pressure Probe (DVTPP), Memory Drilling Sensor Sub (DSS), APC Methane Tool (APCM), Fisseler Water Sampler (FWS), and the Pressure Core Sampler (PCS).

Active Heave Compensator (AHC) Operational Review

Weight-on-Bit Filter:
Because the AHC imparts significant dynamic forces to the derrick-mounted load cells, there are large variations in the weight-on-bit (WOB) indicator used by the driller. These large variations make it more difficult for the driller to effectively control the WOB because of excessive needle bounce. The WOB filter system consists of an electronics package with accelerometers on the top drive, a data processing electronics package with accelerometers and pressure transducers on the rig floor, and digital WOB and Drill String Weight meters in the driller's console. The installation was started during Leg 201 and completed at the Leg 202 port call. Debugging and initial data evaluation was performed during Leg 202. The operational trials will take place during Leg 203.

AHC Hydraulic Bundle Update:
Crew suggestions regarding strategic placement of valves at the ends of the AHC hydraulic hoses to contain spillage and facilitate inspection or replacement of the AHC hydraulic system were implemented during the Leg 201 port call. This included replacement hoses with blind closures and bleeder valves, and two high-pressure ball valves to facilitate drainage of the AHC Filter System during filter changes.

Moreover, the hose bundle covers are exhibiting signs of wear and new specifications have been prepared for lace-on, vinyl impregnated, nylon covers that provide great wear resistance and spill containment. These old bundle covers will be replaced with covers made from improved material and this activity will be phased in during the next several port calls.

Tracer Pump Automation:
The microbiology goals of Leg 201 required that tracer material be continually pumped downhole at a fixed concentration based on the mud pump flow rate. To prevent two technicians from continuously monitoring and adjusting the tracer pump flow rate, the operation was automated by putting the tracer pump under control of the Rig Instrumentation System computer. The automatic system was installed during the Leg 199 port call and tested during the course of Leg 199. The system worked flawlessly during Leg 201.

Downhole Measurement Technology

Davis-Villinger Temperature and Pressure Probe (DVTPP):
The purpose of this project is to incorporate pore pressure measurements into the DVTP. The prototype DVTP with pressure (DVTPP) was developed by Pacific Geosciences Center in Canada and first deployed on Leg 190. Though the deployment confirmed the viability of the measurement, significant improvements were required to bring the tool up to operational status. The tool underwent a redesign to address corrosion and assembly issues.

A redesigned DVTPP, using the prototype electronics, was deployed 12 times on Leg 201. The first three runs experienced problems with filter plugging and spikes in the pressure reading. A new filter scheme was developed to resolve the plugging, and the elimination of an intermittent internal leak in the pressure transducer line took care of the pressure spikes. The temperature measurement never functioned properly because of a corrupted setup file in the prototype data logger. The prototype electronics will be replaced with new, upgraded electronics for Leg 204. Overall, the pressure measurement functioned as designed and recorded valid lithostatic pore pressure on five runs, and recorded hydrostatic pressure on four runs. The four runs that only recorded hydrostatic pressure occurred because of inadequate probe insertion in the sediments (lack of an effective seal). A second standard DVTP will be converted to a DVTPP, providing two operational tools for Leg 204.

APC Methane Tool (Temperature, Pressure, Conductivity):
The APC Methane (APCM) tool monitors the effects of gas exsolution in cores from the time the core is cut until it reaches the deck by recording temperature, pressure, and conductivity in the core headspace with sensors mounted in the APC piston. The APCM tool is a joint development between ODP-TAMU and MBARI.

The tool was deployed eight times on Leg 201 to establish baseline data for deployment on Leg 204. In general, the tool was inserted in the coring string when the first APC Temperature tool was deployed (around Core 5) and remained in the string until APC coring was suspended. The average tool run collected 12 hr (8 to 10 cores) of 1-s data. Excellent data were obtained on the first three runs, which clearly indicated variations in gas concentrations among individual cores. The data degraded significantly on the fourth run when the tool experienced excessive shock and vibration. The data quality for the remaining runs was poor because of noisy signals. The electronics will undergo additional hardening for Leg 204.

Pressure Core Sampler (PCS):
The PCS is a free-fall deployed, hydraulically actuated, wireline retrievable pressure coring tool for retrieving core samples maintained at bottom-hole pressures. Modifications of the tool design were made to improve drilling capabilities and extend performance, primarily in the rotary coring mode. The design work focused on the cutter design and modifications to improve core recovery. The major changes aimed at improving core recovery included extending the cutter .5 meter ahead of the bit, increasing flow to the cutter and enlarging the inner diameter of the core barrel. Testing of the PCS cutters and modifications was conducted at the Maurer Drilling Research Center in Houston prior to deployment on Leg 201.

Two complete tools and a spare pressure barrel were sent to Leg 201. The tool was deployed 17 times, 10 times at a gas hydrate site. Full closure was not achieved on two runs (no pressure). One run did not achieve pressure because of chert blocking the ball valve and the other run was because of failure to pressure up the actuation mechanism. Of the 15 successful closures, 12 recovered at least 67% of hydrostatic pressure, and seven of those recovered greater than 98%. Ten runs recovered the full 1-m core and only two recovered no appreciable core. Where full closure occurred (15 runs), gas was collected and methane was present in 11 of those samples. Calculated hydrostatic pressures at the bottom of the holes ranged from 600 to 8000 psi, depending on the depth.

A significant upgrade for Leg 204 will be to incorporate the APCM tool package into the PCS. This will provide for continuous recording of pressure, temperature, and conductivity at the top of the pressure core barrel.

Jerry Dickens at Rice University was instrumental in the gas sampling manifold design for Leg 201. The system consisted of an ice bath for the pressure core barrel, instruments to continuously monitor the PCS internal pressure, and a manifold assembly to safely transfer the PCS gases to a gas bubbling chamber where the gas volume was measured and samples taken for analysis. The manifold system handled two PCS core barrels at a time and the system performed well throughout Leg 201.

Memory Drilling Sensor Sub (DSS):
The DSS will provide data from sensors packaged in its collar wall. These sensors measure weight on bit, torque on bit, annulus pressure, pipe pressure, and annulus temperature. The DSS will be an 8-1/4 in OD memory sub with a 4-1/8 in through-bore to allow for core retrieval. It will be positioned in the Bottom Hole Assembly (BHA) on top of the Outer Core Barrel. Phase I, the preliminary design, was completed in February. Phase I included a detailed design layout, load and stress analysis, material specifications, expected sensor accuracy, and testing and calibration requirements.

A subcontract was issued to APS Technology for Phase II work on December 12, 2001. The first two stages (Mechanical Design and Electronics Design) were completed, reviewed by ODP, and accepted. The last two stages (Manufacturing of Test Article and Preliminary Testing and Sub Manufacture System Integration and Testing) are on hold pending additional funding found through programmatic savings.

Fisseler Water Sampler:
Joris Gieskes at Scripps modified the Fisseler Water Sampler as part of a collaborative project. The upgrade is intended to improve upon the Water Sampler Temperature Probe (WSTP) by controlling the pressure differential and rate of sample intake. The upgraded tool was delivered to ODP in March of 2002. New electronics and software will now have to be developed to adapt to the changes made at Scripps.

Labview Software Interface for Downhole Tools:
The communication software for current ODP downhole tools was written for DOS operating systems. These programs are being converted to Labview for Windows to create a commonality in support software for all downhole measurement tools. The communication and analysis software

for the DVTP tool has been rewritten in Labview and is operational on the ship. Work on the APCT tool and WSTP have commenced. The communication software will be integrated into the base Labview program so that it will have the same software front-end as the DVTP. Project completion is expected by the end of calendar 2002.

Information Services

Digital Imaging System (DIS)

The Geotek imaging system was successfully deployed during Legs 198 – 201. A second contract with Geotek, Ltd. focused on updating the original digital acquisition software and developing a new analytical software application for ODP usage. The software was successfully installed and tested during the Leg 202 port call. Updates to the existing acquisition software included bar code reading capability, automatic file name generation, a new file structure (XML) to store meta data, creation of TIFF files instead of BMP files, and creation of a RGB (Red, Green, Blue) text file which is uploaded into the Janus database. During port call, all updates were tested and appropriate lab technicians were trained.

The upgrade project has been a success with the addition of these new analytical capabilities. Final adjustments to the application will take place after its thorough use on Leg 202. Any further enhancements to the product must be accomplished through a negotiated contract with Geotek since the software is proprietary software.

Status of Migration of Historical ODP Data into the Janus Database

Significant progress has been made on our data migration projects (migrating old ODP data: legs 101 - 170 to the Janus database) as seen in the following narrative and tables. It is expected that most of the data that needs to be migrated will be migrated by the end of FY04. The level of progress is impressive when one considers that the work to date has taken place with only one dedicated FTE augmented by TAMU graduate students. To recap our progress, ODP data gathered prior to Leg 171 have been migrated following a prioritization established in September of 1998. All MST (GRAPE, P-Wave, Magnetic Susceptibility, and NGR) data and all color reflectance data have been migrated. Physical Properties data are nearly complete (Thermcon-100%, MAD-98%, PWS-89%, and Shear Strength-86%). These data should be completely migrated by June 2002. Migrating chemistry data is underway. Nearly all (96%) of XRF data and over 50% of carbonate have been migrated. Remaining chemistry data (Interstitial Water, and Gases) have not yet been migrated. Our target completion date for these data is February 2003.

Migration of Paleontology data effectively began in January of this year. A complete work plan has been created for this project. Four groups of data will be migrated during the project duration: Paleo Investigations - Taxa, Datum List (Numerical Ages), Age profile (Geologic Ages, Zones), and Numeric Age-Depth Models. At present, one FTE is assigned to this project. It is estimated that the number of person-months to complete this job is between 75 and 83 months. With only one FTE dedicated to this project, not all Paleontology data will be migrated by the end of FY04. To complete this project by the end of FY04, it will take about 2.3 FTE. However, it is not just a matter of funding the additional FTE's, but one of finding available candidates with appropriate training (MA or PhD level education) and experience to do the job.

The migration of Paleomagnetic data has not been started, but we intend to assign one person (less than 1 FTE) to work on the project, starting in early summer. We anticipate that these data will be migrated by the end of FY04.

Any other remaining data collected during ODP have not been identified as candidates for migration to the Janus database, for one of two reasons: they are not digitally available or they may be in formats no longer supported by ODP. Therefore, at this time, there are no plans to migrate the visual core data or DSDP data to the Janus database.

The recent migration efforts undertaken by ODP have been very successful, given the resources available to perform the work. The prioritization plan established in 1998 is in place and we are on target to have all significant digital data migrated into Janus by the end of FY04. The only issue remaining is one regarding the level of effort that should be applied to the migration of paleontology data and this is under discussion and a mechanism will be found to migrate all the ODP paleontology data into Janus in a timely fashion.

ODP Data Migration Projects - Overview

Project	Data Type	Status % Complete	Target/Completion Date
A	MST – GRAPE, P-Wave, Magnetic susceptibility, Natural gamma, and Color Reflectance	100%	August 2001
B	Physical Properties - Thermal conductivity, Moisture & Density, PWS, Shear strength	94%	June 2002
C	Chemistry - Carbonates, Interstitial water, Gases, XRF, XRD	75%	September 2003
D	Paleontology	6%	
E	Miscellaneous - Paleomag, Downhole temperature, Splicer, Mcd	6%	September 2004

Notes: (1) No core description data will be migrated.
(2) No DSDP data will be migrated.
(3) No contributory (post-cruise) data will be migrated.

MST and Color Reflectance Data Migration

Start Date: September 1998
Completed
Completion Date: August 2001

170	169	168	167	166	165	164	163	162	161	160	159	158	157	156	155	154	153	152	151	150	149	148	147	146	145
x	x	x	x	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	o	x	x	x
x	x	x	x	X	x	x	o	x	x	x	x	x	x	x	x	x	o	x	x	x	x	o	x	x	x
x	x	x	x	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	o	x	x	x
x	x	x	x	X	x	x	x	x	x	x	x	x	x	x	x	x	o	x	x	x	1				
x	x	x	o	X	x	x	o	o	x	x	x	o	x	x	o	x	2								

144	143	142	141	140	139	138	137	136	135	134	133	132	131	130	129	128	127	126	125	124	123	122	121	120	119
x	x	o	x	O	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
x	x	o	x	O	x	x	o	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
x	x	o	x	O	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101
o	x	x	x	X	x	x	x	x	o	x	x	o	x	x	x	o	x
o	x	x	x	X	x	x	o	x	o	x	o	o	o	o	o	o	o
x	x	x	x	X	o	o	x	x	o	o	x	x	x	x	o	o	o
																	1
																	2

Legend:

- x Migration to Janus database completed
- o Data not acquired by ODP
- 1 NGR acquisition started Leg 150
- 2 Reflectance acquisition started Leg 154
  Magsus Leg 104-130 in S1032

Completed = 210 = 100 %

Remaining = 0

Oct. 3, 2001

Physical Properties Data Migration

Start Date: December 1999
Current: April 2002
Target Completion Date: June 2002

Leg / Data	170	169	168	167	166	165	164	163	162	161	160	159	158	157	156	155	154	153	152	151	150	149	148	147	146	145
Thermcon	x	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MAD	x	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PWS			x	x	x		x		x	x	x	x	x	x	x	x	x	x		x	x		o	x	x	x
Shear Strength		O	x	o	x		x	o	x	o	x	x	o		x	x	x	o	x		o		o	o	x	

Leg / Data	144	143	142	141	140	139	138	137	136	135	134	133	132	131	130	129	128	127	126	125	124	123	122	121	120	119
Thermcon	x	X	o	x	x	o	x	o	x	x	x	o	o	x	x	x	x	x	x	x	x	x	x	x	x	x
MAD	x		o	x	o	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PWS	x		o	x	o	x	x	x	x	x	x	x	x	x	o	x	x	x	x	x	x	x	x	x	x	x
Shear Strength	x	O	o	o	o	o	x		x	x	x	x	x	x	o	x	x	o	x	x	x	x	x	x	x	x

Leg / Data	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101
Thermcon	x	X	x	x	x	x	x	x	x	x	x	x	o	x	x	x	o	x
MAD	x	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x	o	x
PWS	x	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x	o	x
Shear Strength	o	X	x	x	x	x	x	x	x	o	x	x	o	x	x	x	o	x

Legend:

- x Migration to Janus database completed
- o Data not acquired by ODP, or bad files or no data found

Completed = 230 = 94 %
Remaining = 15

Chemistry Data Migration

Start Date: April 2001
Current: April 2002
Target Completion Date: September 2003

Leg / Data	170	169	168	167	166	165	164	163	162	161	160	159	158	157	156	155	154	153	152	151	150	149	148	147	146	145
Carbonates	x	x	x	x	x	x	x	o	x	x	x	x	x	x	x	x	x	o	x	x	x	x	x	x	x	x
Interstitial Water	x	x	x	x	x	x	x	o	x	x	x	x	x	x	x	x	x	o	x	x	x	x	o	o	x	x
Gases	x	x	x	x	x	x	x	o	x	x			o					o					o	o		
XRF	o	x	x	o	x	x	o	x	o	x	o	o	x	x	o	x	o	x	x	x	x	x	x	x	o	x
XRD													o										o		o	o

Leg / Data	144	143	142	141	140	139	138	137	136	135	134	133	132	131	130	129	128	127	126	125	124	123	122	121	120	119
Carbonates	x	x	o	x	o	x	x	o	o	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Interstitial Water	x	x	o	x	o	x	x	o	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Gases	o		o		o	o		o								x	x	x	x	x	x	x	x	x	x	
XRF	x	x	x	x	x	x	x	x	x	x	x	o	o	o	x	o	x	x	x	x	x	x	o	x	x	x
XRD		o	o	o	o		1																			

Leg / Data	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101
Carbonates	x	x	x	x	x	x	x	x	x	o	x	x	o	x	x	x	o	x
Interstitial Water	o	x	x	x	x	x	x	x	x	o	x	x	o	x	x	x	o	x
Gases	o							o		o			o			o	o	
XRF	x		x	x	x	x	o	x	o	x	o	o	x	o	o	o	o	o
XRD																		1

Legend:

x Migration to Janus database completed.

o Data not acquired by ODP or bad files.

1 Data in unreadable pro-350 format.

Completed = 185 = 75 %
Remaining = 61

Paleontology Data Migration

Start Date: December 2001
Current: April 2002
Target Completion Date: **

Leg / Data	170	169	168	167	166	165	164	163	162	161	160	159	158	157	156	155	154	153	152	151	150	149	148	147	146	145
Sample investigation	x	x	o		o		o	o	o	o	o	o	o	x							x		o	o		
Range charts	x	x	o		o	o	o	o	o	o	o	o	o	x							x		o	o		
Datum depths	x	o					o	o					o										o	o		
Age model		o					o	o					o							x	x		o	o		

Leg / Data	144	143	142	141	140	139	138	137	136	135	134	133	132	131	130	129	128	127	126	125	124	123	122	121	120	119
Sample investigation			o		o			o																		
Range charts			o		o			o															x			
Datum depths			o		o			o																		
Age model			o		o			o																		

Leg / Data	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101
Sample investigation										o			o	x			o	
Range charts	o									o			o	x			o	o
Datum depths	o									o			o				o	
Age model										o			o	x			o	

Legend: x Migration to Janus database completed
o Data not acquired by ODP, or bad files or no data found

Completed = 15 = 6 %
Remaining = 224

** About 10 legs of Paleontology data will get migrated per year with current staffing

Miscellaneous Data Migration

Start Date: March 2001
Current: April 2002
Target Completion Date: September 2004

Leg / Data	170	169	168	167	166	165	164	163	162	161	160	159	158	157	156	155	154	153	152	151	150	149	148	147	146	145
Paleomag																										
Downhole temp	x	X	x	x	x		x		x	x	x			x												
Splicer				x																						
mcd				x					x	x	x						x									

Leg / Data	144	143	142	141	140	139	138	137	136	135	134	133	132	131	130	129	128	127	126	125	124	123	122	121	120	119
Paleomag			o		o																					
Downhole temp																										
Splicer																										
mcd																										

Leg / Data	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101
Paleomag																	o	
Downhole temp																		
Splicer																		
mcd		X																

Legend: x Migration to Janus database completed
o Data not acquired by ODP, or bad files or no data found

Completed = 17 = 6 %
Remaining = 260

ODP Data Archive at NGDC

The National Geophysical Data Center (NGDC) is the designated organization responsible for the archiving of the ODP digital data. After several meetings JOI, ODP/TAMU and NGDC have defined a model for how the ODP digital data will be archived. The model calls for extracting data from the Janus database using the pre-defined Janus web queries and saving the data as ASCII text files. Along with the ASCII text data files, ODP will produce a data flowchart for each data type, meta data files, and calibration files. These files will provide a guide or "roadmap" to aid in the effective us of the ASCII text files.

Mirror Sites

Web Mirror Sites. Web mirror sites that contain all the e-publication products of ODP continue to operate successfully in Australia, the Federal Republic of Germany, and the United Kingdom. However, the United Kingdom mirror site has filled the available assigned disk drive and at a minimum requires more disk capacity. None of these sites mirror the Janus database. The sites are updated at the end of each week and are listed below.

Australian mirror site: http://www.agso.gov.au/odp (Australian Geological Survey Organisation)

Federal Republic of Germany mirror site: http://odp.pangaea.de/ (Institute for Marine Environmental Sciences [MARUM] and Alfred Wegener Institute for Polar and Marine Research [AWI])

United Kingdom's mirror site: http://owen.nhm.ac.uk/odp/ (The Natural History Museum, London)

Publication Services

Volume Production

The *Proceedings of the Ocean Drilling Program* volumes are produced electronically and distributed in three formats. A printed booklet (containing the table of contents to the entire volume and a summary chapter) is accompanied by a CD-ROM that contains all volume chapters and core description information (*Initial Reports* only) in PDF format and selected tabular material in ASCII format. The volumes are also published on the ODP/TAMU Web site. Chapter material is presented in both HTML and PDF formats, core description information (*Initial Reports* only) in PDF format, and selected tabular material in ASCII format.

The *Initial Reports* volume booklet/CD-ROM package and the Web publication formats are distributed approximately one year postcruise. For the *Scientific Results* volumes, papers are published individually on the Web in order of acceptance. The booklet/CD-ROM package is produced and distributed after completion of the leg synthesis paper, which is produced by the Co-chiefs, and is scheduled to be distributed four-years postcruise.

Initial Reports

From November 2001 through April 2002:

The following booklet/CD-ROM sets were distributed: 192 (November 2001); 193 (January 2002); 194 (March 2002).

The following volumes were made available online: 192 (November 2001); 193 (February 2002); 194 (March 2002); 196 (April 2002).

From May 2002 through October 2002:

The following booklet/CD-ROM sets are expected to be distributed: 195 (July 2002); 196 (May 2002); 197 (August 2002); 198 (October 2002).

These volumes are also expected to be available online in HTML and PDF format during the same time period.

Scientific Results

From November 2001 through April 2002:

Publication of online volumes began for volumes: 179 (March 2002); 181 (January 2002); 182 (January 2002).

The following booklet/CD-ROM set was distributed: 175 (March 2002).

From May 2002 through October 2002:

Publication of chapters online is expected to begin for volumes: 183, 184, 185, and 186. Chapters from other volumes will be published when manuscripts have been accepted and processed for publication.

The following booklet/CD-ROM set is expected to be distributed: 180 (August).

Publication of the booklet/CD-ROM sets for *Scientific Results* volumes 171A, 176, 177, 178, 179, and 181 are delayed because the leg synthesis papers were not received by submission deadlines.

ODP/TAMU Web Site

Overall Site User Statistics:

The number of site visitors (defined as single computers accessing the site that did not originate from ODP/TAMU) and the number of pages (or files) accessed at the ODP/TAMU Web site increased by 40% and 68%, respectively, between the 12-month periods ending in April 2001 and April 2002. In the 12-month period ending in April 2002, there were 691,541 visitor sessions, or 57,628 visitors per month (see Table 1; all tables appear at the end of this section). Statistics for the German mirror site are listed in Table 2. At this time there are still no user data available from the mirror sites in Australia and the United Kingdom.

ODP *Proceedings* Online Publication Statistics:

As of 30 April 2002, 35 *Initial Reports* volumes and 32 *Scientific Results* volumes were published in HTML and PDF formats on the ODP/TAMU Web site. Tables 3 and 4 show user statistics for the period of January 2001 through April 2002 for the *Initial Reports* and *Scientific Results*, respectively. Figure 1 (all figures appear at the end of this section) shows the total number of user sessions for each online volume for the period of January 2000 through April 2002.

A total of 48,145 unique users accessed the *Proceedings* online volumes between January 2001 and April 2002 (see Tables 3 and 4). From the calendar year 2000 to 2001, access to the volumes increased by 78%. And, access rates have continued to rise to higher even levels during the first

four months of 2002. *Initial Reports* volumes were accessed during 40% of the user sessions and *Scientific Results* volumes during 60% of the sessions.

A total of 18,989 unique users accessed the *Initial Reports* online volumes between January 2001 and April 2002, or an average of 1,187 users per month (see Table 3). An average of 37 unique users accessed each volume per month for the period of January 2000 through April 2002. This user rate has remained stable as more volumes are published online.

A total of 29,156 unique users accessed the *Scientific Results* online volumes between January 2001 and April 2002, or an average of 1,822 users per month (see Table 4). An average of 66 unique users accessed each volume per month for the period of January 2000 through April 2002. Unlike the *Initial Reports* volumes, the user rate for online *Scientific Results* volumes has increased over time. Although the *Scientific Results* volumes have historically been touted as gray literature, these data illustrate the value in this free online peer-reviewed publication venue that is accessible to researchers around the world.

The number of individual users of the *Proceedings* volumes continues to rise on the ODP/TAMU Web site. On average, 50% to 60% of the users who access the *Proceedings* volumes from this site are from the United States. In April 2002, countries with 1% or more site visits included United States, United Kingdom (6.9%), Germany (6.4%), Japan (6.1%), Australia (4.3%), Canada (3.8%), France (3.1%), Italy (3.0%), People's Republic of China (1.9%), Spain (1.7%), The Netherlands (1.4%), and the European Union (1.1%).
Users representing all member countries except Iceland have accessed the online *Proceedings* volumes within the last six months. In addition, users from 65 other nations have used the online volumes during this period. Examination of the top 75 nations and the top 50 institutions accessing the online *Proceedings* volumes illustrates that the use of these publications is broader than the constituency of the ODP membership and extends worldwide.

Leg-Related Postcruise Publications

Since Leg 160, when the publication policy changed and scientific party members were allowed to publish their postcruise research results in either books and journals or the *Scientific Results* volumes, it has been important to track the number of papers projected and published in the different venues. Table 5 reflects the number of ODP-related papers that are projected for, submitted to, in press, or published in *Scientific Results* volumes and books/journals for Legs 160 through 193. Projected statistics are generated at the time of the second postcruise meeting. The other data on book/journal publications are based on the information ODP receives from the scientific participants from each leg. (There is no guarantee the counts are complete.) For Legs 160 through 193, 462 papers (or 57% of all published papers tracked) have been published in the *Scientific Results* volume and 355 papers (or 43% of all published papers tracked) have been published in books and journals.

Figure 2 shows the total number of submitted, in press, and published papers per leg. For Legs 101 through 159, only *Scientific Results* papers were tracked. Beginning with Leg 160, papers published in books and journals were also tracked. All legs through 178 have passed the four-years postcruise mark. Legs through 186 have passed the 28-months postcruise mark, which is the date when all *Scientific Results*, journal, and book submissions are due (187 deadline = 13 May 2002).

The average number of publications per leg has remained relatively constant since the beginning of ODP. However, the range of time over which postcruise research papers are published has expanded since the Publication Services Department began tracking papers published per month with Leg 169 (the first *Scientific Results* volume published in the electronic format). The Publication Services Appendix graphs the publication history relating to Legs 169 through 186. Each graph illustrates the breakdown of papers by *Scientific Results* and book/journal categories. 340 papers have been published related to Legs 169 through 186. 8% (28 papers) were published by 28-months postcruise, 67% (226 papers) were published between 29-months and four-years postcruise, and 25% (86 papers) were published later than four-years postcruise. All of the publications that were published by 28-months postcruise were in journals or books (this equates to an average of 2 papers per leg). Thus, while a few scientific participants are taking advantage of the policy revisions that allow authors to publish papers shortly after the moratorium has ended, a growing number of publications are now received past the four-year postcruise deadline.

Leg-related Citation Lists:
Authors from Leg 160 and beyond have been required to provide ODP/TAMU with copies of all citations from papers published in books or journals during the first 48 months postcruise. ODP/TAMU posts these citations on the ODP Publications Web site: http://www-odp.tamu.edu/publications, click on "Leg-Related Citations".

The Publication Services Department began collecting leg-related citations in January 1999. The citation lists now include 631 citations, of which 505 are submitted, in press, or published papers and 126 are conference abstracts. Of the 505 papers, 197 have abstracts reproduced on the ODP/TAMU web site. (ODP requests abstract reprint permission from all publishers, but only receives it 39% of the time.) The numbers of citations listed per leg depend on whether authors notify ODP once their papers have been accepted for publication; whereas, the availability of abstracts depends on whether publishers permit their reproduction.

We know the leg citation lists are not complete despite efforts by the Publication Services staff and the Staff Scientists to remind scientific party members of their publication obligations. The success of the leg-related citation lists is dependent upon authors submitting all published citations and a reprint of each publication to ODP, as outlined in the ODP Policy.

ODP Proceedings Distribution

The Department has sold DSDP and ODP volumes for a cumulative revenue of $9,569.38 between November 2001 and April 2002. This revenue supports a portion of the cost budgeted for the printing and distribution of new volumes. 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 (institutions pay shipping costs). Between November 2001 and April 2002, two institutions (University of Sierra, Italy, and Max-Planck Institute, Germany) were sent 325 ODP and 111 DSDP volumes. Total value for the books in these shipments equals $22,099.

DSDP and ODP Citation Database

The Citation Database, which contains more than 18,000 ODP- and DSDP-related citations, has been produced by the American Geological Institute (AGI). ODP/TAMU receives a CD-ROM annually that is used to generate citation reports and statistics for the program. In addition to this report, Publication Services also provides statistics for member country offices and individual authors who request citation data. This database is also being developed in a Web-based format that is updated on a weekly basis from the GeoRef database. ODP/TAMU is conducting a final review of the online database and expects to release the product in 2002. Users will be able to access the database via the Internet and also download data into common bibliographic software.

Overview of the Database:
AGI indexes and records citations from approximately 3000 foreign and domestic publications, as well as citations from books, other citation databases, and publications arising from meetings. To create the "Citations from Deep Sea Drilling Project and Ocean Drilling Program Research" database (or DSDP/ODP citation database), AGI used a series of key words to extract a subset of citations related to DSDP and ODP research from the AGI GeoRef database. In late 2000, ODP set up a draft of the database on the Web and asked the ODP scientific community to review the database contents and provide any ODP-related citations that were missing. These were added to the AGI as of the end of 2001.

As of 28 February 2002, the database contained 18,367 records. These can be divided into "program proceedings" and "nonproceedings" citations (42% and 58%, respectively). See "Database Parameters" for the definition of "program proceedings." The bulk of this summary focuses on the "nonproceedings" citations in the database through 2001.

Database Parameters:

- AGI indexes and records citations from approximately 3000 foreign and domestic publications, in addition to books and publications arising from meetings. AGI also obtains citation information from international data-exchange partners in Canada, China, the Czech Republic, Finland, France, Germany, Hungary, Italy, the Netherlands, New Zealand, Poland, Russia, and Spain. There is no guarantee that this covers all publication venues for ODP or DSDP research, but scientific publications throughout the world are represented.
- There is often a time lag between the date new papers are published and the date they are input into the GeoRef database. The length of the time lag varies depending on the source from which AGI gets its information. As a result, the DSDP/ODP citations database does not contain a complete listing of citations from 2001. It is possible that some citations are still pending from 2000 as well.
- The "program proceedings" citations include publications produced and published directly by DSDP or ODP. This includes *ODP Proceedings* and *DSDP Initial Reports* series publications, as well as Scientific Prospectus, Preliminary Report, and Technical Note publications. It does not include other Program publications, such as the *JOIDES Journal.*
- Most of the information presented in this report is based on author affiliation (institution and country of contributing authors). AGI did not begin recording author affiliation information until 1975, so this information is absent from many records. Affiliation is also absent from some records simply because there are many publication venues that do not require an author to supply such information. In addition, some authorships, such as "Shipboard Scientific Party,"

cannot be given author affiliations because the "author" is a group of individuals from a variety of countries. A small percentage of the citations in this database do not have "author affiliation" data. The majority of these records are "nonproceedings" citations. AGI has no plans to update these records in their master database except when ODP/TAMU supplies AGI with the information to complete those data fields. Although 1,915 records of the citations in the ODP/DSDP citation database do not contain country affiliation information, this database represents the best and most accurate record available of the science produced in the scientific literature.

- Since this database contains citations for meeting abstracts and proceedings, a single citation may indicate where a paper/abstract was presented as well as where it was published after the meeting. So, a single record may represent "double" dissemination into the scientific community.

Author Information:
Authors from 78 countries have contributed to DSDP and ODP "nonproceedings" publications (see Table 6). Scientists from countries that have been members of either DSDP or ODP authored 8,471 "non-proceedings" publications (see Table 7). Most of these "nonproceedings" publications were published by first authors from the United States (58%). See "Publication Categories" for breakdown by publication type.
The "nonproceedings" publications are sorted into three major categories: serial publications, professional meeting publications, and miscellaneous publications. Serial publications include periodic journals, special publications produced as part of a series, and serial publications produced by governments, organizations, and/or institutions. Professional meeting publications include the initial publications of abstracts and/or proceedings for these meetings. This does not include papers, abstracts, and/or proceedings subsequently published in journals or other special publications. Miscellaneous publications include books, maps, etc.

Citation Distribution in Geoscience Publications:
ODP- and DSDP-related science has appeared in 778 serial publications. Many of these citations represent abstracts of papers that were given at professional meetings. See Table 8 for a list of the serial publications with 35 or more program-related citations. A complete list of serial publications is available upon request.

Figure 3 displays the number of "nonproceedings" citations accounted for in the DSDP/ODP citations database vs. the total number of citations from ODP and DSDP. "Proceedings" citations include *DSDP Initial Reports* and *ODP Proceedings* volumes, as well as the ODP Technical Notes, Scientific Prospectus, and Preliminary Reports series.

Table 1. Web User Statistics for ODP/TAMU Main Entry Points*

	May 01	Jun 01	Jul 01	Aug 01	Sep 01	Oct 01	Nov 01	Dec 01	Jan 02	Feb 02	Mar 02	Apr 02	TOTAL
Total for ODP/TAMU site	**43,989**	**50,371**	**55,994**	**57,756**	**52,000**	**55,628**	**64,120**	**57,753**	**47,057**	**68,115**	**72,528**	**66,230**	**691,541**
Totals for specific pages:													
ODP/TAMU home page	8,926	8,921	8,005	8,667	20,011	10,690	9,210	7,244	7,393	8,820	8,660	9,087	115,634
Publication Services†	1,752	1,761	1,816	1,857	1,723	2,008	2,223	1,589	1,624	1,963	2,086	2,209	22,611
Cruise Information	1,112	1,082	1,186	1,213	1,494	1,632	1,566	1,169	1,328	1,549	1,425	1,639	16,395
Janus Database	1,187	1,156	1,145	1,169	1,265	1,369	1,618	1,456	1,245	1,488	1,580	1,657	16,335
Operations Schedule	708	761	626	774	908	899	901	722	1,090	910	847	882	10,028
Science & Curation	582	551	485	552	614	657	685	520	539	616	643	665	7,109
Cruise Participation	398	332	280	324	377	405	396	328	373	460	449	454	4,576
Site Maps	444	452	423	487	589	594	650	455	450	565	625	670	6,404
JOIDES Resolution drill ship	466	408	444	536	629	624	588	460	493	660	576	589	6,473
Search	873	740	789	824	777	961	1,076	770	810	952	962	993	10,527
Drilling Services	767	586	583	651	815	892	970	717	716	919	905	901	9,422
Sample request form	302	315	254	299	323	324	377	250	319	346	334	421	3,864
Staff Directory	429	495	489	478	489	595	581	424	483	527	546	564	6,100
ODP/TAMU positions	354	436	516	569	339	372	383	374	312	518	745	1,138	6,056
Life onboard *JOIDES Res.*	609	487	612	675	929	815	926	673	672	883	823	886	8,990
Leg 199 photos							1,003	935	237				2,175
Leg 200 photos								387	1,129	702	270		2,488
Leg 201 photos										929	1,364	775	3,068
Leg 202 photos												705	705

Notes: * = numbers represent unique-computer sessions that originate outside ODP/TAMU; each session may result in multiple page views and/or database requests; mirror sites are not included. † = see "Volume Production" section for statistics on unique-computer sessions for each volume.

Table 2. Web User Statistics for German Mirror Site.

	May 01	Jun 01	Jul 01	Aug 01	Sep 01	Oct 01	Nov 01	Dec 01	Jan 02	Feb 02	Mar 02	Apr 02	TOTAL
German mirror site	282	524	787	1,000	1,367	1,865	2,633	2,853	2,895	3,591	1,821	3,045	**22,663**

Note: * = German mirror site went online in Jun 2000. No data are available for mirror sites in Australia and the United Kingdom.

Table 3. 2001–2002 *Initial Reports* Web Publication User Statistics.*

Vol	Jan 01	Feb 01	Mar 01	Apr 01	May 01	Jun 01	Jul 01	Aug 01	Sep 01	Oct 01	Nov 01	Dec 01	Jan 02	Feb 02	Mar 02	Apr 02	Total	Date of Web Publication
166†	39	38	48	44	46	44	43	34	50	55	90	45	49	57	42	43	**767**	1 Oct 1997
167†	30	30	37	32	36	38	56	76	49	36	49	27	42	41	40	49	**668**	13 Feb 1998
168†	21	34	18	20	31	47	36	48	37	36	27	29	24	24	26	28	**486**	23 Feb 1998
169†	30	38	25	27	31	47	44	53	73	59	27	31	30	38	28	27	**608**	17 Apr 1998
169S†	18	21	14	13	17	21	25	35	30	26	28	17	21	20	12	16	**334**	10 Apr 1998
170†	27	31	18	25	20	41	39	44	31	37	51	24	38	35	46	44	**551**	24 Apr 1998
171A†	25	24	17	28	24	33	22	41	28	31	23	25	23	29	22	22	**417**	26 Jun 1998
171B†	36	36	25	14	20	34	53	31	36	26	23	23	36	44	39	26	**502**	26 Jun 1998
172†	22	41	28	17	27	51	30	48	44	40	26	30	36	48	42	27	**557**	31 Jul 1998
173†	23	32	18	19	25	34	33	50	36	31	35	36	33	36	24	32	**497**	4 Sep 1998
174A†	26	28	33	40	31	41	32	58	45	39	29	29	28	33	36	35	**563**	31 Dec 1998
174B†	17	25	13	18	11	25	30	38	25	15	21	17	23	25	20	20	**343**	31 Dec 1998
174AX†	17	15	10	11	18	13	24	37	28	27	23	19	20	22	13	26	**323**	31 Dec 1998
174AXS	14	14	15	28	24	29	24	29	23	26	26	16	19	18	15	23	**343**	28 Dec 1998
175†	44	45	34	32	52	53	66	67	28	42	38	37	44	63	46	51	**742**	9 Feb 1999
176**	25	21	20	13	20	21	31	44	15	32	16	15	14	23	19	34	**363**	30 Jun 1999
177**	27	33	35	22	66	67	72	54	76	53	43	40	23	41	45	44	**741**	28 May 1999
178**	39	36	47	23	28	64	59	95	38	77	43	41	29	55	55	71	**800**	31 Aug 1999
179**	20	18	19	39	60	69	64	66	47	60	58	53	38	61	37	33	**742**	23 Jul 1999
180**	35	41	38	28	40	56	70	46	29	36	38	21	32	51	61	53	**675**	4 Feb 2000
181**	30	21	21	17	30	44	64	41	18	42	28	36	28	39	36	45	**540**	12 May 2000
182**	29	32	13	26	24	35	46	74	36	56	26	25	24	25	23	38	**532**	26 May 2000
183**	35	31	26	23	51	35	60	61	35	37	24	22	29	36	46	62	**613**	9 Jun 2000
184**	29	27	32	37	51	98	74	56	44	101	39	33	35	48	35	46	**785**	12 Jun 2000
185**	33	42	42	46	45	73	54	56	60	60	51	31	36	64	41	75	**809**	19 Sep 2000
186**	33	43	24	47	62	53	63	55	37	28	38	32	36	38	21	33	**643**	28 Jul 2000
187**	58	60	30	25	24	32	24	29	20	15	23	16	17	26	27	31	**457**	9 Jan 2001
188**			88	97	56	47	55	58	35	53	38	25	25	43	35	42	**697**	5 Mar 2001
189**					145	125	98	85	66	71	50	39	47	72	67	71	**936**	2 May 2001
190**						46	88	94	152	106	89	33	56	84	59	88	**895**	29 Jun 2001
191**									92	81	41	18	20	24	27	32	**335**	3 Sep 2001
192**										14		61	61	44	46	37	**263**	16 Oct 2001
193**														107	77	47	**249**	12 Feb 2002
194**															36	143	**201**	28 Mar 2002
196**																52	**52**	30 Apr 2002
Month Total:	782	857	788	811	1,115	1,416	1,479	1,603	1,363	1,448	1,161	946	1,016	1,414	1,244	1,546	**18,989**	

Notes: See Figure 1 for total use per volume for January 2000-April 2002. * = numbers represent unique-computer sessions that originated outside ODP/TAMU to the entry page of a volume; each session may result in multiple page views. Hits to mirror sites are not included. † = volumes in PDF format. ** = volumes in PDF and HTML formats.

Table 4. 2001–2002. *Scientific Results* Web Publication User Statistics.*

Vol	Jan 01	Feb 01	Mar 01	Apr 01	May 01	Jun 01	Jul 01	Aug 01	Sep 01	Oct 01	Nov 01	Dec 01	Jan 02	Feb 02	Mar 02	Apr 02	Total	Date of Web Publication
150X	61	49	85	59	43	76	76	84	48	122	69	45	61	67	83	70	**1,098**	7 Aug 1998
152	92	70	77	66	98	140	69	106	52	74	87	61	43	66	73	67	**1,241**	8 Jul 1998
154	58	74	78	72	92	84	105	98	42	106	74	60	69	90	79	70	**1,251**	1 Oct 1997
155	81	104	88	104	80	90	72	86	59	88	84	62	65	71	74	76	**1,284**	15 May 1998
156	59	50	76	74	55	63	81	62	66	80	42	45	47	65	63	66	**994**	21 Aug 1998
157	94	69	92	69	75	65	107	95	65	73	65	46	57	69	73	75	**1,189**	14 Aug 1998
158	51	56	73	45	54	51	61	80	41	54	53	48	67	72	57	60	**923**	15 May 1998
159	63	75	95	49	59	65	66	76	45	70	70	59	67	81	55	75	**1,070**	31 Dec 1998
159T	40	22	39	18	30	35	50	56	29	41	33	32	40	32	38	37	**572**	31 Dec 1998
160	159	157	125	106	120	140	126	115	186	177	124	110	129	174	180	107	**2,235**	9 Nov 1998
161	79	86	85	92	103	71	101	134	71	77	62	58	66	93	87	86	**1,351**	19 Mar 1999
162	51	29	47	26	57	56	60	46	36	44	62	32	23	40	38	37	**684**	20 Aug 1999
163	28	26	31	24	34	40	56	82	21	47	57	24	16	38	56	39	**619**	19 Sept 1999
164	56	38	53	53	76	97	216	97	66	81	67	35	49	70	88	105	**1,247**	19 May 2000
165	42	37	44	31	38	49	76	52	33	61	64	48	30	52	46	60	**763**	26 May 2000
166	26	29	29	42	43	44	63	47	38	74	35	28	20	46	34	27	**625**	29 May 2000
167	36	42	51	29	42	45	69	62	34	84	74	34	47	54	38	50	**791**	31 Jul 2000
168	31	27	34	24	30	27	48	38	21	44	35	25	37	55	38	31	**545**	4 Aug 2000
169	48	37	50	37	40	50	46	73	10	41	44	39	42	53	35	31	**676**	15 Apr 2000
169S	29	21	29	24	22	25	28	23	26	28	33	24	24	27	26	26	**415**	8 Aug 2000
170	46	32	35	27	35	31	48	63	68	69	49	32	24	49	52	35	**695**	20 Jun 2000
171A	44	33	44	20	37	28	26	40	28	29	28	24	20	33	40	31	**505**	2 Aug 2000
171B	44	60	46	49	55	77	63	63	41	44	44	38	46	43	41	40	**794**	4 Jul 2000
172	42	41	35	41	45	46	54	58	39	57	48	37	230	56	55	45	**929**	1 Sep 2000
173	42	33	39	40	71	46	40	82	57	55	63	32	42	40	37	43	**762**	2 Oct 2000
174A	28	25	28	29	32	32	27	41	41	56	31	18	24	27	40	32	**511**	29 Sep 2000
174B	32	29	27	25	39	29	30	38	19	38	30	21	24	31	34	23	**469**	5 Jan 2001
175	109	90	114	112	145	82	110	97	52	112	90	32	47	82	61	52	**1,387**	10 Jan 2001
176											45	17	33	40	38	55	**228**	18 Dec 2001
177						30	104	61	55	56	43	36	29	43	75	53	**585**	28 Jun 2001
178					72	118	144	111	75	146	93	73	44	95	72	106	**1,149**	29 May 2001
179											22	13	19	29	26	30	**139**	In press
180							101	140	78	78	72	36	43	72	86	56	**762**	16 Jul 2001
181											6	8	25	62	64	53	**218**	30 Jan 2002
182											64	52	64	88	107	75	**450**	29 Jan 2002
Month Total:	1,571	1,441	1,649	1,387	1,722	1,832	2,323	2,306	1,542	2,206	1,962	1,384	1,713	2,105	2,089	1,924	**29,156**	

Notes: See Figure 1 for total use per volume for January 2000-April 2002. * = numbers represent unique-computer sessions that originated outside ODP/TAMU to the entry page of a volume; each session may result in multiple page views. Hits to mirror sites are not included. Volume 169 and beyond = volumes published chapter by chapter in the order of acceptance in PDF and HTML formats; date indicates when first paper was published.

Table 5. ODP-related peer-reviewed papers projected, submitted, in press, and published in *Scientific Results* volumes vs. books or journals.

	SR Volume				Journal or Book			
Leg	**Projected***	**Submitted**	**In Press**	**Published**	**Projected***	**Submitted†**	**In Press†**	**Published†**
160	62			58	2		1	28
161	47			46	6	2	0	10
162	24			46	32	3	1	32
163	22			17	4	0	0	5
164	35			44	18	0	0	9
165	26			22	2	0	1	11
166	28			21	7	10	0	12
167	40			33	11	0	0	8
168	17			14	47	0	0	27
169S	0			1	28	0	0	25
169	14			10	29	0	1	13
170	6			7	15	0	0	12
171A	1			3	16	0	0	10
171B	15			11	43	1	2	44
172	8			12	36	8	1	4
173	8			12	19	0	0	26
174A	8		1	6	17	4	1	14
174B	1			2	5	0	0	1
175	14			24	24	0	0	18
176	17		9	5	20	0	0	8
177	7	7	3	5	44	23	0	3
178	8	2	5	32	44	2	0	6
179	15	2	2		8	1	0	1
180	15		4	22	25	1	0	6
181	21	1	6	4	25	9	0	2
182	13	6	5	5	37	3	1	5
183	15	5	10		25	17	0	3
184	23	18	1		34	11	12	1
185	9	9	2		29	2	0	3
186	19	17			11	1	0	0
187	4	0			15	0	0	1
188	16	15 Jul 02**			19	0	0	2
189	11	23 Sep 02**			50	1	0	3
190/196	May 02‡	18 Nov 02**				3	0	2
193	Fall 02‡	5 May 03**				1	0	0

Notes: * = estimated number of papers at second postcruise meeting. Submitted data = number of papers received (and in peer review) as of 30 April 2002. † = number of published papers ODP has received from authors or has identified in journals. ‡ = date of second postcruise meeting. ** = deadline when initial submissions are due (28 months postcruise).

Table 6. Number of "nonproceedings" publications contributed to by authors from each country.

Country	Number of publications	Country	Number of publications	Country	Number of publications
Argentina	28	Greece	9	Peru	2
Australia	261	Hungary	5	Philippines	4
Austria	18	Iceland	4	Poland	10
Barbados	2	India	91	Portugal	3
Belgium	47	Indonesia	2	Puerto Rico	7
Botswana	1	Ireland	3	Romania	1
Brazil	19	Israel	18	Saudi Arabia	1
Bulgaria	1	Italy	242	Senegal	1
Canada	658	Jamaica	6	Seychelles	1
Chile	6	Japan	577	Slovak Rep.	1
Chinese Taipei	11	Korea	14	Solomon Is.	2
Colombia	5	Lebanon	1	So. Africa	19
Costa Rica	3	Malaysia	1	Spain	65
Cuba	2	Malta	2	Sri Lanka	1
Cyprus	6	Mexico	43	Sweden	120
Czech Republic	3	Morocco	2	Switzerland	179
Denmark	71	Namibia	1	Tanzania	2
Dominican Rep.	1	Netherlands	177	Tonga	2
Ecuador	1	N. Caledonia	3	Trinidad/Tobago	2
Egypt	1	New Zealand	104	Tunisia	4
Estonia	1	Nigeria	4	Turkey	8
Fiji	1	Norway	180	Venezuela	2
Finland	9	Oman	3	UK	1,080
France	936	Pakistan	2	Un. Arab Em.	1
Fr. Polynesia	2	P. New Guinea	3	USA	5,628
Germany	1,008	PR China	71	USSR*	235

Notes: These figures only account for citations with author affiliation data (see "Database Parameters"). Numbers include serial publications, meetings, and miscellaneous publications (see "Publication Categories"). * = USSR includes USSR, Russian Federation, and Ukraine totals.

Table 7. Number of "nonproceedings" publications based on country affiliation of first author.

	Publication Type			
	Serial	Meeting	Misc.	**Total**
Australia	53	79	1	**133**
Belgium	3	8	0	**11**
Canada	153	251	2	**406**
PR China	26	7	0	**33**
Denmark	14	14	0	**28**
Finland	2	4	0	**6**
France	270	275	14	**559**
Germany	278	368	14	**660**
Greece*	3	4	0	**7**
Iceland	1	0	0	**1**
Ireland	2	1	0	**3**
Italy	56	50	1	**107**
Japan	217	133	27	**377**

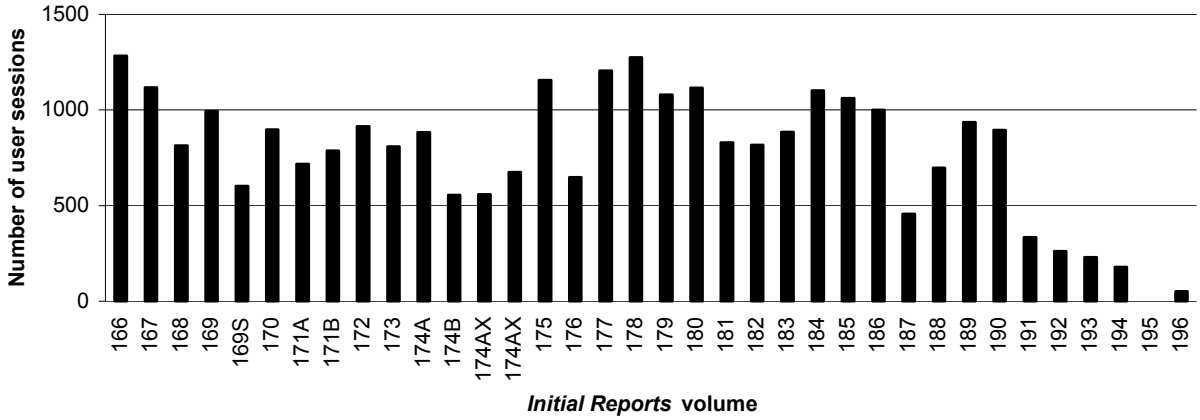
	Publication Type			
	Serial	Meeting	Misc.	**Total**
S. Korea	7	4	0	**11**
Netherlands	61	31	0	**92**
Norway	59	40	0	**99**
Portugal	1	1	0	**2**
Spain	20	12	0	**32**
Sweden	47	30	0	**77**
Switzerland	41	51	0	**92**
C. Taipei	5	2	0	**7**
Turkey*	2	1	0	**3**
UK	335	279	9	**623**
USA	2,017	2,810	103	**4,930**
USSR*, †	117	50	5	**172**
Total	**3,790**	**4,505**	**176**	**8,471**

Notes: Serial = serial publication; Meeting = meeting publication, Misc. = books, maps, etc. * = no longer member countries. † = USSR includes USSR, Russian Federation, and Ukraine totals.

Table 8. Serial publications with 35 or more DSDP- and ODP-related citations, 1969–2001.

Serial Title	Total
EOS	1,469
Abs/prog GSA	868
AAPG Bulletin	296
Earth & Planetary Sci Letters	248
J Geophysical Research	226
Nature (London)	221
Marine Geology	218
Geology (Boulder)	206
Geotimes	193
Intl Geological Congr, Abs (Congres Geolog Intl, Resumes)	159
Geol Soc Special Publ (London)	152
Paleoceanography	143
Terra Nostra (Bonn)	139
Marine Micropaleontology	138
Prog/Abs - Geol Assoc Canada; Mineral Assoc of Canada; Canadian Geophys Union, Joint Ann Mtg (GAC/MAC/CGU)	138
Palaeogeogr, Climatol, Ecology	116
Geochim et Cosmochim Acta	100
Science	98
Annual Mtg [Ext] Abs - AAPG/SEPM	83
GSA Bull	80
Terra Abstracts	78
Geophysical Research Letters	72
Micropaleontology	71
Comptes-Rendus Seances de l'Acad Sci, Ser 2: Mecanique-Physique, Chimie, Sci de l'Univers, Sci de la Terre (several vol title changes)	70
Bull Soc Geologique de France [Huitieme Ser.]	67
Chemical Geology	67
JOIDES Journal	59
AAPG Memoir	52
Prelim Rpt - Ocean Res Inst, Univ Tokyo	52
Organic Geochemistry	51
Palynology	49
USGS Open File Report	49
Geophysical Monograph	48
Maurice Ewing Series	47
J Conference Abs	45
J Foraminiferal Research	43
Spec Publ - Soc Econ Paleon Mineralogists (SEPM) [Soc Sedimentary Geol] [3 titles]	43
Sedimentary Geology	41
Canadian J Earth Sci - J Canadien des Sciences de la Terre	39
Spec Paper - GSA	36
Tectonophysics	36
Abs Geol Soc Australia	35
Trudy - Geol Inst, Akad Nauk SSSR	35

Figure 1. Number of user sessions per *Proceedings* volume (January 2000–April 2002).



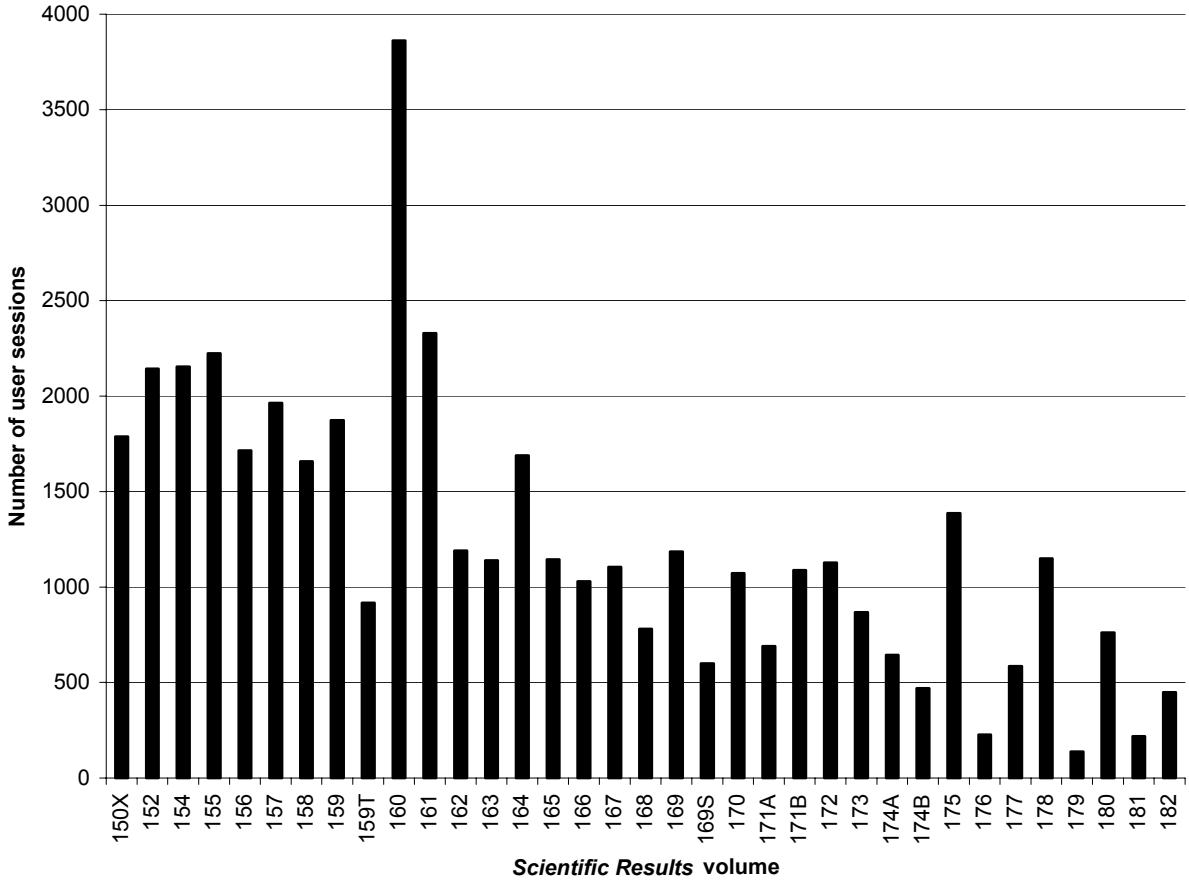
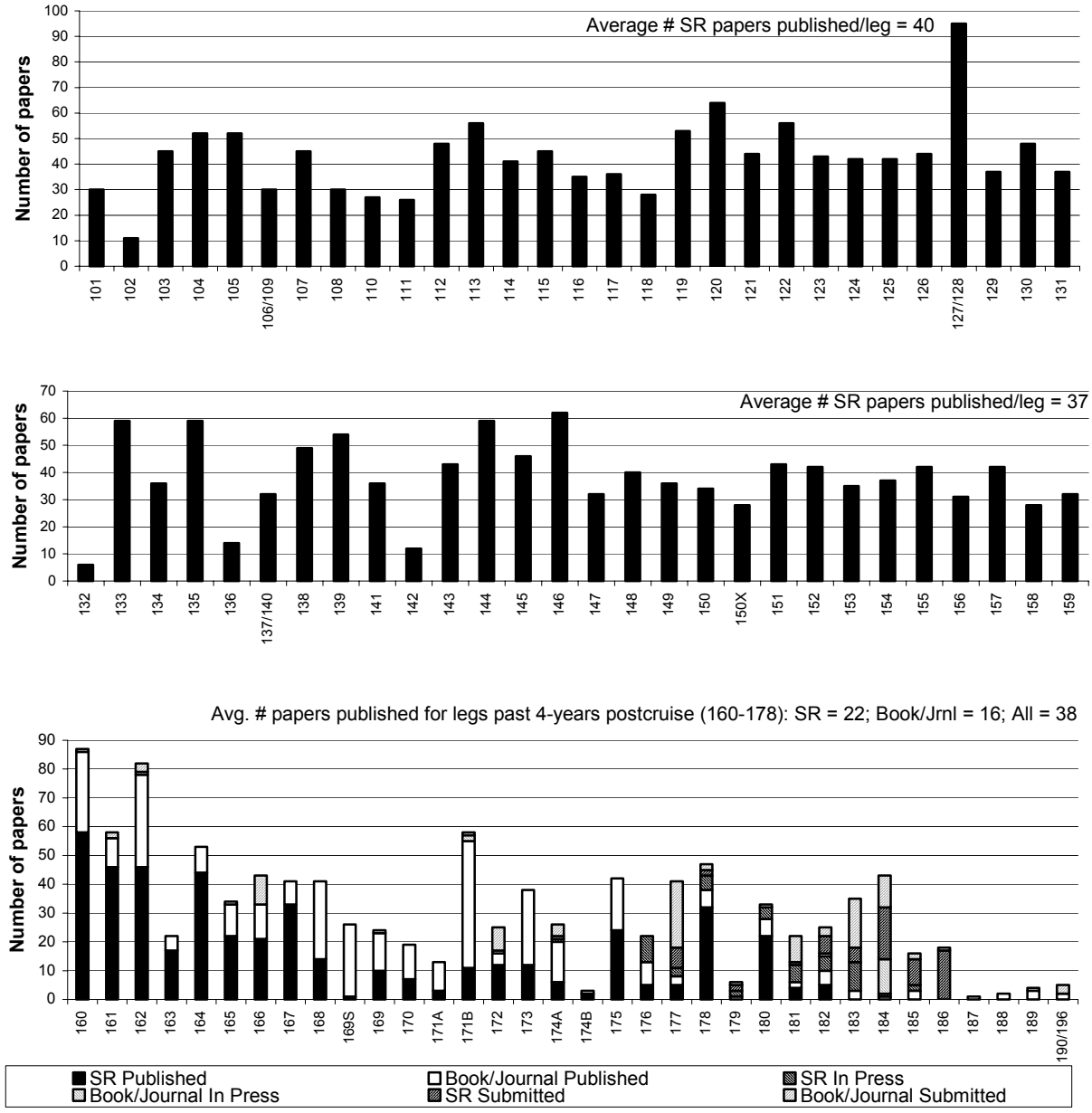
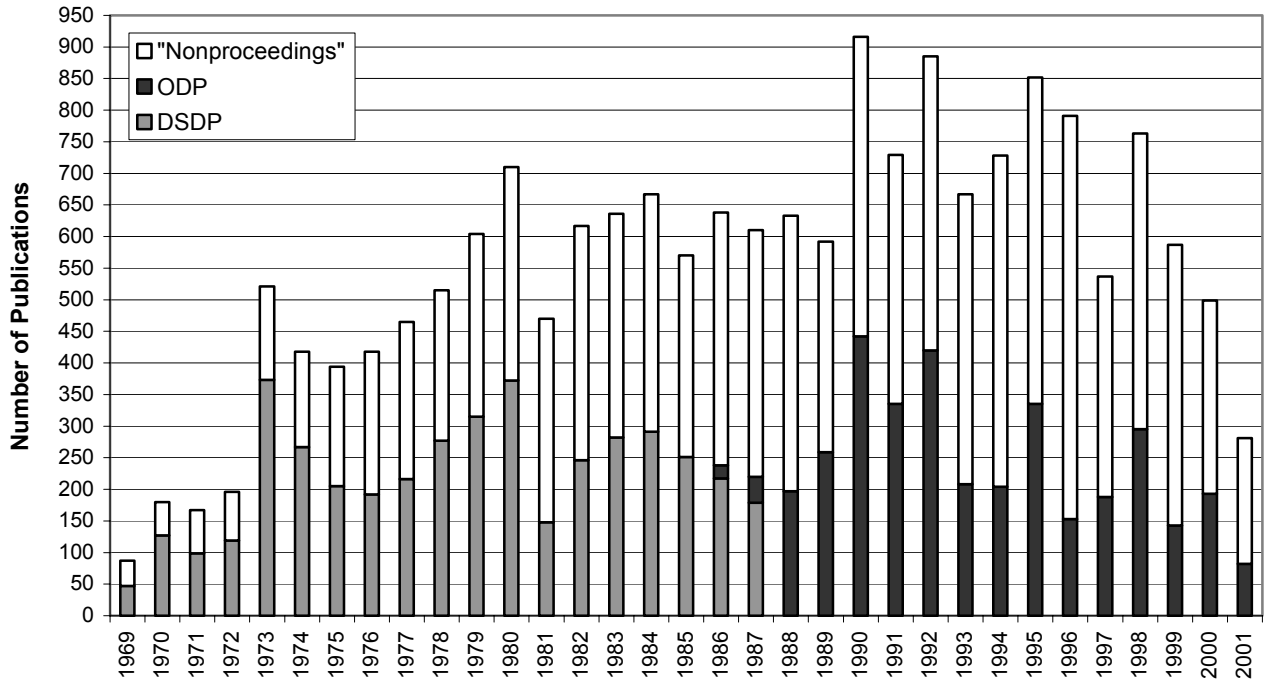


Figure 2. Number of published and in press papers on record per leg.



Note: Data on papers submitted, in press, or published in books/journals is provided by authors and may not be complete or up-to-date.

Figure 3. Number of "proceedings" and "nonproceedings" citations per year.



Public Information

Port Call Activities:
At the San Diego port call at the end of January we did not engage in extensive activities because a programmatic decision was made to target the next San Diego port call (Leg 204/205); September 2002) as a major event. We did, however, host five visitors from NASA's Extraterrestrial Life research group who were interested in familiarizing themselves with the ODP microbiological initiative. Dr. Steve D'Hondt, along with Steve Bohlen and Jeff Fox, gave the NASA visitors an extensive tour of the ship. A journalist from Nature joined this tour and he later filed a report in Nature about ODP and plans for IODP. In addition, Steve Bohlen and Jeff Fox gave a tour of the labstack and a review of ODP operations to visitors from NSF – Drs. Bruce Malfait and Jim Yoder from Ocean Sciences and Dr. Christine Boesz, the Inspector General for the NSF.

No port call activities for the public were carried out in Valparaiso (Leg 201/202), nor are any planned for Balboa (Leg 202/203).

Public Information Requests:
During the last six months, ODP/TAMU has responded to 34 requests for scientists, news media, television producers, universities, K-12 schools, government administrators and publishers. The material distributed includes: general PR packages, slide sets, B-roll footage, ODP video Planet in Motion, and the Cretaceous-Tertiary Impact Poster.

LDEO-BRG

Executive Summary

Leg 201 Peru Biosphere
Leg 201 was designed to sample the microbial biosphere of deep marine sediments and the ocean crust. The Triple Combo was run at all logged holes and was useful for fine scale core-log integration at all sites and completing the incomplete sedimentary column at Sites 1228 and 1229. The FMS/Sonic was added at Hole 1230A in order to use the velocity log and the FMS images to detect and characterize hydrate-bearing intervals. The log data delineate several intervals where gas hydrate may also have been present but not recovered in the core.

Leg 202 SE Paleoceanography
The objective of Leg 202 was to assess climate and oceanographic changes in the southeast Pacific in the Neogene. Three holes have been logged. Using the downhole log records as a depth reference, the core measurements were mapped to equivalent log depths (ELD) using Sagan in order to more precisely identify the size and position of core breaks. As a result, we are able to identify the cycles missing in core records, improving the prospects for developing an orbitally tuned age model.

Leg 203
The objective of this leg was to establish a borehole for a future International Ocean Network (ION) and Ocean Seismic Network (OSN) observatory. Triple combo, FMS-sonic, and WST (Well Seismic Tool) logs were run. The cement bond log indicated a good bond in the lowest 40 m of the hole, but only very poor bonding above that level, suggesting that the cement was lost into cavities and the generally porous formation. WST data acquired in the basement section fit very well with compressional wave velocities as inferred from the sonic log and the underway seismic profiling.

Leg 204
This leg is currently underway. It is designed to constrain models for the formation of gas hydrate and the underlying gas-charged sediments on the Hydrate Ridge, offshore Oregon. LWD operations have been conducted in eight holes to date. Data show excellent quality triple-combo logs as well as resistivity and density images. Gas hydrate occurrences correlate with high resistivity and RAB image anomalies, allowing quantitative estimates of hydrate saturation. Resistivity and density log variations below the hydrate zone may indicate lithologic changes and the presence of gas.

Drillstring Measurements System (DMS)
The DMS project consists of two collaboratively engineered devices – the Downhole Sensor Sub (DSS) and the core barrel Retrievable Memory Module (CB-RMM) – that interface downhole to provide near real-time engineering data. Phase I of this project is underway with the DSA-XM tool modifications. To date, the DSA has been fitted with non-volatile memory chips that can be removed from the DSA and placed in a reader attached to a desktop PC. Phase II (CB-RMM) will involve extending the DSA-XM to retrieve data from the DSS and is pending available funding.

Legacy Project
Fourteen legacy documents summarizing tools, tool strings, and software packages developed and employed by ODP Logging Services have been completed to date and several others are under development. In addition, user manuals and operations handbooks are being updated.

RAB Coring Project
This project is a joint effort among ODP Logging, Schlumberger, and TAMU to provide limited coring capabilities during RAB tool deployments. It is one component of the DOE Gas Hydrate program that was awarded to JOI for Leg 204 and other ODP activities. The tool was successfully tested in June; and the tool and core barrel were shipped to Victoria for deployment on Leg 204.

I. MANAGEMENT

The revised FY 03 budget was submitted to JOI. The FY 04-07 Phase-out plan was revised and submitted to JOI (for NSF's 3/1/02 deadline). A summary of LDEO phase-out activities was also prepared for the ODP Director at JOI.

Saneatsu Saito resigned his position as Chief Scientist in the ORI logging group to work full-time for JAMSTEC. He was replaced by Yasuyuki Nakamura effective April 1.

Ulysses Ninnemann resigned his position as Logging Scientist at BRG to accept a position in Norway. Ads have been placed for his replacement and applications will be accepted through August.

II. STANDARD LOGGING OPERATIONS

Leg 201 Peru Biosphere

Leg 201 was designed to sample the microbial biosphere of deep marine sediments and the ocean crust. Five holes were logged during Leg 201. Sites 1225 and 1226 in the Equatorial Pacific were aimed at open ocean locations composed mostly of biogenic sediments with low biological activity. Sites 1228 and 1229 on the Peru shelf consisted of primarily terrigenous sediments, extremely rich in organic material. Site 1230 was at the transition between the accreted sediments and the continental shelf. Its objective was to investigate the differences in the biologic community associated with the presence of gas hydrate. The Triple Combo was run at all five sites. The FMS/Sonic was added to the logging program at Hole 1230A in order to use the velocity log and the FMS images to better characterize the hydrate deposit in this location.

At Sites 1225 and 1226, core recovery was over 90%, and core measurements of density and porosity agree very well with logs, making possible fine scale core-log integration. Because of the low recovery below 100 mbsf at Sites 1228 and 1229, logs were crucial in completing the sedimentary column. At Site 1230, logs were instrumental in compensating for the low recovery in some sections, but were also of primary importance in detecting hydrate-bearing intervals. Gas hydrate was found in two cores, and its presence was inferred in three other cores. The resistivity and FMS logs and the velocity data delineate several additional intervals where gas hydrate may also have been present.

Leg 202 SE Paleoceanography

The objective of Leg 202 was to assess climate and oceanographic changes in the southeast Pacific in the Neogene. Three sites were logged. The lithology and physical property changes recorded in sediments at Sites 1238, 1239, and 1241 provide evidence for orbitally paced climate, upwelling, and paleoproductivity changes within the eastern reaches of the equatorial cold tongue throughout the last ~11 m.y. The downhole density and natural gamma ray logs match core measurements down to the sub-meter scale over the length of the holes at both sites. Using the downhole log records as a depth reference, the core measurements were mapped to equivalent log depths (ELD) using Sagan in order to more precisely identify the size and position of core breaks within the XCB section. Despite the high recovery, after mapping to the logs, the resulting gaps between cores (~1-3 m) are similar in scale to the dominant cycle length in the density and natural gamma-ray records.

As a result, we are able to identify the cycles missing in core records, improving the prospects for developing an orbitally tuned age model based on sediment physical properties.

Leg 203 Eq. Pacific Ion
The objective of this leg was to drill a single site in the equatorial Pacific to establish a borehole for a future International Ocean Network (ION) and Ocean Seismic Network (OSN) observatory. Triple combo, FMS-sonic, and WST (Well Seismic Tool) logs were run at Hole 1243B. The sediment-basement interface was clearly detected at 114.5 mbsf by most of the Triple Combo measurements. Porosity, density, and resistivity data showed the expected changes at this interface. Surprisingly, no abrupt transition from the sediment to the basement section could be determined from total gamma-ray log. FMS data clearly detected the sediment/basement interface, and confirmed a subsequent sediment interlayer, as detected by core lithology. Within the basement, the logs show high resistivity and low gamma ray down to approximately 140 mbsf. This corresponds to both the top of lithologic Unit 4, and the level at which drilling problems were first encountered. Below this depth, gamma ray values increase. It is clear from the logging results that there are significant differences between the upper 30 m of basement and the rocks below.

The inclination log of Hole 1243A shows that the hole is within 1 degree of vertical throughout its entire depth. The cement bond log indicated a good bond in the lowest 40 m of the hole, but only very poor bonding above that level, suggesting that the cement was lost into cavities and the generally porous formation. Poor hole conditions prevented running the WST successfully above the sediment/basement interface. Eight shot stations were run within the basement section. Each station comprised up to ten shots, thus providing the science party with a limited VSP survey. Data fit very well with compressional wave velocities as inferred from the Dipole Sonic Imager (DSI) and the underway seismic profiling.

Leg 204 Gas Hydrates
This leg is currently underway. It is designed to constrain models for the formation of gas hydrate and the underlying gas-charged sediments on the Hydrate Ridge, offshore Oregon. LWD operations have been conducted in eight holes to date (Holes 1244D, 1245A, 1247A, 1248A, 1249A, 1250A, and 1251A). Data show excellent quality triple-combo logs as well as resistivity and density images. Gas hydrate occurrences correlate with high resistivity and RAB image anomalies, allowing quantitative estimates of hydrate saturation. Resistivity and density log variations below the hydrate zone may indicate lithologic changes and the presence of gas. Nuclear Magnetic Resonance (NMR) log data are being transmitted to shore for processing to estimate bound fluid volume and total free fluid porosity. This leg marks the first ODP use of the NMR-LWD tool.

III. SPECIALTY TOOLS AND ENGINEERING DEVELOPMENTS

Active Heave Compensation/MWD Project
Discussions were held with Anadrill regarding deployment of measurement-while-drilling (MWD) tools during Leg 204. Results from this leg will provide data for further Active Heave Compensation evaluation.

Drillstring Acceleration Tool Project
The DSA was ruggedized for use with the Fugro FPC (HYACINTH). All modifications were completed in time for the Leg 201 deployments. A modified tool (DSA-XM) will be deployed during Leg 204 (see DMS below) with both HYACINTH and ODP core barrels. DSA-XM tool upgrade electronics and software were completed and bench tested. Tools were shipped to Victoria for deployment on Leg 204 with APC and several pressure core barrel deployments.

Drillstring Measurements System (DMS)
The Drillstring Measurement System (DMS) project consists of two collaboratively engineered devices – the Downhole Sensor Sub (DSS) and the core barrel Retrievable Memory Module (CB-RMM) – that interface downhole to exchange data and provide near real-time engineering data. The first phase of this project involves the modification of the DSA. The tool will be fitted with non-volatile memory that can be removed from the tool and placed in a reader attached to a desktop PC. The tool, renamed DSA-XM, will be deployed on Leg 204. The modifications will ensure that acquired data will be stored despite any potential loss of tool power. In addition, the memory configuration change will allow for much faster data transfer rates and thus increased tool turn-around time. To date, the DSA has been fitted with non-volatile memory chips that can be removed from the DSA and placed in a reader attached to a desktop PC. The budget for this first stage of development is $8,658. Phase II of this project (CB-RMM) will involve extending the DSA-XM to retrieve data from the DSS. The budget for the second stage of the project ($41,342) is pending available funding.

Legacy Project
Collection of digital and paper copies of drawings and schematics continued. Fourteen legacy documents summarizing tools, tool strings, and software packages developed and employed by ODP Logging Services have been completed to date and several others are under development. User manuals for the TAP and DSA tools are being updated, as well as the operations handbook for Logging Staff Scientists.

RAB Coring Project
This project is a joint effort among ODP Logging Services, Schlumberger, and Texas A&M to provide limited coring capabilities during RAB tool deployments. Recent advances in battery technology have provided an opportunity to reformat the internal design for an 8-inch RAB tool. By placing reduced size batteries in the drill collar wall, a small diameter core barrel can pass through the RAB, and thus allow limited coring while making geophysical logging measurements. Schlumberger is redesigning the RAB tool. TAMU is providing the MDCB coring apparatus. The effort is one component of the DOE Gas Hydrate program that was awarded to JOI (F. Rack) for Leg 204 and other ODP activities. The RAB LWD coring tool design was finalized with Anadrill and TAMU. Arrangements were made for testing June 15-21 at a Schlumberger site (Houston). The testing was successful and the tool and core barrel were shipped to Victoria for deployment on Leg 204.

High Resolution Depth Counter
The new depth counter was installed and tested on the drillship in San Diego during the Leg 201 port call. The system is working as designed and should improve the depth resolution of high-resolution logging tools, such as the Multisensor Gamma Tool (MGT).

HYACE/HYACINTH
The DSA was successfully run with the Fugro Pressure Core sampler (FPC) on each of the seven pressure core deployments during Leg 201. The data acquired by the DSA was initially processed by shipboard personnel and has since been delivered to Fugro engineers in the Netherlands for characterization of the FPC drilling performance. The DSA worked flawlessly with the FPC and the data will be used to improve the FPC design. The FPC and DSA will be deployed on Leg 204 and the results compared with those from Leg 201.

TAP Tool Replacement
Replacement TAP tools were manufactured and bench tested. The tools were shipped to Victoria for deployment on Leg 204.

IV. SHIPBOARD LOG ANALYSIS

CLIP (Splicer/Sagan)
ODP Logging Services personnel have successfully demonstrated the use of Splicer and Sagan over a Unix network using a Mac OS X workstation with an X-windows emulator. Instructions for running the software in this configuration are available on the CLIP web page (http://www.ldeo.columbia.edu/BRG/ODP/ODP/CLIP/clip.html). This will allow users who have access to a Unix network but do not have a Unix workstation, to make use of CLIP software from their desktop.

V. SHOREBASED LOG ANALYSIS

The following holes were processed and prepared for inclusion in the database:

ODP Conventional Date
Leg 201 - Holes 1225A, 1226B, 1228A, 1229A, 1230A
Leg 202 - Holes 1238A, 1239A, 1241B
Leg 203 – Hole 1234B

FMS Processing
Leg 199 – Holes 1218A, 1219A
Leg 200 – Hole 1224F
Leg 201 - Hole 1230A
Leg 202 - Holes 1238A, 1239A, 1241B
Leg 203 – Hole 1234B

Temperature Processing
Leg 195 – Hole 1201D
Leg 197 – Hole 1203A
Leg 199 – Hole 1219A

Training and Visitors
André Rousseau (Université Bordeaux – France) visited Aachen to discuss sonic logs in basement sections.

Milene Cormier (LDEO) received training at BRG in the use of IESX.

VI. DATABASE

The ODP Log Database has been updated through Leg 201 including Schlumberger original and processed data (conventional, geochemical, and FMS), specialty tools (borehole televiewer, multi-channel sonic, and temperature), borehole images, and sonic waveforms.

Historical Data Migration
An update on logging database legacy sent to Nick Pisias at JOI for Phase-out Plan. The digital image archival plan was clarified.

A backup tape of the online database sent to NGDC in May. It also included documentation about the data and a full listing of its contents. Updates are scheduled every six months.

Sonic waveforms from selected legs (Legs 104, 126, 130, 148 and 150 through 202) are now available online in binary format, along with related documentation. The legs available online have also been backed up on 4mm DAT tapes.

Archiving of all ODP original data started in May. Legs 176 to 194 have been completed.

Post Cruise Distribution of Log Data
The Leg 193-196 Data CDs have been completed and duplicated. The Leg 197 Data CD is currently in production

VII. PUBLICATIONS AND REPORTS

Gaillot, P. and Rea, B., Leg 199: Paleogene equatorial transect. Downhole Measurements, Leg 199 Initial Reports, ODP - TAMU, 2002.

Haggas, S. L., Brewer, T. S. and Harvey, P. K., Architecture of the volcanic layer from the Costa Rica Rift, constraints from core-log integration, Journal of Geophysical Research 107 (B1) 2002.

Einaudi, F., Ildefonse, B. and Pezard, P., Structure of a low-angle detachment plane in gabbroic basement (ODP Hole 1105A) from downhole measurements and FMS images, South West Indian Ridge Workshop, April 2002, Southampton.

Guerin, D. and Goldberg, D., 2002, Sonic attenuation in gas hydrate-bearing sediments, ICGH conference.

Guerin, D. and Goldberg, D., 2002, Elastic properties in the Mallik 2l_38 gas hydrate research well, Mackenzie Delta, NWT Canada, J Geophysical Res., May 15.

Ildefonse, B., Pezard, P., and Einaudi, F., Electrical properties of slow-spreading ridge gabbros, South West Indian Ridge Workshop, April 2002, Southampton.

Iturrino, G. and Goldberg, D., 2002, Drilling deviated holes in the Nankai accretionary prism, Nantroseize workshop (abstract), Boulder, Colorado.

Lauer-Leredde, C., Briqueu, L., & Williams, T., 2002. A Wavelet Analysis of Physical Properties Measured Downhole and on Core from Holes 1095B and 1096C (Antarctic Peninsula).). In Barker, P.F., Camerlenghi, A., Acton, G.D., and Ramsay, A.T.S. (Eds.), Proc. ODP, Sci. Results, 178. http://www-odp.tamu.edu/publications/178_SR/chap_32/chap_32.htm

Williams, T., Louvel, V., and Lauer-Leredde, C., 2002. Magnetic Polarity stratigraphy from downhole logs, West Antarctic Peninsula, ODP Leg 178. *Proc. ODP, Sci. Results*, 178: College Station, TX (Ocean Drilling Program). http://www-odp.tamu.edu/publications/178_SR/chap_31/chap_31.htm

Williams, T., Kroon, D., and Spezzaferri, S., 2002. Middle-Upper Miocene cyclostratigraphy of downhole logs and short to long term astronomical cycles in carbonate production of the Great Bahama Bank. Marine Geology 185 (2002) 75-93.

G. EXCOM Report

JOIDES EXECUTIVE COMMITTEE MEETING
Granada Spain 25 - 26 June 2002

EXCOM Consensus 02-2-1: EXCOM approves the meeting agenda.

EXCOM Motion 02-2-2: EXCOM approves the minutes of its January meeting in Santa Cruz.
Cannat moved, Silver seconded. 15 in favor, unanimous.

EXCOM Motion 02-2-3: EXCOM agrees that ECOD should retain full member status based on their 99.5% contribution together with their attempts to have other countries join their consortium.
Beiersdorf moved, Falvey seconded, 14 in favor, 1 abstention (Comas).

EXCOM Motion 02-2-4: EXCOM accepts the revised version (6/25/02) of the PEC VI Charge and Terms of Reference.
Falvey moved, Stoffa seconded, 15 in favor, unanimous.

EXCOM Motion 02-2-5: The JOIDES Executive Committee would like all ODP member countries to be full members of ODP. However, in view of the reduced contribution from Canada to the PACRIM consortium and along the lines suggested by EXCOM Motion 98-2-8 the EXCOM recommends that the consortium be given associate member status in FY 2003, with appropriate privileges as laid down by EXCOM in a previous motion, unless contribution is raised to the level contributed in FY2001.
Tauxe moved, Detrick seconded, 14 in favor, 1 abstention (Powell).

EXCOM Consensus 02-2-6: EXCOM congratulates TAMU, SCICOM and the shipboard scientists for the interesting discoveries and the excellent science and installation done on Legs 199 – 201 including the first dedicated drilling exploration of the deep ocean biosphere.

Consensus by the non - U.S. EXCOM Members 02-2-7: The non - U.S. members of EXCOM wish to express their sincere thanks to NSF for making provisions to maintain core repositories and data bases of ODP, and for their willingness to give the non - U.S. ODP communities full access to the cores and data after the termination of ODP.

EXCOM Consensus 02-2-8: EXCOM wishes to recognize and acknowledge with deep gratitude the very substantial and sustained contributions of Dr Helmut Beiersdorf to the Ocean Drilling Program. For almost 10 years since his first meeting in 1993, Helmut has generously offered his extensive scientific knowledge and keen insights to all EXCOM deliberations. His dignified leadership in ODP, and in the preparations for IODP, have added greatly to the progress of ocean drilling science. Friends and colleagues on EXCOM, and across the ocean sciences community will miss Helmut's commitment, energy and enthusiasm, but join together in offering sincere best wishes for the future.

EXCOM Consensus 02-2-9: The ambience of the JOIDES EXCOM meeting in Granada could not have been better. To have a meeting within a stone's throw of Alhambra and to have dinner with such a wonderful view will be hard to beat. Thank you Manuel, Menchu and Mary.

I. Service Panel Reports

TEDCOM

Draft of Minutes of the 30th TEDCOM Meeting
Embarcadero Centre, San Francisco, USA, 8th July 2002

TEDCOM Intimations to SCICOM

1. **Regarding the OPCOM Motion 01-02-06 agreeing to limited and specific Engineering Development field trials for short periods within scientific legs, subject to co-chief consultation and approval: TEDCOM note that such an opportunity for the ADCB may be possible on upcoming legs 206 and 209 and for the HRRS on Leg 209. The pre-cruise meetings should be utilised for consultation with co-Chiefs and TAMU on this.**

2. **This TEDCOM meeting is the last formal one to be held under ODP. The Panel will remain intact and available for consultation until the end of ODP. This will most likely be done using e-mail with the chairs of SCICOM and TEDCOM maintaining contact to effect this as required.**

Those present:
Members:

Hugh Elkins (USA)	Marvin Gearhart (USA)	Masanori Kyo (Japan)
Frank Schuh (USA)	Howard Shatto (USA)	Alister Skinner (UK, Chair)
Axel Sperber (Germany)		
Apologies from:		
Joe Castleberry (USA)	Carole Fleming (USA)	Earl Shanks (USA)
Sigmund Stokka (ESF)	Walter Svendsen (USA)	Brian Taylor (Pacrim)

Guests/Liaisons:

Bruce Ahrendsen (Fugro, standing in for Joe Castleberry)	Jamie Austin (iPC)
Keir Becker (SCICOM Chair)	John Farrell (JOI)
Eiichi Kikawa (SCIMP)	Kamata Masahiro (Schlumberger Japan)
Kate Moran (iTAP chair)	Brian Jonasson (ODP-TAMU)
Jeff Schuffert (iSAS Office)	Shinichi Takagawa (OD21)
Arai Yusei (JAPEX)	
Apologies from:	
Dave Goldberg (LDEO)	Greg Myers (LDEO) Ted Moore (iPC)

A draft Agenda was issued and adopted for the meeting excepting Item 7 (LDEO Activities) as no one was present from LDEO. The agenda is contained in **Annex 1**.

1. Opening Remarks:
Alister Skinner opened the meeting by welcoming everyone and outlining the timing for this meeting which would be immediately followed by a joint session with the new interim technical panel for IODP, iTAP. This meeting, which will be the last formal meeting planned for TEDCOM under ODP will close off business or hand ongoing items to iTAP.

Self-introduction of all present followed and contact details are contained in **Annex 1**.

2. Apologies for Absence
Alister Skinner intimated that he had received apologies from Members and Liaisons as shown above. Some members had to cancel at the last minutes due to commitments in their own work schedule and this further serves to emphasise that it can be difficult to service the panels.

3. Approval of Final Daft of 29th TEDCOM Minutes
The final draft minutes of the 29th TEDCOM Meeting held at BGS in Nottingham, UK were approved as mailed.

4. Report from JOI
John Farrell outlined the activities currently underway at JOI as the ODP programme winds down. They have prepared a phase-out plan for ODP, which will cover a period of five years commencing in FY03. The status of the funding for this plan will be known soon and it is anticipated that there will be no serious difficulties.
JOI will also be responding to NSF regarding the RFP for a non-riser vessel for IODP. There will be an internal competition between 16 academic institutions for the non-riser vessel management. Initial request for letters of interest will be followed by a 90-day response time for the call. It is anticipated that the RFP will be issued in October- November 2002.
Following this there will be a successor programme to support IODP infrastructure and the announcement of opportunity for this is anticipated to come from NSF in early 2003.

The financial support provided by JOI for Arctic Drilling Logistics evaluation under a contract with the Swedish Polar Secretariat will continue to completion of the current contract. JOI is also looking at ways to extend this assistance into an implementation phase in FY03, in conjunction with the European JEODI programme.

The current JOI/USSAC newsletter details the background to the US approach for IODP and more information can be gained from this.

Finally John stressed that the IWG of IODP need to be told that the Arctic Drilling is important and that endorsement and support from IODP for the operations to undertake Lomonosov Ridge Drilling is given as a matter of urgency.

5. Report from Spring SCICOM/OPCOM Meeting
Keir Becker remarked that there was not a lot of work to do at the spring meeting and that most panels were now in the winding-down phase. The table below shows the current panel status.
The TEDCOM recommendation that time be devoted to engineering aspects during a scientific leg was well received and would be reviewed on a case-by-case basis as suggested by them.

The TEDCOM concern regarding the demobilization of the JR on completion of ODP was also aired and noted for future discussions on this matter. Keir also stated that there was going to be a meeting on board the vessel during the Victoria Portcall to discuss possible use of the JR immediately after the completion of the ODP contract and possibly before any demobilization. The message to TEDCOM is that the concerns voiced were noted, options are being looked into and the ODP contract can be changed/altered if appropriate.

A replacement non-riser vessel for IODP will not be available before 2005. Brian Jonasson and Kate Moran both said that there is other ship capability available for the new programme. Little more will be known until an RFP is issued based on the work carried out by the Conceptual Design Committee which, Jamie Austin pointed out, itself highlighted a number of viable options for a new non-riser vessel, including an upgraded Joides Resolution. However the CDC only defined what the scientists wished. It is not, and was not intended to be, an RFP but the basis on which one would be modeled.

The ODP Tool Legacy documents are now on the web. It is not known at this stage whether hard copy is available. There is no information on the LDEO subset.

The phasing out of panel meetings will continue but the panels themselves will continue to exist until the end of ODP and will correspond/convene as necessary. It was not possible to hold the joint TEDCOM/SCIMP meeting planned.

PHASING OUT JOIDES PANEL MEETINGS, 2002-2003

PANEL	MEETINGS IN 2002	MEETINGS IN 2003
EXCOM	2 — Jan and June	1—July
SCICOM	2 — March and Aug	1-2? — March and Aug?
OPCOM	joint with SCICOM	joint with SCICOM
SSEPs	None — iSSEPs only	None
TEDCOM	1 — summer with iTAP	None
SCIMP	1 – June	None
PPSP	1 — June with iPPSP	None
SSP	None — iSSP only	None
PPG's/DPG's	None	None

6. Report on Activities at ODP-TAMU and Shipboard

Brian Jonasson summarized the ODP Tamu Shipboard activities and his PowerPoint presentation is included as Annex 2. All of the legs were very successful.

There were the usual problems with chert on Leg 199, Leg 200 was beset by very bad weather, Leg 201 ran the PCS 17 times and the FPC 6 times, both had some success.

Leg 202 core was not fully processed until Leg 203 there was so much of it. On Leg 203 there was the usual basalt and casing problems associated with any fast-spreading ridge. Leg 204 will have about three times the quantity of special tools of any other leg to date.

Leg 205 continues the activity of instrumenting boreholes by installing osmo-samplers. Leg 206 using a new style of bit will set casing to basement in fast spreading crust by opening out the previously drilled hole of 18 ½" to 20" and emplacing a 16" casing. Axel Sperber asked for more

details on the bits as he thought that a bi-centre bit would not allow for reaming of the hole to any great extent. Brian said that these were specially made to do this. Leg 209 will use similar RBI bits to that used on Leg 203 where good bit life was obtained with them.
Kate Moran asked about overcoring to free the APC and John Farrell asked if the AHC improved this operation. Brian confirmed that the AHC gave much better control and enabled more use to be made of advancing with the APC, even if the formation was so stiff that the corer had to be 'cut out' by overdrilling.
Alister Skinner asked if Leg 209 could be a candidate for the HRRS as it involves bare rock spud-in. Brian thought that it could be. The TEDCOM recommendation was to try prototype tools when justified and that this could be a case. Brian also felt that there could be a case for the ADCB on Legs 206 and 209. Eiichi Kikawa said that there had been discussion within SCIMP on the use of these tools and that further discussion will take place at the pre-planning meetings. Keir Becker said that if there was not a consensus at those meetings and something needed resolution afterwards then OPCOM could reconvene to resolve the matter. Brian mentioned that although there are cost implications the ADCB, which is owned by ODP, could be put aboard at little cost. The HRRS is more expensive as it involves renting hammers but can be sorted out given time.

Brian then mentioned the plans for demobilisation, which will be in Galveston after a trip from St. John's. Currently the rig cannot function without equipment supplied by NSF. The ship also has to have a full certification by mid 2004 so there is a lot of discussion to take place but there may well be a holding scenario before any demobilisation or reconfiguration.

The AHC Weight on bit filter may be operational on leg 204. There were software problems on Leg 202 but data collection and analysis took place on Leg 203.

The APC methane tool is now operational and may be extended in use to the PCS and HYACE tools. The drilling Sensor Sub is now ready for manufacture. The PCS and HYACE tools now have an autoclave system designed for shipboard use and this will be tested on Leg 204. There are possible extensions to the use of these tools and this is referred to iTAP as ongoing for IODP.

Comment was made on the use of the AHC and how it has improved rotary coring and overdrilling. Alister Skinner asked if the simulation studies intended to aid prediction of performance and setting of the AHC in 'unknown situations' would now ever be done in ODP. Sadly the answer, for a number of reasons, was that it would not be done.

7. Report on Activities at BRG (LDEO) and Shipboard
No report was available for the meeting from LDEO and this agenda item was not discussed.

8. Report on OD21 Activities
Shinichi Takagawa updated the committee with further details of the riser-drilling vessel **CHIKYU**. The vessel was launched in January 2002 and a short video of the launch ceremony for the vessel was shown. None of the drilling infrastructure is yet fitted but work is underway on this with equipment being built in Japan, Norway and USA for this. **Annex 3** has detail provided by Shinichi for the meeting and some detail on this is being taken up by iTAP.

9. TEDCOM to end of ODP

Alister Skinner stated that this was the last planned formal meeting of TEDCOM and Keir Becker confirmed that the committee would remain intact and correspond by e-mail, or be convened if required, up until the last leg of ODP in September 2003.

10. iTAP The interim Technical Committee for IODP

Alister Skinner then asked all round the table to make a comment on TEDCOM and what should or should not be carried forward by iTAP to the future IODP.

Jamie Austin said that TEDCOM had shown what to do and what not to do within a programme and that iTAP should therefore work to take the best forward.

Alister Skinner felt that the new programme should make more use of all available technology than did the existing ODP.

Frank Schuh felt that the programme had gone well and that one needed to be able to take risks and obtain the benefits. ODP were very clever in doing things on Legs or essentially fixed projects. Although that may not be the most efficient way to do things it was readily adaptable to the situation and the available money. As options came in there was science and engineering trade off and new tools were used where there was a risk but a reasonable chance of success. However with IODP there are going to be 'site specific super ventures' where a lot more homework will be required, there will have to be well designs made and drilling design parameters erected. ***The reality of where we are going is very different to where we have been.*** The science slots were an excellent concept and it is always good to phase stages of success rather than have 'all or nothing'.

Howard Shatto was keen to ensure that any new vessel for the programme had good characteristics and that the programme used those to best effect. He felt that the AHC had to be used and further developed and he would strongly advocate that ***simulation studies be used in order that the programme could expect the unexpected in new terrains.***

Alister Skinner endorsed that view and mentioned the valuable work that Hugh Elkins and Peter Heinrichs had put into TEDCOM to ensure that the Passive Compensation was as best it could be before introducing the AHC. This requirement was also brought out by early simulation studies for the DCS and is one of the reasons why TEDCOM have been so insistent that these studies continue to be both essential and useful for the future. Axel Sperber endorsed the use of the AHC and thought that maybe even a secondary system could be needed in the future.

High Elkins explained why Bumper Subs can not be used for compensation and why the industry quickly stopped using them – they are not appropriate for ODP coring either. Industry uses AHC only when required for soft landing so it will never become commonplace on all rigs but has proven to be good for the type of coring done on ODP. He then made comment on the amount of work which will have to be done prior to the drilling of a riser borehole which will need lots of resources whether in-house or not. In most cases a non-riser hole will have to be drilled first. He would like to know where all of this manpower is coming from and how it is to be managed (contracts/in house/mixture?).

Marvin Gearhart was concerned about the finance and whether the structure would allow operation of a cost-effective system. He cited the work being done on coal bed methane which is big business at present but is governed at all times by the need to keep costs down. His observations on ODP were that the financial part does not always make sense but if locked in to various contracts then it is difficult to do other than what was done.

Brian Jonasson felt that there will always be a need for adaptation of technologies and that therefore there will always be a need for an operations planning group. Alister Skinner felt that there was a need to use all available technology and Frank Schuh added that we must learn from the past and

the existing technology. Kate Moran said that the new iTAP will not do engineering and therefore would not hesitate to look at what is available across a spectrum of industries to see what is on offer.
Kate then closed this section by commenting on the perceived need for change and could see that there was already progress in restructuring towards iTAP, which would continue.

11. AOB
Keir Becker thanked TEDCOM for their services to ODP and mentioned that both they and PPSP often did not receive the recognition they deserved within the achievements of ODP as they work so much behind the scenes. TEDCOM members appreciated Keir's comments and there being no further business the meeting was closed with the request that members re-convene to a joint inaugural iTAP meeting following a lunch break.

TEDCOM Annex 1

Contact List - Attendees

Members	**E-Mail**
Hugh Elkins	helkins@hou.varco.com
MarvinGearhart	mgearhart@rbi-gearhart.com
Masanori Kyo	kyom@jamstec.org
Frank J. Schuh	fjschuh@gte.net
Howard L. Shatto	hlshatto@cs.com
Alister C. Skinner	acsk@bgs.ac.uk
Axel Sperber	axelsperber@t-online.de

Liaisons/Guests	
Yusei Arai	yu-ari@japex-net.com
Bruce Ahrendsen	BAhrendsen@fugro.com
Jamie Austin	jamie@utig.ig.utexas.edu
Kier Becker	kbecker@rsmas.miami.edu
John Farrell	jfarrell@joiscience.org
Brian Jonasson	jonasson@odpemail.tamu.edu
Eiichi Kikawa	kikawa@jamstec.org
Kamata Masahiro	kamata@fuchinobe.oilfield.slb.com
Kate Moran	kate.moran@uri.edu
Jeff Schuffert	isasoffice@jamstec.go.jp
Shinichi Takagawa	Takagawa@jamstec.go.jp

Draft Agenda for TEDCOM Meeting

ODP TEDCOM 30th Meeting – San Francisco

Draft Agenda – Monday 8th July 2002 am only.

1. Opening remarks (Skinner) 0845hrs

2. Apologies for Absence (Skinner) 0850hrs

3. Approval of Final draft 29th TEDCOM Minutes (Skinner) 0855hrs

4. Report from JOI/NSF 0900hrs

5. Report of OPCOM/SCICOM Spring Meeting (Becker) 0915hrs

6. Report on Activities at TAMU and shipboard (TAMU) 0930hrs
   Summary of technical highlights of Legs since December 2001 meeting
   Shipboard developments/progress/requirements for final ODP legs
   Modifications or revisions to Development plan – to end ODP in 2003

7. Report on Activities at BRG (LDEO) and shipboard (LDEO) 1000hrs
   Summary of technical highlights of Legs since December 2001 meeting
   Shipboard developments/progress/requirements for final ODP legs
   Update on Data monitoring shipboard and downhole

8. Report on OD21 Activities (Masanori) 1030hrs
   Progress with Vessel and Equipment

11. TEDCOM to end of ODP – mechanism for continuing to provide any necessary technical advice, as required, but without formal meetings. (Skinner/Becker) 1050hrs

12. iTAP – the technical committee for the future (Skinner/Moran) 1110hrs

13. A.O.B. and close of TEDCOM. 1140hrs

The TEDCOM meeting should plan to close by 1200hrs to allow iTAP a full afternoon on the same day.

TEDCOM Annex 2 (Information from ODP TAMU) and TEDCOM Annex 3 (OD21 Project Information) are not included in the SCICOM Agenda Book.

PPSP

Date: July 29, 2002

To: Keir Becker, SCICOM Chair – JOIDES Office

From: George E. Claypool, Chair, JOIDES PPSP

Subject: PPSP/iPPSP Meeting June 11-12, 2002

A meeting of the JOIDES/TAMU Pollution Prevention and Safety Panels, and the interim Pollution Prevention and Safety Panel for the Integrated Ocean Drilling Program was held on 11-12 June 2002 at the Unidad de Tecnologia Marina-CSIC in Barcelona, Spain.

Members:

(JOIDES): Claypool, George
Dañobeitia, Juanjo
DeSilva, Neil
Verdier, M. Pierre
Flemings, Peter
Juvkam-Wold, Hans
Katz, Barry
Lowell, Jim
MacKenzie, Dave
Purdy, Ed
Strack, Dieter
Suzuki, Uko
Watkins, Joel
Becker, Keir

(TAMU): Baldauf, Jack
Burke, Kevin
Hovland, Martin
Thompson, Tom

Guests: Quoidbach, Dan
Zachos, Jim (Leg 208)
Tucholke, Brian(Leg 210)
Greene, Gary
Shrivastava, Shiri
Diebold, John
Alonso, Belen
Jurado, Maria-Jose

iPPSP: Eguchi, Nobu
Morita, Nobuo
Tanahashi, Manabu
Okano, Todashi
Shipp, Craig
Moore, Ted

Apologies: Ball, Mahlon
Green, Art

George Claypool opened the meeting requesting self-introductions and circulating a signature list. Minutes of the last meeting were approved (minor corrections for two site locations were noted by Jack Baldauf in subsequent email). Meeting host Juanjo Dañobeitia welcomed attendees to Barcelona and discussed logistics and plans for meals.
Jack Baldauf reviewed drilling results for legs 200-202, and outlined the current schedule for Legs 203-210.

Keir Becker gave the SCICOM report.
Jim Zachos described science objectives and proposed sites for Leg 208 (Walvis Ridge Transect). Sites in this region were previously drilled on DSDP Leg 74. The objective for Leg 208 is to recover cores recording Paleogene climate history. The following sites were approved:

LEG 208 Walvis Ridge Transect

Site	Latitude	Longitude	Water Depth (m)	Penetration (mbsf)
WALV-8a	28° 31.96'S	2° 50.73'E	2530	500
WALV-8b	28° 37.85'S	2° 52.29'E	2557	450
WALV-8c	28° 47.74'S	2° 54.83'E	2531	400
WALV-9a	28° 51.19'S	2° 37.14'E	2979	360
WALV-10a	28° 31.49'S	2° 19.44'E	3820	475
WALV-10b	28° 32.62'S	2° 22.47'E	3719	450
WALV-10c	28° 28.54'S	2° 19.37'E	3842	450
WALV-10d	28° 24.55'S	2° 16.79'E	3961	450
WALV-11a	28° 2.49'S	1° 45.80'E	4434	350
WALV-11b	28° 5.88'S	1° 42.66'E	4375	330
WALV-11c	27° 54.72'S	1° 52.66'E	4313	350
WALV-11d	28° 5.52'S	1° 10.15'E	4526	300
WALV-12a	27° 11.16'S	1° 34.62'E	4762	340
WALV-12b	moved to CDP 3349, Line GeoB01-036		4726	360
WALV-12c	26° 49.61'S	0° 48.63'E	4768	340
WALV-13b	24° 37.70'S	4° 40.69'E	3768	430

It was noted by PPSP that several sites (10b-d, 11b-d, 12a-c, 13b) were not located at crossing seismic lines.
Brian Tucholke presented drilling plans for Leg 210, the Newfoundland half of the Newfoundland-Iberia transect. The following table gives the approved site locations and proposed drilling depths:

Leg 210 Sites approved

Site NNB	Latitude N	Longitude W	shotpoint Ewing 00-07	water depth (m)	penetration depth (mbsf)
-01A	45º 24.3’	44º 47.1’	28433	4559	2500
-01B	45º 23.5’	44º 45.5’	28486	4563	2600
-01C	45º 28.0’	44º 54.3’	28202	4412	2650
-03A	45º 19.6’	44º 37.9’	28731	4553	1600
-04A	45º 11.8’	44º 22.6’	29227	4624	500
-05A	45º 06.2’	44º 11.8’	29576	4695	750
-06A	moved to CMP# 265700 on Ewing line 202			4735	1100

One site (NNB-02A) was not approved. The Safety Panels made the following recommendations for the Leg 210 coring program:

1) Do maturity modeling and overpressure prediction for the sites;
2) Prepare a depth-map on the U-surface and evaluate for closure at sites;
3) Develop a hole-abandonment program for deep penetration sites (make sure sufficient mud onboard to kill 2.5 km hole);
4) An experienced petroleum geochemist should be staffed to monitor hydrocarbons in the cores;
5) Recognize that Leg 210 coring program is outside the normal experience because of planned penetration much deeper than normal, and exercise all the appropriate precautions.

Keir Becker presented the Leg 209 safety review. because proponent Jack Casey was unable to attend. Seven primary sites and four alternate sites along the Mid-Atlantic Ridge from 14º to 16º N were reviewed. The Leg 209 sites are all proposed to a depth of 100 meters or bit destruction. All the sites were approved, at noted below, taken from the October 1, 1998 drilling proposal.

Leg 209 Sites approved

Site	Latitude N	Longitude W	water depth (m)
Primary			
1N	15.6478	46.6759	3970
2N	15.548	46.687	3900
3N	15.5000	46.681	3440
1S	15.1090	44.959	2900
2S	15.0390	44.953	3600
3S	14.9324	44.0713	2850
4S	14.8488	45.0822	3000
Alternate			
Alt-1N	15.7358	46.9022	1680
Alt-2N	15.6130	46.576	3600
Alt-1S	15.1167	46.2667	1650
Alt-2S	14.7226	44.8922	2075

PPSP member Peter Flemings presented a short workshop on problems of deepwater riser drilling related to mudweight, overpressure and fracture gradients.

Gary Greene presented a proposed coring program (APL-21) in the Goleta Slide of the Santa Barbara Channel, scheduled by SCICOM as ancillary ODP holes. Two shallow holes (55 and 75 meters) were proposed to recover cores for geotechnical analysis to determine conditions that lead to slope failure. The slide masses were well imaged by high-resolution seismic reflection profiles. After general discussion and evaluation of the seismic records, only a minority of PPSP members voted to approve the proposed shallow coring program. Accordingly, the PPSP advises ODP not to undertake a coring program in the Santa Barbara Channel as proposed in APL-21. The prevailing opinion seemed to be that the remote possibility of a pollution incident in this sensitive area outweighed potential scientific returns.

Shiri Shrivastava previewed preliminary plans for a post-ODP Industry/Geological Survey of Canada/Academia cooperative coring program in the offshore region of the Grand Banks of Newfoundland or on the Scotian shelf. Prospective sites are still under discussion, but the specific site presented to the assembled Safety panels was under water depth of 1600 meters in the Shelburne basin on the Scotian Shelf. The proposed plan is to drill a riserless, off-structure, stratigraphic test to a depth of 2 km. The selected location is near a previously drilled industry hole (Shelburne well). The general geologic setting and some of the results from the Shelburne well were summarized.

The advise of the safety panels to the proponents is summarized below:

1) The proposed site would be difficult to approve under the current ODP safety panel procedures because it lies in petroleum prospective sedimentary basin; however some panel members felt it should be possible to find a safe site for the proposed coring program;
2) More data is required, specifically 3-D seismic with particular attention to amplitudes, and more detailed well reports (e.g., shows, mud logs, geochemical analyses, etc.);
3) The PPSP would require information on the processing details for any 3-D seismic data;
4) A regular PPSP-style site/safety information package should be assembled;
5) Single-channel, high resolution seismic data should also be provided;
6) May need a hazard survey, but maybe not if 3-D data is adequate;
7) Proposed coring plans should comply with normal regulatory agency permitting procedures, and agency approval in principle should be obtained even if formal approval is not required.

A planned Lake Malawi coring program funded by NSF and the International Continental Scientific Drilling Program was presented for a courtesy safety review. The site information was presented by PPSP member Barry Katz for proponent Chris Scholz. The four sites are in water depths ranging from 253 to 614 meters, and planned sediment penetration depths range from 32 to 500 meters. The sites appear to avoid structural closures and high seismic amplitudes, and would be judged as reasonably safe for ODP operations. The Safety Panels were asked to recommend hole abandonment procedures, and opinions of either plugging with cement or leaving the hole open were offered. It was suggested that the Lake Malawi drilling program should contact the engineering staff at ODP for more definitive advice. It was also recommended that some drilling mud should be available to kill the hole if necessary, and that hydrocarbon monitoring should be carried out during the coring operation. The current version of the Safety Manual should also be consulted, along with ODP Technical Note 30 for information about hydrocarbon monitoring.

SCIMP

DRAFT Report of the JOIDES Scientific Measurements Panel

Ocean Drilling Program, Texas A&M University, College Station, TX
June 17, 2002

Summary of SCIMP Recommendations to OPCOM/SCICOM
The following six recommendations and one consensus resulting from the June, 2002 SCIMP meeting in College Station, Texas are forwarded to OPCOM/SCICOM for comment and approval. All motions were passed unanimously.

SCIMP Recommendation 02-1-1
The Digital Seismic Data Submission guidelines prepared by the ODP Databank and Borehole Research Group/Lamont should be used as a standard for all digital seismic data. The guidelines together with the data documentation sheets will be uploaded to the Borehole Research group WebPages.

SCIMP Recommendation 02-1-2
SCIMP recommends that the ODP Science Operator incorporate all regularly collected data in the JANUS data model and that appropriate data up-loaders are provided. SCIMP also recommends that the JANUS data queries are modified to allow all data in the JANUS database to be accessed. For example, in the case of magnetic susceptibility, instrument type needs to be added.

SCIMP Recommendation 02-1-3
SCIMP encourages ODP to consider publishing, as part of the peer-reviewed Technical Note series, the multi-leg petrologic results compiled by Kurnosov et al.

SCIMP Recommendation 02-1-4
SCIMP endorses the concept of comprehensive metadata documentation for each of the prime data types in the JANUS database. These documents should address issues relating to data collection, data archiving, and data quality. Metadata documentation files would accompany the ASCII data archive and be available through the JANUS system.

SCIMP Recommendation 02-1-5
SCIMP recommends that FMS and digital line scan image files be archived as depth-associated ASCII vector files.

SCIMP Recommendation 02-1-6
Given the reduced need for advice to the current ODP as it enters its last year of operation, the JOIDES SCIMP recommends that it meet electronically for the remainder of its existence.

SCIMP Consensus 02-1-1
SCIMP thanks Carl Richter for his unflagging enthusiasm in the support of SCIMP and iSCIMP throughout his tenure as liaison from the science operator. We wish him well in his new career as a university professor.

Scientific Measurements Panel Member List

Jamie Allan	(US, Appalachian State University)
Christophe Basile	(France, Grenoble)
Christian Buecker	(Germany, RWE-DEA)
David Divins	(US, NGDC)
Mike Fuller	(US, University of Hawaii)
Eiichi Kikawa	(Japan, JAMSTEC)
Brad Linsley	(US, SUNY/Albany)
Ken MacLeod	(US, University of Missouri)
Ellen Martin	(US, Florida)
Philip Meyers	(US, University of Michigan)
David Smith	(US, University of Rhode Island)

Liaisons

Gerry Iturrino	(ODP-LDEO)
Brad Julson	(ODP-TAMU)
Frank Rack	(JOI)
Carl Richter	(ODP-TAMU)
Will Sager	(SCICOM, TAMU)
Elspeth Urquhart	(JOIDES Office)

Guests

Yoshi Aita	(Japan, Utsunomiya Univ.)
David Becker	(ODP-TAMU)
Susan Freeman	(ODP-TAMU)
David Fackler	(ODP-TAMU)
Hisao Ito	(Japan, Geological Survey of Japan)
Ann Klaus	(ODP-TAMU)
Kaz (Kuru) Kuroki	(JAMSTEC)
Rakesh Mithal	(ODP-TAMU)
Ted Moore	(iPC Co-Chair)
Saneatsu Saito	(Japan, JAMSTEC)
Jeff Schuffert	(iSAS Office)
Doug Schmitt	(Canada, Univ. Alberta)
Ken Takai	(Japan, JAMSTEC)
Urumu Tsunagai	(Japan, Hokkaido Univ.)
Yasushi Tsuritani	(JAMSTEC)

Regrets

Javier Escartin	(France, CCR)
Dae Choul Kim	(PACRIM, Pukyong National University)
Mike Lovell	(UK, Leicester University)
Peter Michael	(US, University of Tulsa)
Carlos Pirmez	(US, Shell)
Leonardo Sagnotti	(ECOD, INGV)

A) Introduction
The meeting began at 9:00 AM on Monday, June 17 at the Ocean Drilling Program, Texas A&M University, College Station, TX. After members and guests introduced themselves (with numerous guests representing iSCIMP members), Carl Richter gave an overview of logistics of the meeting. Consensus approval of the December 2001 meeting minutes was made, with Jeff Schuffert noting that Nobu Eguchi should be removed from the attendant list. A review of the amended agenda followed, with a call for additional agenda items.

B) Liaison Reports

JOIDES Report
Elspeth Urquhart gave a report bringing the SCIMP panel up to date on recent JOIDES activities and panel meetings. The January EXCOM meeting was notable for final approval of the FY03 Science and Program Plans, as well as the phase-out Program Plan for FY04-07. SCICOM met jointly with OPCOM in conjunction with the second meeting of iPC, requiring only the first 1.5 days of the 4-day meeting in March 2002. A significant point of discussion was how to deal with one new ancillary program letter (APL).

The great majority of ODP/JOIDES drilling proposals have been transferred to the iSAS Office. The single proposal for which the proponents did not respond to the transfer request is a preliminary proposal for work requiring a mission-specific platform; the proponents may have elected to seek support for this program on their own. For the JOIDES proposal deadline of March 15, 2002, no new preliminary or full proposals were expected, although one new APL was received: *APL-21, Investigating seismically-induced pore pressure generation that spawn tsunamogenic landslides, proponents K. Moran, A. Silva, H. Brandes, J. Pestana, H.G. Greene, H. Lee, G. Fryer, S. Grilli, J. King, P. Schultheiss, P. Watts*

This proposal was discussed at the March 2002 SCICOM meeting as described above.
APL-21 was submitted only a few months before the only possible scheduling windows (Legs 203 or 204) so SCICOM approved an accelerated review process as follows: (1) email review by SSEPs within one month of the March SCICOM meeting, followed by (2) email discussion by SCICOM and scheduling decision by early May. It was concluded that any positive scheduling decision would have to be provisional, contingent on (a) time becoming available during either of the possible legs, and (b) successful safety review at the June PPSP meeting. Since then the SSEPs have reviewed the APL, it was provisionally scheduled by SCICOM after an email discussion and forwarded to PPSP for consideration during the meeting in Barcelona (June 10-11). Nick Pisias added that the proposal had been unsuccessful on safety grounds following the PPSP review.

There will be an EXCOM meeting in June 2002, with the subsequent and final meeting scheduled for July 2003 in Bermuda to coincide with the port call of the JOIDES Resolution at the start of the final ODP Leg (Leg 210 Newfoundland Margin). SCICOM is scheduled to meet on August 26th in Ghent Belgium, with the iPC meeting scheduled for 27 – 29 August. OPCOM does not expect to meet again. The final meeting of TEDCOM is scheduled in July 8-10, 2002 in San Francisco to coincide with the iTAP meeting and the San Francisco port call at the end of Leg 203/start of Leg 204. JOIDES SSEPs, PPSP, and the SSP will no longer meet.

ODP Legacy topics were discussed. These include:
The Achievements and Opportunities document, which involves the four main themes from the Long Range Plan. In April, a CD-ROM was prepared of the galley proofs and distributed at the 4th European ODP meeting in Tromso, Norway. Copies of this CD are available on request from the JOIDES Office joides@rsmas.miami.edu. The volume has now been printed in hard copy and is in the process of being distributed as the current issue of the JOIDES Journal (vol. 28[1], June 2002). The volume is also posted on the JOIDES Web site http://joides.rsmas.miami.edu in the "What's New" section.

The Greatest Hits 2 -Abstract Collection, resulting from EXCOM Motion 01-1-8. Contributions mostly consist of one-page articles, including diagrams and figures. The articles are aimed at an educated but not scientifically or technically literate audience. Forty contributions for this volume have now been received and the titles and most of the articles are posted on the JOI Web site http://www.joiscience.org/GreatestHits2/. The SSEPs agreed to review the articles in order to select about 20 for publication in a hard copy brochure (working title of Greatest of Greatest Hits), and this process began during the iSSEPs meeting in Santa Cruz (June 6-9).

EOS Article - Following the scheduling recommendations made at the August SCICOM/OPCOM meetings, the chair prepared an EOS article describing the science plan for FY03. This article was accepted quickly in November of 2001, and apparently because of a backlog has finally been published in the April 2, 2002 issue of EOS as:
Becker, K., Ocean Drilling Program Plans Final Year of Operations, *EOS, Transactions AGU*, 83, 157 and 159.

Logging Report
Gerry Iturrino began with highlights of Legs 200 and 201 logging operations, describing operation of the Fugro percussion core tool. The drill string acceleration tool was used to monitor when pin-shearing causing hydraulic piston action occurred. Further information is given in the BRG logging report in Appendix A. On Leg 202, a good comparison was noted between core data and logging data. GRAPE density correlated well with average FMS resistivity and FMS images.

During Leg 204, resistivity at the bit (RAB), an initiative between TAMU, Schlumberger, and BRG, will be run. This instrument runs in battery mode, collecting a 360-degree resistivity view of the borehole like the FMS but at a lower resolution (150 mm versus 5 mm). Unlike the FMS, it has full 360-degree contact with the borehole wall (sleeve of buttons). Also for Leg 204, the drillstring acceleration tool has been modified to be compatible with the PCS; the associated data logger has 30-50 hour lifetime.

For Leg 206, the Co-chiefs want a wireline 3-component magnetometer. BGR scientist Ulrich Kalberkamp has such an instrument with an orientation gyro- as he is upgrading the tool, the Leg 206 Co-Chiefs are not yet in position to seek SCIMP endorsement. An earlier version of this tool was deployed during Leg 148.

TAMU Report
Carl Richter gave highlights from the Operator's report- please refer to Appendix B for further details. The Leg 203/204 portcall has been moved from San Francisco to Victoria for fear of a longshoreman's strike. Co-chiefs have been selected through the end of the program; TAMU has

noted a large number of applicants for Legs 207-210. Carl then reviewed the operational schedule to the end of ODP, followed by highlights from recent legs.

Carl first discussed Leg 200, focusing on the exciting coring results of the Oahu Nu'uanu landslide as well as noting successful completion of the hole for later seismometer installation. Leg 201 was ODP's first microbiology cruise. It was noted by heavy tool use with many tests of new downhole tool that will be used on Leg 204. There was a heavy use of PFT tracers and glass microspheres for contamination testing, and it represented the first use of the radioisotope van. Importantly, there was little problem with radioisotope contamination; a background of 50 cpm was measured in the van, with only one minor contamination event of 200 cpm on a refrigerator door. Wipe tests for contamination were done when anybody left the van, and weekly wipe tests by TAMU staff also occurred. Wipe tests consisted of taking a Chemwipe and swabbing surfaces, and then placing the Chemwipe in a liquid scintillation counter to test for tritium, ^{14}C, and ^{35}S. Van personnel either changed shoes or wore booties over their shoes to minimize contamination. Scientists subsampled for microbiology outside the van (using 3-5 cc syringes) rather than take core whole-rounds for subsampling within the van, thereby minimizing material going into the van. Leg 201 scientists took many borehole temperature profiles, and also noted an exponential decline of cells with depth.

There was an enormous amount of pore-water chemical data collected from the highest number of samples ever squeezed on a leg (approx. 640). The APC methane tool was deployed 8 times on Leg 201 with excellent results, as was the DVTPP, deployed 12 times with 5 times obtaining lithostatic pore pressure. An improved PCS, with a new cutting shoe design and an increased inner barrel ID. was deployed 17 times on Leg 201. The APC drillover technique, where the BHA is drilled-over the APC core barrel, was an essential part of the leg success; this technique took longer to drill but resulted in only one lost bent core barrel. This technique was done extensively on Leg 202 as well.

Leg 202 does not yet have a written Preliminary Report, and Leg 203 was out at the time of the meeting. Leg 204, is perhaps the most instrumentally complicated leg in history, with heavy downhole instrumentation requirements.

Regarding shipboard engineering developments, there is a new filter for the weight on bit Active Heave Compensator (AHC) indicator. The Rig Instrumentation System (RIS) has a new PFT tracer pump under automated control; weight on bit (WOB) measurement is now integrated into the RIS as well.

JOI Report

Nick Pisias gave the report, with many practical operational observations from being fresh off the boat from Leg 202. He first concentrated on database and data archival issues.

Phase-out concerns have been raised by JOI on archival issues in discussions regarding the ODP phase-out plan. Priorities are as follows:

1. Uploads for all shipboard data into JANUS.
2. Migration of all shipboard data sets into JANUS.
3. Compilation of data reports (need input from SCIMP on formats).
4. Data archiving (such as: should ASCII format also be used for images, including logging such as FMS).

On Leg 202, Dave Fackler set up flat ASCII data tables from all Leg 202 JANUS data sets. SCIMP should address these data tables for completeness. David also set up files for metadata- are these the right metafiles? Again, these are questions for SCIMP.

Nick stated that JOI has decided to set up a JOI Data Legacy committee rather than directly seek advice on myriad legacy issues from the JOIDES structure. At the end of the meeting, he solicited advice from SCIMP as to who should be on the committee.

Nick then gave an overview of where he thought problems existed in the current shipboard lab regarding a high recovery paleoceanography leg. First, there are core flow issues when legs have very high recovery. The current core flow in such cases resembles Brownian motion more than a smooth measurement pathway. He believes that a more flexible floor plan and instrumentation plan is needed to accommodate such legs. Secondly, priorities for instruments and scientists need to be better defined. Presently, all workstations in the sediment lab face away from the lab center, with data tracks rather than people workstations given priority. There were basic time issues involved in measuring core: 1.5 hour per core were needed on average on Leg 202 to process the core, causing backlogging in core processing. The leg also saw 2 m of tidal amplitude, keeping triple APCing from getting full recovery because passive heave compensation could not keep up (active heave compensation does not work with the APC). As a result, they needed to stagger coring to keep rising and sinking tides from interfering with getting the needed recovery overlap.

Nick noted significant issues regarding shipboard instrumentation development and use. Specifically, he considered the example of the GEOTEK core scanner: was the goal of digital core scanning the production of core images or of core color data? The expectations of the community were mixed and often confused for this instrument. Some parts of the community want images; others want digital core color data. He illustrated problems of getting calibrated, quantitative color data from the current scanner. He also revisited problems with obtaining natural gamma on the MST on high-recovery legs- the MST cannot be run slowly enough to get adequate quality data.

Nick then placed his observations into implications that needed to be considered for the IODP. Goals for instrumentation need to be defined, including definition of specifications, calibration and quality control. Development of instrumentation should be towards meeting community expectations.

C) Review of SCIMP Recommendations and Action Items

Jamie Allan reviewed the status of previous SCIMP recommendations. All were accepted by either SCICOM or the iPC as detailed below

SCIMP Recommendation 01-2-03 resulted in the following SCICOM Consensus 02-01-03: SCICOM has considered SCIMP recommendation 01-2-03 concerning data archiving, database mirroring, and the formation of a data legacy working group. SCICOM agrees with SCIMP that maintaining the integrity of ODP data in perpetuity, and assuring future access to this resource, is essential to the ODP legacy. SCICOM would also like to be sure that a functional database system is transferred to IODP as seamlessly as possible. SCICOM therefore recommends that SCIMP plan for formation of a data legacy working group, including an evaluation of what expertise is needed and available (both within and outside SCIMP) and what the working group mandate should be. Issues to be addressed by this working group may include identification of (a) critical archiving

gaps with present data sets, (b) challenges associated with storage of metadata, and (c) problems that could be avoided during development of IODP data bases, policies, and storage procedures. We ask SCIMP to consult with the interim director of JOI, who has considered many of the relevant issues, and (informally) with appropriate iSAS panels as necessary, and to report back to SCICOM by August 2002 with a plan for formation of this working group as part of the broader issues of ODP legacy and ODP-IODP database transition.

During the SCIMP meeting, Nick Pisias (interim director of JOI) informed the panel that JOI would directly seek advice from a JOI-directed Data Legacy Advisory Group regarding data archiving issues, rather than seek advice through the JOIDES structure. The reasons for this, which the panel agreed with, were that the issues needed much quicker response time and depth of knowledge than the JOIDES advisory structure could provide. Nick noted that advice from SCIMP regarding issues identified by this JOI-directed group would still be sought. Nick solicited suggestions for membership of the JOI Data Legacy Advisory Group, which the panel provided.

SCIMP Recommendations 01-2-01, 01-2-04, 01-2-05, 01-2-06, 01-2-07, 01-2-08, and 01-2-12 resulted in the SCICOM Consensus 02-01-05:
SCICOM accepts the following SCIMP recommendations and applauds the efforts already made by the ODP Operators to address them:
SCIMP recommendation 01-2-01 concerning hard-drive support for digital core data
SCIMP recommendation 01-2-06 concerning the IESX Joint Pilot Study
SCIMP recommendation 01-2-07 concerning the legacy technical summary documents
SCIMP recommendation 01-2-08 concerning core resistivity measurements
SCIMP recommendation 01-2-12 susceptibility point measurement for AMST

In addition, SCICOM endorses SCIMP recommendation 01-2-04 concerning potential development of a high-resolution downhole magnetic susceptibility logging tool for ODP and IODP.

SCIMP Recommendations 01-2-09 and 01-2-11 resulted in the following SCICOM Consensus 02-01-04:
SCICOM reaffirms the importance of all ODP samples as an integral part of the ODP legacy. Therefore, SCICOM requests that the Science Operator takes all necessary steps to maintain the integrity of the entire ODP sample collection as the ODP phase-out approaches. This includes the thin section collection as noted in SCIMP recommendation 01-2-11. In addition, SCICOM endorses SCIMP recommendation 01-2-9 encouraging host countries of Micropaleontological Reference Centers to underwrite costs of maintaining these centers.

SCIMP Recommendations 01-2-02 and 01-2-10 resulted in the following iPC Consensus 2-3:
The iPC accepts SCIMP Recommendation 01-2-02 on using digital core images for archiving purposes in IODP, SCIMP Recommendation 01-2-10 on maintenance of Micropaleontology Reference Centers in IODP, and iSCIMP Recommendation 01-1-1 on development of an IODP sample and data distribution policy. The iPC further encourages the iSCIMP to address these topics at its next meeting.

Regarding an action item from the previous SCIMP meeting, Christian Buecker led a discussion of the new seismic data guidelines proposed by the ODP Databank and the Borehole Research

Group/Lamont, given in Appendix 1 of this report. His positive views of these guidelines led to the following recommendation:

SCIMP Recommendation 02-1-1
The Digital Seismic Data Submission guidelines prepared by the ODP Databank and Borehole Research Group/Lamont should be used as a standard for all digital seismic data. The guidelines together with the data documentation sheets will be uploaded to the Borehole Research group WebPages.
Passed 10-0-0.

D) Shipboard Lab Overview

Core Description Lab
SCIMP noted that no JANUS upload for the point source susceptibility instrument on the archive half multisensor track (AMST) exists in the JANUS database model, preventing the data from being uploaded into the JANUS database. This observation resulted in the following recommendation:

SCIMP Recommendation 02-1-2
SCIMP recommends that the ODP Science Operator incorporate all regularly collected data in the JANUS data model and that appropriate data up-loaders are provided. SCIMP also recommends that the JANUS data queries be modified to allow all data in the JANUS database to be accessed. For example, in the case of magnetic susceptibility, instrument type needs to be added.
Passed 10-0-0

A number of items related to Leg 204 were discussed. The GEOTEK resistivity system for addition to the MST track has been delivered. An X-ray linear scanner from Lawrence Berkeley Labs will go out on Leg 204 if build time permits. It is a vertical, lead-encased track, with a 2-D x-ray camera. Two infrared camera systems will be used to look for evidence of degrading or degraded gas hydrate in imaged core. PCS gas manifolds have been automated with data loggers. In addition, HYACINTH tools have undergone certification. Transfer chambers have been tested with the vertical multisensor core logger under pressure, so a complete HYACINTH system will be available. ODP will be able to place APC core in the core logger system as well if the HYACINTH drilling systems fails. The Fugro piezoprobe (pore pressure dissipation measurement) tool has been modified so it can be used with the APC/XCB, allowing direct comparison with the DVTPP tool on Leg 204.

Magnetic Lab
Core splitting saws during Leg 202 were noted to interfere with measurements, raising the importance for the need for room shielding in IODP.

Chemistry Lab
It was noted that the IW data couldn't be upload to JANUS on Leg 202. Rakesh Mithal thought it was a procedural issue.

Paleontology/Microscope Lab
Microscope alignment issues were noted, although these should be addressed by servicing at the Leg 204 portcall.

Downhole Measurements Lab
All memory tools have been upgraded and made more robust- dataloggers in particular.
The single channel VSP (QSSD tool) tool can now be run with the triple combo- this possibility will be test run on Leg 204. This could reduce rig-up time for VSP experiments considerably. In addition, DOE money has been procured to run the prototype logging-while-drilling NMR tool that can discern between ice, hydrate, and fluid.

Underway Lab
GI guns will be used on Leg 204 and are installed. Teledyne is still repairing the tow cable for the port side streamer. The 12 kHz PDR system is very noisy, and being worked on- ODP/TAMU is not sure if this is a transducer issue.

Frank Rack then gave an overview of industry interest in gas hydrate research, as well as activities being done to promote ODP-industry ties in such research and measurements. The post-2003 use of the JR is being discussed with industry and DOE; NSF owns the JR labs and is insisting that such use of the labs be consistent with the ODP principles of data sharing, will be scientific projects.

E) Hard Rock Working Group Overview

Jamie Allan gave an overview of the Hard Rock Working Group Report, given as Appendix C of this report. The panel accepted this report by consensus to forward to the iSCIMP for consideration. The panel felt that the issues of core description raised by this report needs to be put into a larger context, noting that they are relevant to description of all core types. A white paper and/or workshop are needed.

F) Kurnosov manuscript issue

Ann Klaus and Frank Rack led a presentation regarding a proposed manuscript by Victor Kurnosov et al. entitled *Alteration Effects in the Oceanic Crust*. This manuscript, based on DSDP and ODP samples from numerous legs, examines alteration of basalts from all oceanic environments cored by the DSDP and ODP. SCIMP was shown a Table of Contents for the manuscript, with text length greater than 136 pages with additional numerous appendices. SCIMP was asked how ODP could accommodate such a manuscript. Specifically, could it fit in the technical note series, could it be shoehorned into individual leg publications, or should a new publication category be created? The panel felt that this publication should focus on the data itself, rather than contain a great deal of interpretation. The panel did feel that this was valuable data, noting it would be difficult if not impossible to publish in the outside literature.

Recommendation 02-1-3
SCIMP encourages ODP to consider publishing, as part of the peer-reviewed Technical Note series, the multi-leg petrologic results compiled by Kurnosov.
Passed 10-0-0

G) JANUS Data Archive Issues

Dave Divins gave an overview of the March, 2002 meeting at ODP/TAMU regarding the JANUS SQL data queries used to generate flat-field data files for NGDC archiving.
All queries are to be evaluated for content and format by the end of September, 2003. No JANUS mirror site will exist at NGDC, unless there is no overlap of ODP and IODP data management activities. All data queries will be run at Hole level.

There is a need to examine existing JANUS queries to determine whether further queries are needed and to determine what is missing from each query. Metadata data description files will be created for each query.

Susan Freeman then gave an overview of ODP Data Archive Metadata documentation.
Metadata are needed for data integrity but it is a huge job. She gave an example of a possible format, with the example considering XRF data.

I Data Collection
Data Collection Method- use lab manual, shipboard handbook where available
- Standard operating procedures
- Sampling procedures
- Equipment
- Data acquisition procedures- calibration, reference standards, software

These metadatafiles would document changes over time as well.

II Data Archiving
A. ODP Data Archive Procedures
- Before JANUS
- After JANUS

B. Migration of data to JANUS
- Migration procedures
- JANUS data model

C. Archive Data Files
- Format and description of fields

III Data Quality
A. Description of data by leg
- Equipment model
- Software version
- Departure from data acquisition SOP
- Problems found- equipment failure, core condition, any problems identified by the shipboard party

B. Verification
- Migration to JANUS

Migration to archive files
Resolution of discrepancies

C. Data Quality statement

Sources of Information
Initial Report volume
Scientific Results volume
Explanatory notes
Lab tech reports
Shipboard handbooks
Lab procedures manuals
Logbooks
Data forms
Techs
Staff scientists
Leg scientists

There will be a reference list for all sources used to compile the metadata report, which will be online. There is a need for a basic format agreed upon by TAMU, NGDC, and JOI for these metadata files.

SCIMP Recommendation 02-1-4
SCIMP endorses the concept of comprehensive metadata documentation for each of the prime data types in the JANUS database. These documents should address issues relating to data collection, data archiving, and data quality. Metadata documentation files would accompany the ASCII data archive and be available through the JANUS system.
Passed 10-0-0

Problems of archiving large datafiles were then considered. Relevant image files include those from digital line scanners, archived as 1200 dpi .Tiff files with embedded .XML metadata files. They also include digital hand-held images preserved as .Tiff files,
digital photomicrographs, and close-up photos, color since Leg 174. Close-up photos included in the IR volume are considered archive, and have been digitized in electronic volume since Leg 176 (others are not yet digitized).

FMS images are currently archived as .Tiff files to the NGDC. A long-term strategy is needed to deal with these files. Panel discussion led to the conclusion that a depth-number-number ASCII format is the most desirable archive format, as it is readily imported into a variety of application programs.

SCIMP Recommendation 02-1-5
SCIMP recommends that FMS and digital line scan image files are archived as depth-associated ASCII vector files.
Passed 10-0-0

In response to stated concerns regarding mixed archiving of printed and electronic IR and SR volumes, the panel was told by TAMU that ODP has film and microfiche archives of both electronic and print IR volumes. VCD's are all preserved on microfilm. Should we archive SR results as well? ODP/TAMU may be able to scan all DSDP and printed ODP volumes to make PDF files with ASCII text backup using Texas A&M digital library funds. SCIMP as a panel encourages this process which would make all DSDP and ODP volumes available online.

The JOI Data Legacy Working Group will prioritize the above and other legacy-related issues, including the preservation of data and having easy accessibility to DSDP and ODP data and publications. Advice may be sought in the future on such ranking from SCIMP.

H) Next Meeting

The need for physically meeting again was discussed. In light of the JOI decision to create its own Data Legacy Working Group (a decision informally approved by SCIMP members who were present), the following recommendation was passed.

SCIMP Recommendation 02-1-6
Given the reduced need for advice to the current ODP as it enters its last year of operation, the JOIDES SCIMP recommends that it meet electronically for the remainder of its existence.
Passed 10-0-0

Finally, SCIMP and iSCIMP members joined in the following proclamation:

SCIMP Consensus 02-1-1
SCIMP thanks Carl Richter for his unflagging enthusiasm in the support of SCIMP and iSCIMP throughout his tenure as liaison from the science operator. We wish him well in his new career as a university professor.

SCIMP – Hard Rock Working Group

REPORT OF THE HARD ROCK WORKING GROUP
JOIDES SCIENTIFIC MEASUREMENTS PANEL

May 9-10, 2002
Held at the Ocean Drilling Program
Texas A&M University,
College Station, Texas

Members Present

James Allan (Chair and SCIMP Co-Chair)	Appalachian State University
Jeff Alt	University of Michigan
Shoji Arai	Kanazawa University
Sherman Bloomer (SCICOM member)	Oregon State University
Georges Ceuleneer	CNRS
Henry Dick	Woods Hole Oceanographic Institution
Jay Miller	Texas A&M University
James Natland	University of Miami
Paul Robinson	Dalhousie University

Regrets:

Peter Herzig (SCICOM Member)	University of Freiberg
Chris Macleod (SCICOM Member)	University of Wales

Guests:

John Beck	Ocean Drilling Program, Texas A&M University
David Becker	Ocean Drilling Program, Texas A&M University
Kevin Gregor	Ocean Drilling Program, Texas A&M University
Ann Klaus	Ocean Drilling Program, Texas A&M University
Nancy Luedke	Ocean Drilling Program, Texas A&M University
Katarina Petronotis	Ocean Drilling Program, Texas A&M University

Introduction

The Hard Rock Working Group arose from discussions within the June, 2001 JOIDES SCIMP regarding the need to create a new means of more effectively describing hard rock core. The acquisition of the GEOTEK line scan camera onboard the JOIDES Resolution offers unparalleled opportunities to modernize and streamline the means with which hard rocks are described. Current descriptive methods use an antiquated system that requires the core to be hand drawn, with descriptions based on artificial coring and curational intervals and not linked to visual core representations. SCIMP quickly recognized at the June, 2001 meeting that it did not have the internal expertise required for making effective recommendations for overhauling hard rock core description, and decided that additional expertise and experience was needed for making effective suggestions for core descriptive program and database design. The following SCIMP motion was adopted from this meeting:

SCIMP Motion 01-1
SCIMP recommends to SCICOM that a workshop be convened to define the characteristics and requirements of a hard rock core description methodology. The implementation of the GEOTEK line scan camera provides a digital image that may serve as the foundation of a core's description. The workshop should look forward to the IODP.

During discussion of this motion in August, 2001, SCICOM believed that a more effective tack would be for SCIMP to initially seek advice from experienced members of the hard rock drilling community by forming a short-lived Hard Rock Working Group, allowing the effective expertise of the SCIMP to be expanded greatly. In essence, this group would represent "hired guns" that would examine critical issues of hard rock description in IODP, and make recommendations to SCIMP regarding developmental needs required to take full advantage of digital image acquisition.

SCICOM Consensus 01-02-04:
In response to SCIMP Recommendation 01-1-4, SCICOM approves a small SCIMP working group to define the characteristics and requirements of a hard rock description methodology. This working group should have approximately 6 members representing volcanic, magmatic, metamorphic, and structural expertise, should be organized no later than the next SCIMP meeting, and should meet once at ODP-TAMU. The SCIMP co-chairs should be prepared to report on the working group findings at the next SCICOM meeting.

Subsequent discussions with the SCICOM Chair emphasized the need to have a larger working group to ensure expertise depth regarding the descriptive needs of complex igneous, metamorphic, and sulfide core, all with potential structural overprints. Additionally, it was made clear that the group should take advantage of work done during JANUS planning, namely "picking up where JANUS left off." It was also made clear that the Report of the Hard Rock Working Group, if accepted by SCIMP and SCICOM, will be forwarded to the iODP planning structure for further endorsement. It was further understood that endorsement by iSCIMP and iPC could lead to attempts for funds for a larger community workshop, if deemed necessary.

The report written below is compiled from the Hard Rock Working Group meeting held at the Ocean Drilling Program, Texas A&M University on May 9-10, 2002. Within the group present at the meeting, there was 57 DSDP and ODP legs of experience, with additional expertise provided by

other members who were not able to attend but have nonetheless participated in the advice given here. All recommendations represent consensus agreement, as no formal voting took place. The wording of all recommendations was reviewed in final form and agreed upon by all present before the meeting ended.

Hard Rock Working Group Recommendations

Recommendation #1:
Real-time digital line scan images need to be the foundation for core description and sampling in IODP.

Rationale:
As shown by work done by the JANUS core description working groups and by the OD21 database concept, real-time digital images of the core most easily serve as a foundation for the description of igneous and metamorphic rock core that typically contain complex, hard to draw features.

Recommendation #2
We will continue to need color film to represent the archive image of the core, but color film cannot supplant the digital line scan image for core description and sampling purposes. When the dynamic range of CCD cameras equals that of film, the film may be replaced by the CCD digital image, depending on archival requirements.

Rationale:
Experience with the current Geotek line scanner underlines the fact that the relatively limited dynamic range of current line scanner technology does not allow for effective color calibration. The Group acknowledges that this will likely change in the future.

Recommendation #3
To ensure accurate color rendition of the core, a dedicated core image laboratory should be an integral part of the ship and core flow design.

Rationale:
Color accuracy for archival digital images requires that all components in the imaging chain be continuously calibrated for color balance. Sufficient space is also needed for proper illumination geometry and to provide effective implementation of track-mounted digital line scanners.

Recommendation #4
A fundamental part of any core description package should be the real-time annotation of the core image for descriptive and sampling documentation purposes. Annotation should be within a multi-layer environment, with an X-Y, GIS-like coordinate system linked to a relational database.

Rationale:
This need for real-time annotation was recognized during JANUS planning as a fundamental need for effective description of complex core. In this manner, areas and features of description and

sampling are directly noted and linked spatially to descriptive text in the database. The GIS framework allows for layers of information to be linked to a single geographic point in the core.

Recommendation #5
Line scan images should be made of both the archive and working halves. These images will serve as the foundation for description of the archive half and sampling of the working half. Annotations of these images, preserved in the database, will directly show what feature was described or what area and volume was directly sampled. Sampling annotation of the working half should continue after the cruise.

Rationale:
Even though every attempt is made to split key features of the core so that they are represented in both the archive and working halves, in practice this is simply not possible. As a result, a permanent visual record needs to be made of both core halves. The line scan image of the working half would function as an effective template for providing visual record of sampled core areas and features, easily showing what is available for future sampling.

Recommendation #6
Whole-core digital imaging of the unsplit core should be available for routine use as is needed by Leg science. These images should be available for display and annotation in the core description software.

Rationale:
When shipboard parties decide to split the core so as to split features as best as possible between an archive and a working half, the core splitting is already an interpretive process. Often it is the most stunning, easy to see structures that are split, so other fundamental features may be missed, and the manner in which the core is split influences how it may be described. The Group considered examples of whole-core digital imaging from Leg 176, showing correlation of features and magnetic susceptibility data with the unwrapped whole-round image. Concern was expressed as to whether these images could be efficiently incorporated within the core description software package, although this would be desirable.

Recommendation #7
There is a fundamental need to accurately place in three-dimensional location all coherent core pieces as the core is being described. Critical towards this requirement is the development of bit, bottom hole assembly (BHA), and rig instrumentation, including measuring resistivity, weight on bit (WOB), and torque on bit (TOB) at the drillbit. We also foresee the need, in particular, of directly monitoring core recovery, and encourage further development and deployment of the Sonic Core Monitor.

Rationale:
These engineering developments are necessary for scientific parties to make rational decisions about where to place core in spatial context where recovery is less than 100%. These measurements would effectively complement core-log integration procedures.

Recommendation #8
Routine processing of the core should include determining depth-shifted core location and orientation using all available coring, logging, and descriptive data. The core description software package should include the ability to display all related data for this effort.

Recommendation #9
Despite the need to accurately render in space all coherent core pieces, all core measurement and description should be fundamentally linked to curated depth rather than to an interpreted, adjusted depth.

Rationale for Recommendations 8 and 9:
Any spatial shifting of core represents an interpretive process. The foundation of the core description database should be made on raw data, which is represented by the curated depth of individual core pieces.

Recommendation #10
Continuous quantitative and semi-quantitative descriptions of specific core features, as currently collected downcore in spreadsheet format, are integral to core description and must be incorporated into the database for core-log integration and analysis.

Recommendation #11
Integrated textual descriptions of core should be based on mappable unit boundaries, not on artificial sectional or core boundaries based upon intervals of coring.

Recommendation #12
We recommend that common spreadsheet fields be defined that may be incorporated into a relational database. We further recommend that common, basic templates be defined for igneous, metamorphic, structural, volcanoclastic, and sulfide lithology. Any descriptive system should allow addition of other critical fields so as to allow leg or project-specific descriptive logs to be created.

Rationale for Recommendations 10, 11, and 12:
The Group felt that a key aspect of effective core description is to describe quantitatively and semi-quantitatively the variation in rock stratigraphy, properties and composition, rather than focus on distinct descriptions on core sections that are recorded as independent observations. Our discussion resulted in a model most useful for description of igneous and metamorphic rock recovered in a drilling program of one or more legs dedicated to crustal drilling. Staffing of at least several petrologists with igneous, metamorphic, and structural specialization is implicit in our core description system design, with members of these specialties required for proper documentation of all aspects of the core. An analog might be the dedicated paleoceanography program describing the high-resolution stratigraphy of sediment obtained by advanced hydraulic piston coring. Obviously, during legs with limited objectives in the ocean crust, and only one or two petrologists, the core description protocols will be different, and probably more limited. Our general model thus is to allow scientific parties to develop core descriptions emphasizing those aspects of the rocks having particular relevance to their own general scientific objectives. We do not propose an all encompassing template to be used by everyone, but one with flexible attributes, and components or modules that can be selected and modified as necessary. We thus propose using a basic descriptive

template keyed to at least one form of digital image of the core, but with options to use additional images as they are deemed useful, and as core flow and staffing allow. The computer environments that now exist also mean that we can also incorporate digitized shipboard laboratory measurements obtained using the multi-sensor track or other instruments. Both images and these laboratory measurements plotted versus depth thus can be brought up on monitors simultaneously and used as a basis for, or components of, the core descriptions. These should be incorporated to the extent that they are useful and consistent with the physical limitations of the core lab and the personnel available to describe the core.

Effectively, this means that there cannot be a single defined database template to serve the needs of all hard rock legs. Instead, we envision spreadsheet templates containing defined fields common to all legs, with an additional 8-10 fields that should be leg-specific and user-definable.

Recommendation #13
A digital image library of rock features such as textures should be incorporated into the database or descriptive program. An additional descriptive cookbook for hard rock needs to be developed.

Rationale:
Planning for JANUS core description recommended pull-down menus for input of the myriad textural terms used in rock description. While choosing not to follow this exact model, we nonetheless see the wisdom in providing user-friendly visual examples of textures used in hard-rock description. A descriptive cookbook is thought to be a more effective, simpler way of ensuring quality hard rock description rather than complex, pull-down menus for filling in descriptive terms.

Recommendation #14
Any core description package has to include the full description of thin sections, noting that it represents discontinuous data.

Recommendation #15
We endorse the OD21 concept of linking core close-up and photomicrograph images with annotation of the core digital images.

Background Presentations and Discussion

JANUS Background

Jamie Allan started the meeting off with an overview of previous JANUS planning efforts regarding hard rock description. Three planning meetings for hard rock description took place in 1994-1996, although no report was produced and planning stopped when it become clear that no funds were available for implementation of recommendations. Nonetheless, these discussions recognized a basic underlying need for digital scanning of the core with real-time availability of core image for annotation, description, and data entry. Detailed needs for an accompanying core description program were defined, with the data model having numerous libraries and toolboxes. Sulfides and volcanoclastics were not really addressed within the data model.
As a stopgap, there was a recommendation for adapting the sediment description program Applecore; this was never implemented because of numerous challenges. Applecore never had

spreadsheet functions, and had many windows that needed to be opened for rock description. The adaptation of the program to hard rock description was not effective because it was set up to describe core on 9.5 m length versus 1.5 m section lengths. The design structure of the program was also not conducive to hard rock description, being too simple. The costs of revamping the program were deemed too high, and instead ODP kept the old format of hard rock forms with hand-written notes and no link between spreadsheet data and core descriptions.

Overview of Geotek digital line scanner

Jay Miller followed with an overview of the current Geotek digital line scanner currently on the JOIDES Resolution. He emphasized that the current core description system is mature but lacks linkages with associated data types. The images taken are broken up into interval packages and do not represent a continuous record. JANUS planning originally produced a core description application that was far too expensive for available funds. Other JANUS applications work well, with data easily accessible. Sailing of programmers has allowed effective evolvement of JANUS data interfaces. The challenge is to do the same with hard rock description data. Henry Dick made the point that a spreadsheet file is numerical data that represents continuous records like magnetic susceptibility data.

Jay gave the background to acquisition of the Geotek system, based on a SCIMP recommendation. It has been out since Leg 198, and scientific parties are enamored of it. Image file size is about 45 Mbytes per core. It processes four sections at a time, sitting on an x-y frame, and contains a moving linescan camera and light source. It has 100 pixels per cm resolution, simple calibration and white balance, captures neutral gray standard and core label in each image, and requires about 5 min per section to image on a platform running Windows 2000 OS (20 min of unattended operation per core). The Geotek system offers automated data acquisition and archiving, rapid web-based access to .tiff or .bmp files, and uses MR.Sid proprietary software to view and compress and uncompress files (lossless compression system with 40-1 compression; it produces 1 mbyte files). Files are archived offline (not in JANUS), with remote access from home offices same as well as on the ship (moratorium protected). There is a TAMU contract with Geotek to enhance the system, using a hand-held scanner to shoot file names and so avoid hand entry. The system now produces .TIFF files and archives those instead of .bmp (bit mapped) files. A new software package allows users to bring up images, zoom in, and concatenate sections to produce whole core images by stitching them together. As well, RGB values of the image are available to be plotted graphically.

Advantages of the Geotek line scan system include the simple, rapid generation of digital image files, excellent image resolution, and its use as a substitute for color close-up photography. Whole-core color images are available minutes after the core is scanned, and have been used by scientific parties as a reference almost immediately. As a means of preserving accurate color images of the core, ODP is nonetheless maintaining a color photo archive through the end of ODP.

There are several potential improvements to the system. Currently, it requires download to a local hard drive to view or edit. There is insufficient dynamic range of the line-scan CCD to avoid problems of calibration of core with varying image brightness- calibration to see details of dark core cause washouts of bright areas, and calibration for bright core causes dark areas of core to lack detail. Regarding accurate color archiving of the core, core after core, these calibration problems appear insurmountable with the current CCD dynamic range. There are also some MR.Sid

idiosyncrasies; the system is not yet "idiot proof," important when scientists operate the core scanner.

Georges Ceuleneer mentioned a possible way out of the dynamic range problem by taking two scans- one at a standard calibration, another with dynamic or optimized static calibration, and then recalibrate through processing.

After examining MR.Sid images available on the web, the Group was very impressed by the core details and color. Questioning and discussion with those familiar with the system noted that setting the proper level of dynamic range was critical for preserving effective core appearance. Currently, there is a need for recording of metadata regarding the processing of digital images to enhance contrast, etc.- figure captions need to note processing. A point was also made that wet and dry protocols for imaging need to be set up.

Measurement While Coring Overview

Kevin Gregor gave an overview of engineering development of measurement while coring tools. Measurement while coring (MWC) allows for continual monitoring of formation, hole and tool conditions without a break in the coring process, and for modification of drillstring control to address identified problems. MWC also potentially allows for monitoring of core recovery, aiding in placing core within a 3-D framework when recovery is less than 100%. Mudpulse telemetry is used to transmit signals from an instrumented bottom hole assembly (BHA) through the water column in the drillstring.

Current and past developments have included measuring formation resistivity at the bit (RAB), both during drilling and coring, and development of the Sonic Core Monitor (SCM), designed to record actual recovery of core. SCM development has been stopped since 1996, as blindspots occur either at the first two meters, or at 2-4 meters, depending on the transducer used. The SCM needs a new transducer and further development to overcome these blind spots. The Group noted that if drillers are monitoring when core enters the core barrel, scientific parties could use this information to determine where true core piece placement should be.

The MWC BHA assembly consists of a drilling sensor sub between the RCB BHA and a telemetry tool. ODP engineering staff are seeking funding for instrumentation packages that would monitor weight on bit (WOB), torque on bit (TOB), drillstring RPM, bit displacement (rate of penetration), borehole temperature, and borehole pressure. Values taken from the MWC BHA would be far more accurate at inferring downhole conditions than is currently done from those measured by the rig instrumentation system at the rig floor. ODP Drilling Services will deploy a drilling sensor sub as a memory (not telemetry) tool on Leg 206, but needs $185K to finish drilling sensor sub construction (they are currently seeking outside funding for this to ensure deployment).

The RAB hardware sits 2 m behind the bit. A preliminary design will be evaluated on Leg 204, and it will be a memory system. Modifications of existing core barrels will be needed, and the system will be kluged together using the motor-driven core barrel (MDCB), as the normal rotary core barrel (RCB) tools are too large. The Group was interested in the possibility that the RAB could be used on Leg 209.

Digital Versus Analogue Image Issues

Ann Klaus started off with a definition of what an actual archive represents: a place in which public records or historical documents are preserved. She further defined what it means to preserve: to keep safe from harm and decomposition for future use. She went over how the format for data publication had changed, noting that our electronic publishing system is really a hybrid, as it has to be able to print the published documents. During development of electronic publication ODP/TAMU learned that ODP needs to better link the Initial Results volume and the database- the actual line between the two is blurred. If one assumes that publications in IODP are moving to an all-electronic format, then there is a need to figure out efficient links between the IODP database and publications. We should not design them as separate entities, as the use of links connects them. Nevertheless, there is a need to freeze rock descriptions coming off ship within a database for it to be considered part of publication with a date- this date of frozen data acquisition is an essential part of JANUS, and important to define.

The Group was receptive to Ann's ideas, noting that descriptive hard rock logs such as for veins or rock alteration fit within this environment; we need to have the flexibility within the IODP database to create and preserve these logs.

Ann then discussed metadata needs for digital core image manipulation. Color management is essential and there is a need to develop protocols and standards. She then showed on web-based ODP Leg publications how core images are linked to close-ups, giving examples from Leg 193.

John Beck then discussed archive issues regarding digital images of core. Digital archives are much more expensive to acquire and maintain than hard copy analogue archives. Hybrid systems, such as what ODP currently uses, are likely the most viable for the future program. From other studies and experiences, there is a need to do cost-benefit analyses; usually, maintenance costs of digital archives are very high and will likely be justified only for images that will be used.

Migration of media, files, and metadata, which need to be done at regular intervals, is very expensive. Maintaining digital image files on-line, and the infrastructure to do so, is also costly. Studies show that 50-100% of the initial acquisition investment is spent for file maintenance over the first 10 years of archiving, with further network infrastructure and staff costs five times that of the initial acquisition costs. The end result is that the cost for a digital archive image is much higher than for an analogue archive image, which has comparatively modest archival costs.

John then discussed how ODP has 4" X 5" film of every DSDP and ODP core, with DSDP cores from Legs 1-60 reshot for consistency. As ODP personnel have time, they are producing digital images on a drum scanner of each DSDP and ODP 4" X 5" core film photo. The digital aspect of these drum-scanned images allows for accurate rendition of core color: one can use the known RGB characteristics of the gray-scale calibration on each core image for correction to true color. As a result, the best of two worlds is married: ODP is able to maintain the dynamic range of the analog color film, but is able to digitally correct the drum-scanned images for inconsistency in color caused by variations in color processing.

John followed with an overview of the relative dynamic ranges of differing image technology. Drum scanners have the highest dynamic range, even higher than the 4" X 5" film used as the current primary archive of the core appearance. Therefore, drum scans of the current archive yield

no loss in resolution. John also emphasized that the dynamic ranges in CCD images and color prints are well below that of color film. He reiterated the dynamic range issues of currently available CCD's and this compromises the ability to have accurate color calibration. The current line scan system requires an opening up of aperture to image darker core, with a loss of color accuracy. A proper color management system is needed, calibrated every day, with calibration and profiling of monitors and scanners used for imaging. There is a need to have an understanding of the color working space for each piece of imaging equipment in the imaging chain to move to a true digital archive core image. He was impressed that CCD technology is moving rapidly, but emphasized that we should not move to a digital archive until the CCD dynamic range equals that of color film.

Overview of GIS in Relation to Core Description

Dave Becker gave an overview of how Geographic Information System (GIS) technology might be applicable to core description. He started out by stating that 3-D GIS is not really developed to the point where it would be useful to us, being used primarily only in medical science, but that 2-D GIS is more practically viable. GIS brings together a 2-D spatial framework and data, such as might occur in a relational database like JANUS.

JANUS data types include Core log, Leg, Site, Physical Properties, Chemistry, Magnetic, Paleontology, and Environmental (e.g. ADARA temperatures). There are 450 related Oracle data tables in JANUS; queries into JANUS are complicated with nearly 40 applications used to collect data, upload data into database, retrieve data, and produce predefined printed and web reports.

GIS provides a way to organize core data as well as to display it. Adding GIS to JANUS could link queries of data to certain features of certain sites. Uses of GIS in IODP might include core sections collected over multiple holes and sites (e.g. could produce a block diagram or 3-D map that could be a potential stratigraphic correlation technique).

A core section GIS template would represent linear measurements in two directions related to the length of section, depth measurement, and drill hole size. In other words, the split surface of the curated core could have a 2-D, X-Y geographic framework assigned to it. This would set up a GIS database linked to the JANUS database. The GIS database could use key words to link features to the JANUS data as well. This X-Y template would then serve as a foundation for adding multiple layers of data related to unique X-Y points; these multiple "Z" direction items, each with an unique identifier to each x-y coordinate, could include images, text, and spreadsheet entries that can be linked together.

One could extend JANUS to include core description attribute tables. These tables might include: base maps (section image or core images representing concatenated sections images), point attribute tables, line attribute tables, polygon attribute tables, and annotation tables. The system could be automated, through thresholding of images, and generation of an electronic template of core outline (image analysis), useful for area calculations.

Group discussion followed about the use of digitizing pads versus annotating the digitized image with automatic digitizing of drawn points, lines, or shapes (polygons). In particular, discussion centered on whether such devices as Palm Pilots, linked by infrared communication or other means to large display systems, could be used to annotate digital images of core in such a GIS environment.

Use of Spreadsheets in Core Description
Henry Dick gave an overview both of the use of spreadsheets in aiding hard rock core description, and how hard rock parties have worked most efficiently in describing complex core. He emphasized how important it is to recognize how scientists work most effectively both individually and together. He and others gave numerous examples of how breaking the leg scientific party up into two different shifts introduced nearly insurmountable problems in consistency of core description and effective cross-shift teamwork.

The goals of a hard rock description system are:
1) High quality observations
2) High quantity observations
3) Efficient data collection
4) Flexible architecture
5) Accessible architecture and data

Henry discussed the Leg 118 experience, noting that rock types were not easily described using IUGS terminology. In particular, some rock types represent disequilibrium assemblages, not easily described using fixed terminology adopted by international committee and based upon idealized rock types. In general, the Leg 118 rocks proved very difficult to describe, as they had both complex igneous assemblages and a complex metamorphic overprint.

Henry then noted that the idea of continuous monitoring of changes in rock composition is analogous to semi-continuous to continuous measurements of rock properties by analytical machines, such as the multi-sensor track or the pass-through magnetometer. A system of mapping such changes in rock composition can be most effectively done by setting up teams of scientists responsible for mapping specific sets of rock characteristics: e.g., igneous, structure, and metamorphic teams, sometimes with one or two individuals responsible for specific features such as metamorphic vein or vesicle frequency and character. In hard-rock specific legs, disciplinary teams of 4-5 individuals have worked well. This system removes personal stakes, and forces work by consensus. It also rewards individuals by giving ownership over the aspect of data they systematically collect.

With igneous-intensive legs with larger hard rock parties, there must be flexibility in the database structure to accommodate numerous and new data types that may be leg or multi-leg project specific. Spreadsheet entries provide the most effective means of recording semi-continuous or continuous changes in rock composition and character. Henry pointed out that one can quantify effectively what is currently isolated descriptive or qualitative information, such as noting the degree of plastic deformation on 1 to 5 scale calibrated by images of each scale in the IR volume. The database needs to be flexible enough to add leg-specific fields- as a consequence, one won't be able to search the same fields across all legs. There may be able to have common fields for all legs, but must be able to add unique fields to accommodate needs of differing hard rock legs.

Henry reiterated the importance of retaining the curated rock depth as an absolute reference. Value is added from calculating "integrated depths" from external data, including logging, measurements while coring, or other data using provided toolbox. Database enhancements could include the ability to calculate running averages (binning tool), and pinpoint depth tielines with the ability for

differential core expansion. In addition, one must make a distinction between penetrative features and those that aren't. Core images will show such distinctions more readily than generalized logs.

Finally, a key aspect of a hard rock core description package is that one needs to be able to integrate any data sets in real time with the core. So, data input tools and query tools all need to be keyed to a core image.

Overview of OD21

Jamie Allan gave an overview of the OD21 Database concept, presenting again overheads shown to the iSCIMP last December. The OD21 would be compatible with the current JANUS system, using the same data structure. The database will have a real time data browsing system, and a user-friendly data input/edit system for core description. It features an advanced digital archiving system, and will operate in a fast LAN environment onboard. The database also includes a composite log viewer and graphical composite display, where core images and logging data can be shown; description interface and archive interface functions; and a multi-scale core editor, operable at any scale. It is not clear whether the system will have significant core image annotation features, thought to be very important by the Group. A number of members thought that having a visual dictionary for textural terms that would be very similar to a paleontology taxon dictionary could significantly enhance the hard rock portion of such a database.

Geotek Imaging Tools

Dave Becker gave an overview of the Geotek Imaging Tools available with the line scanner. Through these tools, it has been possible add RGB values to the JANUS database. The width of the imaged window and the core area averaged to produce the RGB values are set by the leg co-chiefs. These tools can calculate RGB values on the fly for specified areas. The tools use the MR.Sid compressions system, and can make JPEG files from expanded files and stitch them together. The tools can stitch together all data types- JPEG to MR.Sid to TIFF, and can create companion metadata files to TIFF files (.XML file).

K. Legacy Issues

In June 2000, EXCOM passed the following motion asking SCICOM to look after the ODP legacy in several ways:

"EXCOM Motion 00-2-5: EXCOM requests SCICOM to develop an ODP legacy that includes, among other things, the following:

- a list of ODP's greatest hits,
- a database of publications related to ODP results, as already begun by JOI and TAMU,
- written documentation from SCICOM, the SSEPs, and other panels about major ODP-related results, by field, to accompany the list of greatest hits and the publications database,
- a description of major technical developments, from TEDCOM with help from LDEO and TAMU,
- a reply to the question: How well did ODP do in answering the questions originally asked? This study should consider all phases of ODP (i.e., it should extend back to COSOD I).

EXCOM would like to receive a draft report on the ODP legacy at its June 2001 meeting."

We have successfully addressed the first 4 of the 5 aspects above (see URL's below), but haven't specifically addressed the last one. It turns out that this final matter in the EXCOM motion is nearly the same as the first item in the draft mandate for the 6th Performance Evaluation Committee (PEC VI) that was also reviewed by EXCOM this year, as follows:

"(2) The committee is charged with addressing the following specific issues, as well as other items considered important by the committee.

- The committee should assess to what extent the goals set up in the ODP Long Range Plan have been achieved.
- The committee should examine all aspects of the phase-out program.
- The committee should look at all aspects of the phase-out as it impacts the commencement of the new IODP drilling program.
- The committee should assess provisions to present and preserve the legacy of ODP. This should include the legacy of cores and core repositories, the legacy of tools and techniques, the legacy of databases and the scientific legacy. Since the science will not be completed for several years after the formal end of ODP, it is necessary to ensure that adequate plans are in place for carrying out this task until the end of the program in the absence of an international oversight group.
- The committee should assess the effectiveness of the JOIDES scientific advice structure, which was changed in the middle of ODP on the advice of a previous PEC, to make sure that it is an appropriate model for the IODP, and if not, suggest changes."

For the August 2002 meeting, SCICOM members are asked to each present two overheads, as follows:

1. A single overhead summarizing your own personal views of what ODP has done well and for what aspects we could have done better.
2. A single overhead summarizing scientific achievements of ODP in your own field of expertise, including a statement of how that field would be different if ODP had not existed.

Legacy URL's:

Achievements and Opportunities of Scientific Ocean Drilling

Individual contributions:	http://joides.rsmas.miami.edu/legacy/
Full issue of JOIDES Journal:	http://joides.rsmas.miami.edu/journal/

Greatest Hits

New collection:	http://www.joiscience.org/GreatestHits2/
1997 collection:	http://www.joiscience.org/USSSP/Pubs/GreatHits/Main.html

Tool Technical Summary Sheets

TAMU:	http://www-odp.tamu.edu/publications/tnotes/tn31/INDEX.HTM
LDEO:	http://www.ldeo.columbia.edu/BRG/ODP/legacy.html

Publications Database

TAMU:	http://www-odp.tamu.edu/publications/cite/index.html

Greatest Hits

http://www.joiscience.org/GreatestHits2/

Currently 47 of the articles submitted for Greatest Hits Volume 2 are posted in pdf format on the JOI web site above. One of the aims of the editors is to make this volume a truly international legacy volume and these articles represent contributions from 11 countries.

An additional aim is to produce a volume that highlights the substantial scientific accomplishments of ODP in a language which can be appreciated by the nonscientist. The SSEPs panels, together with some assistance from the iSSEPs panels, are currently reviewing these articles and suggesting revision where necessary. Once this process is complete the above URL will be linked directly to the JOI web site.