13th Meeting of the
ECORD Science Support & Advisory Committee
ESSAC

03rd – 04th November 2009
Radisson Blu Hotel
Oulu, Finland

Agenda of the 13th ESSAC Meeting

03rd to 04th November 2009, Oulu, Finland

Monday 02th November 2009: Visit of the Geological Museum and geological field trip "Glacigenic deposits in Oulu region" (Leader: Prof. Juha Pekka Lunkka)

Tuesday 03th May 2009, 9:00– 18:00 h

1.	**Introduction**	
1.1	Call to order, introductions (Stein)	(5')
1.2	Welcome and meeting logistics (Strand)	(5')
1.3	Discussion and approval of the Agenda (Stein)	(5')
1.4	Approval of the Minutes of 12th ESSAC Meeting (Stein)	(5')
1.5	Items since the 12th ESSAC Meeting/ESSAC Office news (Camoin/Stein/Lezius)	(20')
1.6	ESSAC FY10 Budget (Stein)	(5')
2.	**IODP News**	
2.1	Lead Agencies and Implementing Organizations (Mével)	(20')
2.2	SAS Executive Committee (SASEC), IODP Council and IWG+ (Mével)	(20')
2.3	Science Steering Evaluation Panel (SSEP) (Pälike)	(30')
2.4	Science Planning Committee (SPC) and Operation Task Force (Stein)	(30')
2.5	Outreach Task Force (Stevenson)	(10')
3.	**ECORD News**	
3.1	EMA - ECORD Council (Mével)	(20')
3.2	ESO (Stevenson)	(20')
3.3	ESO-EMA-ESSAC Meeting (Maruéjol)	(10')
3.4	ESSAC representatives and National Office reports (ESSAC Delegates)	(30')

Lunch

4.	**Nominations and Staffing**	
4.1	Staffing (Camoin)	(30')
	4.1.1 Updates on expedition staffing: Canterbury Basin, Wilkes Land, NanTroSEIZE 1B, Great Barrier Reef Environmental Changes, Shatsky Rise	
	4.1.2 Nomination of co-chiefs	
4.2	SAS panel nominations (Camoin)	(30')
	4.2.1 EDP	
	4.2.2 SSEP	
	4.2.3 STP	
5.	**ESSAC highlight on Pacific Equatorial Age Transect (PEAT-1) Expedition 320** (Pälike)	(45')

6. Breakout sessions (90')

ESSAC Subcommittees:

Nomination and staffing (Lourens): The 'Quota Problem'

Education and Outreach (Monteys): DLP- new themes and lecturers

Workshops, Communication and Vision (Erba): Letter of support for continuation of IODP

Free evening

<u>Wednesday 03th November 2009, 9:00– 18:00 h</u>

4.3 N & S Subcommittee report on 'Quota Problem' and discussion (Lourens) (45')

7. Education and outreach

7.1 ECORD Summer Schools (Reports)

- 7.1.1 Past Global Change Reconstruction and Modelling Techniques Summer School, Urbino, July 2009 (Lourens) (15')
- 7.1.2 ECORD Summer School on Geodynamics of Mid-Ocean Ridges, Bremen, September 2009 (Mével) (15')
- 7.1.3 Outlook and ECORD Summer Schools 2010 (Lezius) (5')

7.2 ECORD Grants and scholarships (Lezius) (5')

7.3 Distinguished Lecturer Programme 2009 update (Lezius) (5')

7.4 School of Rock (Lezius) (5')

7.5 ECORD Publications

- 7.5.1 ECORD Newsletter #13 (Maruéjol) (5')
- 7.5.2 ESSAC folder-brochure (Maruéjol) (10')

7.6 E & O Subcommittee report on DLP, discussion and future actions (Monteys) (45')

8. Workshops, communication and vision

8.1 Future of IODP: INVEST Report and discussion (Camoin) (60')

Lunch

8.2 Further workshop reports

- 8.2.1 Scientific Ocean Drilling of Mid-Ocean Ridge and Ridge-Flank Settings, August 27-28, Austin, Texas, USA (Comas?) (10')
- 8.2.2 Melting, Magma, Fluids & Life (InterRIDGE and IODP), July 27-29, Southampton, UK (James) (10')
- 8.2.3 ACE Symposium Workshop: Developing an integrated strategy to recover paleoclimate records from the Antarctic margin and Southern Ocean, September 12-13, Granada, Spain (Erba?) (10')
- 8.2.4 Pliocene Climate, October 23-25, Bordeaux, France (Stein) (10')
- 8.2.5 Magellan workshops (Erbacher) (20')
- 8.2.6 EuroFORUM-2010 (Stein) (5')

8.3 W, C & V Subcommittee report, discussion and future actions (Erba) (45')

9. Review of consensus, motions and actions (Stein) (15')

8. Next meetings

ESSAC #14, May 2010, location TBD (10')
ESSAC #15, October 2010, location TBD (5')

10. Any Other Business (Stein)

Joint Dinner

List of Participants

ESSAC Office

Ruediger Stein (Chair)	ESSAC Delegate Germany
Jeannette Lezius	ESSAC Science Coordinator

ESSAC Representatives

Fatima Abrantes	ESSAC Delegate Portugal
Neil Banerjee	ESSAC Delegate Canada
Gilbert Camoin (vice-chair)	ESSAC Delegate France
Menchu Comas	ESSAC Delegate Spain
Elisabetta Erba	ESSAC Delegate Italy
Anneleen Foubert	ESSAC Alternate Belgium
Rachael James	ESSAC Delegate UK
Nalan Koç	ESSAC Delegate Norway
Lucas Lourens	ESSAC Delegate Netherlands
Xavier Monteys	ESSAC Delegate Ireland
Ian Snowball	ESSAC Delegate Sweden
Kari Strand (meeting host)	ESSAC Delegate Finland

Observers/Guests

Jochen Erbacher	ESF Magellan Workshops
Annakaisa Korja	ESSAC Alternate Finland
Patricia Maruéjol	EMA
Catherine Mével	EMA
Heiko Pälike	Co-chief PEAT-1
Alan Stevenson	ESO

Apologies

Bryndís Brandsdóttir	ESSAC Delegate Iceland
Gudrun Helgadottir	ESSAC Alternate Iceland
Paul Cornils Knutz	ESSAC Alternate Denmark
Judith McKenzie	ESSAC Delegate Switzerland
Werner Piller	ESSAC Delegate Austria
Marit Solveig Seidenkrantz	ESSAC Delegate Denmark
Michael Wagenreich	ESSAC Alternate Austria

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ESSAC Terms of References

ACEX	**A**rctic **C**oring **Ex**pedition (Expedition 302)
APLACON	**A**lternative **Pla**tform **Con**ference (Lisbon, May 2001)
AF	**A**cademy of **F**inland
BCR	**B**remen **C**ore **R**epository
BGS	**B**ritish **G**eological **S**urvey (UK)
BoG	IODP-MI **B**oard **of G**overnors
CDC	**C**onceptual **D**esign **C**ommittee (new riser vessel)
CDEX	**C**enter for **D**eep Earth **EX**ploration (Japan)
CoNISMa	**Co**nsorzio **N**azionale **I**nteruniversitario per le **S**cienze del **Ma**re (Italy)
CDP	**C**omplex **D**rilling **P**roject
CNR	**C**onsiglio **N**azionale delle **R**icerche (Italy)
CNRS	**C**entre **N**ational de la **R**echerche **S**cientifique (France)
DASTI	**D**anish **A**gency for **S**cience, **T**echnology and **I**nnovation
DFG	**D**eutsche **F**orschungs**G**emeinschaft (German Research Foundation)
EC	**E**uropean **C**ommission
ECORD	**E**uropean **C**onsortium for **O**cean **R**esearch **D**rilling
EDP	**E**ngineering **D**evelopment **P**anel
EPC	**E**uropean **P**etrophysics **C**onsortium
EMA	**E**CORD **M**anaging **A**gency
ERA-Net	**E**uropean **R**esearch **A**rea **Net**work
ESF	**E**uropean **S**cience **F**oundation
EPSP	**E**nvironmental **P**rotection & **S**afety **P**anel
ESO	**E**CORD **S**cience **O**perator
ESSAC	**E**CORD **S**cience **S**upport and **A**dvisory **C**ommittee
FWO-Vlaanderen	Fund for Scientific Research-Flanders (Belgium)
FWF	Austrian Science Fund
GRICES	**G**abineta de **R**elacoes **I**nternacionais da **C**iencias e do **E**nsino **S**uperior (Portugal)
GSI	The **G**eological **S**urvey of **I**reland
ICDP	**I**nternational **C**ontinental Scientific **D**rilling **P**roject
IIS-PPG	**I**ndustry **I**ODP **S**cience **P**rogram **P**lanning **G**roup
INGV	**I**stituto **N**azionale di **G**eofisica e **V**ulcanologia (Italy)
INSU	**I**nstitut **N**ational des **S**ciences de l'**U**nivers (France)
IOs	**I**mplementing **O**rganisation**s**
IODP	**I**ntegrated **O**cean **D**rilling **P**rogram
IODP-MI	**IODP M**anagement **I**nternational, Inc.
ISP	**I**nitial **S**cience **P**lan for the IODP
JAMSTEC	**JA**pan **M**arine **S**cience & **TE**chnology **C**enter
J-DESC	**J**apanese **E**arth **D**rilling **S**cience **C**onsortium
JEODI	**J**oint **E**uropean **O**cean **D**rilling **I**nitiative
JOI	**J**oint **O**ceanographic **I**nstitutions
JR	**J**OIDES **R**esolution
LDEO	**L**amont **D**oherty **E**arth **O**bservatory
MEC	**M**inisterio de **E**ducacion y **C**iencia **Y** (Spain)
MEXT	**M**inistry of **E**ducation, Culture, Sports, Science & **T**echnology (Japan)
MoU	**M**emorandum **o**f **U**nderstanding
MOST	People's Republic of China **M**inistry **O**f **S**cience and **T**echnology

MSP	**M**ission-**s**pecific **p**latform
NanTroSEIZE	**Nan**kai **Tro**ugh **SEI**smogenic **Z**one **E**xperiment
NCMR	**N**ational **C**enter for **M**arine **R**esearch (Greece)
NERC	**N**atural **E**nvironment **R**esearch **C**ouncil (UK)
NSF	**N**ational **S**cience **F**oundation (USA)
NWO	Netherlands Organisation for Scientific Research
OD21	**O**cean **D**rilling in the **21**st Century (Japan)
ODP	**O**cean **D**rilling **P**rogram
OEAW	Austrian Academy of Sciences
OGS	Istituto Nazionale di **O**ceanograpfiae di **G**eofisica **S**perimentale (Italy)
RANNIS	The Icelandic Centre for Research
SAS	**S**cience **A**dvisory **S**tructure
SASEC	**S**cience **A**dvisory **S**tructure **E**xecutive **C**ommittee
SciMP	**Sci**entific **M**easurements **P**anel
SNF	**S**wiss **N**ational Science **F**oundation
SODV	**S**cientific **O**cean **D**rilling **V**essel
SPC	**S**cience **P**lanning **C**ommittee
SSEP	**S**cience **S**teering & **E**valuation **P**anel
SSP	**S**ite **S**urvey **P**anel
STP	**S**ite **T**echnology **P**anel
TAMU	**T**exas **A** & **M** **U**niversity
ToR	**T**erms **o**f **R**eference
USSAC	**U**nited **S**tates **S**cience **A**dvisory **C**ommittee
USSSP	**U**nited **S**tates **S**cience **S**upport **P**rogram
UVic	**U**niversity of **Vic**toria (Canada)
VR	Swedish Research Council

ESSAC subcommittee procedures

ESSAC has been structured in three subcommittees (Staffing and Nominations, Education and Outreach, and Workshops, Communication and Vision) to increase the efficiency of ESSAC and the involvement of the ESSAC Delegates in ESSAC life. Subcommittee general tasks and composition are summarized below.

The subcommittees meet electronically to prepare the meetings on general issues and to work on specific issues at the request of the ESSAC Chair. Each subcommittee is coordinated by an ESSAC Delegate, nominated by the ESSAC Chair. The coordinator is in charge of writing a report for the Agenda book and of presenting the activities of the subcommittee at the meetings. A general discussion follows that presentation.

Staffing and Nominations subcommittee

Members: Lucas Lourens (Coord.), Ruediger STEIN (ESSAC Chair), Jeannette LEZIUS (ESSAC Science Coordinator), Fatima ABRANTES, Neil BANERJEE, Gilbert CAMOIN, Rachael H. JAMES, Judith McKENZIE.

General tasks:

- Suggesting nominations of ECORD representatives (delegates and alternates) on SAS panels, PPGs and DPGs.
- Co-ordinating applications, reviewing all the applications and suggesting nominations of shipboard participants.
- Reviewing the quota of shipboard scientists between participating countries.
- Suggesting co-chief nominations for IODP Expeditions.

Immediate actions:

- Summarize the current ECORD composition of SAS panels, identify future replacements (expertise), and suggest permanent alternates.
- Summarize the current ESSAC composition, identify future replacements (Delegates and alternates), and make recommendations.
- Summarize the quota balance for ECORD participation to IODP Expeditions.

Education and Outreach subcommittee

Members: Xavier MONTEYS (Coord.), Ruediger STEIN (ESSAC Chair), Jeannette LEZIUS (ESSAC Science Coordinator), Werner PILLER, Marit-Solveig SEIDENKRANTZ, Ian SNOWBALL, Rudy SWENNEN

General tasks:

- Developing educational opportunities/programs: Teacher's workshops, Summer Schools etc., especially in non-traditional audiences.
- Reviewing Summer School proposals.

· Reviewing applications and suggesting nominations for ECORD scholarships.

· Initiating applications of speakers for the Distinguished Lecturer Series and suggesting nominations.

· Providing new ideas regarding new ways to raise funds for E&O activities.

· Advising on the public outreach (societal relevance of the IODP science).

Immediate actions:

· Make recommendations for deadlines for submission of Summer School proposals and for applications for ECORD scholarships.

· Make suggestions of new ideas regarding E&O activities (societal relevance of the IODP science), especially in non-traditional audiences.

· Make suggestions regarding new ways to raise funds for E&O activities.

· Monitoring ECORD database (e.g. ECORD publications).

Workshops, Communication and Vision subcommittee

Members: Elisabetta ERBA (Coord.), Ruediger STEIN (ESSAC Chair), Jeannette LEZIUS (ESSAC Science Coordinator), Bryndís BRANDSDOTTIR, Menchu COMAS, Nalan KOÇ, Kari STRAND

General tasks:

· Initiating and monitoring workshops.

· Reviewing applications for participation to IODP workshops and suggesting nominations.

· Providing stimulation and guidance for the writing of drilling proposals in accordance with the IODP ISP and encouragement of IODP-related activities among participating countries.

· Assisting and advising on extending the scientific base of the consortium to non-member countries.

· Looking for gaps in the science spanned by the active proposals relative to the themes and initiatives specified in the Initial Science Plan (ISP),

Immediate actions:

· Review the ECORD database and make recommendations.

· Summarize ECORD active proposals by ISP themes.

· Make recommendations regarding stimulation and guidance for the writing of drilling proposals.

· Make recommendations regarding the extension of the scientific base of the consortium to non-member countries.

1. Introduction

1.1 Letter from the Chair

Dear ESSAC Delegates, ESSAC alternates, and attendees of the 13th ESSAC Meeting,

just a month ago, the ESSAC Office moved from Aix-en-Provence in France to Bremerhaven in Germany, and we, Jeannette (Jenny) Lezius as new Science Coordinator and myself as new ESSAC Chair, took-over the steering wheel from the former Chair Gilbert Camoin and Science Coordinator Bonnie Wolff-Boenisch. That means, most of the ESSAC activities carried-out over the last months were done under the leadership of the Aix-en-Provence ESSAC Office.

What happened since the 12th ESSAC Meeting that was held in Sesimbra/Portugal on May 26-27, 2009? Over the last months, ESSAC has been actively involved in the finalization of the staffing of the following expeditions : «Canterbury Basin » (Expedition 317 with co-chiefs C. Fulthorpe and K. Hoyanagi), « Wilkes Land » (Expedition 318 with co-chiefs C. Escutia and H. Brinkhuis), « Shatsky Rise » (Expedition 324 with co-chiefs W. Sager and T. Sano) which is scheduled from September to November 2009 and of the NanTroSEIZE expeditions scheduled from May to October 2009 : the Stage 2 « Subduction Input » (Expedition 322 with co-chiefs S. Saito and M. Underwood) and « Riser/Riserless Observatory-1 » (Expedition 319 with co-chiefs L. McNeill, E. Araki, T. Byrne and D. Saffer) expeditions which will include the first riser drilling operations by the Chikyu.

The second phase of the ECORD Distinguished Lecturer Programme is very successful with 31 applications of institutions from 16 ECORD and non-ECORD countries to host the 2008-2009 ECORD Distinguished Lecturers, Peter Clift, Achim Kopf and John Parkes. This phase will be active until June 2010.

The budget related to the ECORD summer schools has increased at ESSAC's request, including the ECORD Scholarship programme and the funding of the ECORD summer schools. 15 young scientists from 7 countries have been selected among 64 valid applications from 15 ECORD countries to be funded by ECORD to attend one of the two ECORD-sponsored 2009 summer schools : « Past Global Change Reconstruction and Modelling Techniques » (Urbino, Italy ; July 2009) and « Geodynamics of Mid-Ocean Ridges » (Bremen, Germany ; September 2009).

At its 12th meeting, ESSAC decided to fund in 2010 the Urbino Summer School on « Past Global Change Reconstruction and Modelling Techniques » along with two other summer schools on « Dynamics of Past Climate Changes » (org. D. Hebbeln, M. Schulz, and U. Roehl) and « Ocean and climate changes in polar and subpolar environments » (org. Canadian Consortium on Ocean Drilling) which will be organized in Bremen and Québec, respectively.

At its 12th meeting, ESSAC has defined the format of a new tool called « ECORD Grants » which will consist of small and short-term grants which should cover travel and lab expenses to work on DSDP/ODP/IODP cores and/or data. The objectives of this Programme is to enlarge the use of the relevant material, and to attract still more young scientists and IODP newcomers. This concept has been accepted by the ECORD Council and the first « ECORD Grants » will be offered in FY2010.

ESSAC has been actively involved in the preparation of the INVEST (IODP New Ventures in Exploring Scientific Targets) Conference which has been held from September 23-25, 2009 in Bremen, Germany, with the publication of a White Paper on the ECORD, ESSAC and INVEST web sites. This White Paper summarizes the outcome of the ECORD-ESF workshop « Beyond 2013: the Future of European Scientific Drilling » which was held in Vienna (Austria) on April 24-25, 2009. The key items of the workshop report include : (1) The future of IODP and ECORD, (2) New

research initiatives and emerging fields in scientific drilling, (3) Relationships between IODP and other programs, (4) Collaboration between academia and industry, and (5) New technologies and the Mission Specific Platform approach. In parallel, ESSAC has initiated a web forum that provided the opportunity to all people interested in scientific drilling to be included in discussions regarding all the aspects listed above but also concerning the IODP achievements and perspectives, the IODP and ECORD structures, and the problems that IODP faced in the past.

During the EGU 2010 in Vienna, we will organize the EuroFORUM 2010. Our proposal has been accepted for an Interdivision Session dealing with major achievements and perspectives in ocean and continental drilling (for details see box below), and a call for oral and poster contributions will be send out soon.

Finally, we - Jenny and myself - gratefully thank Gilbert and Bonnie for all their effort leading ESSAC and running the ESSAC Office during the last two years so successfully. We hope that we will be able to continue this job in a similar active and successful way. In any case, we will do our best! The success of our work and ESSAC as a whole, however, also depends on the active support by the ESSAC delegates and the cooperation with the other IODP/ECORD bodies as well as the scientific community. We hope that the constructive and efficient cooperation between all of us will continue during the coming two years as well. If you have any ideas, suggestions, comments, etc. related to IODP/ECORD/ESSAC, please contact us. We are open for (almost) everything!

I warmly thank Kari Strand for hosting the 13th ESSAC Meeting in Oulu and for his efforts for the outstanding arrangements made for that meeting.

I wish you a successful and pleasant meeting.

Ruediger (Rudy) Stein

Bremerhaven, October 27, 2009

1.2 Welcome and meeting logistics of the 13th ESSAC Meeting in Oulu, Finland November 03 to 04, 2009

Practical Information

The participants are requested to register directly to the Hotel, via email or phone (+358 (0)20 1234 730), making reference to the meeting name. Information about the hotel can be found at the website: http://www.radissonblu.com/hotel-oulu. The accommodation of the Hotel per person is 89.00 € / individual room. This price includes room, breakfast, meeting lunch and coffee, sauna and WLan. Dinner will be on your own. A conference dinner is being arranged for Wednesday. Transport from the airport is via taxi (about 20 minutes, about 30 €) or bus (Bus no. 19, about 30 minutes, about 6 €)

Hotel's Address:

Hotel Radisson Blu, Oulu
Hallituskatu 1
FIN-90100 Oulu
Finland
Tel: +358 (0)20 1234 730
Website: http://www.radissonblu.com/hotel-oulu

For further assistance regarding administrative and logistical matters, please contact the meeting host.

Meeting Host

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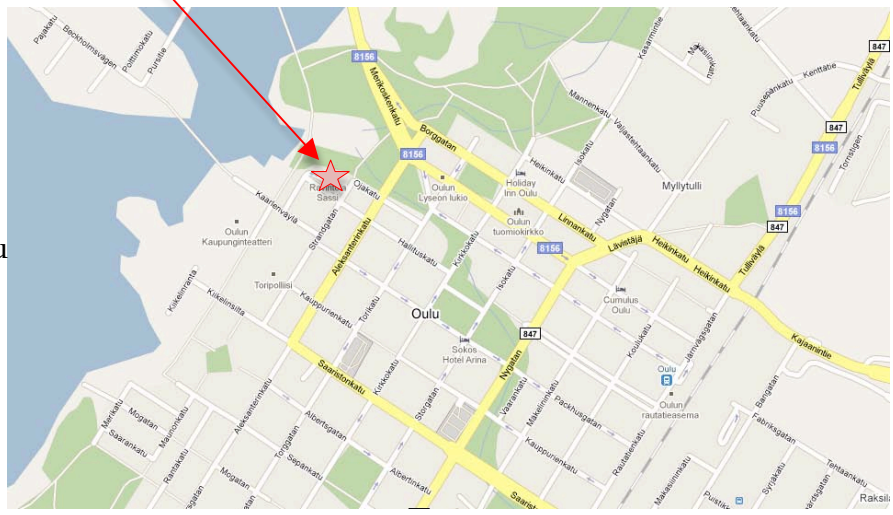

1.3 Discussion and approval of the Agenda

At the meeting in Oulu, Finland, R. Stein will present the current agenda and highlight potential challenges of the meeting and/or changes of the agenda.

1.4 Approval of the Minutes of the 12th ESSAC Meeting

R. Stein will present the minutes of the 12th ESSAC meeting in Sesimbra.

1.5 Items since the 12th ESSAC Meeting and ESSAC Office news

G. Camoin and R. Stein will present items since the last ESSAC meeting. The list down-below contains the actions items, which arose since the 12th ESSAC meeting in Sesimbra, Portugal (May 26th -27th, 2009) and that have been accomplished by the ESSAC Office or other persons in charge (ESSAC delegates, subcommittee members or observers) since then (labelled with "**Done**").

Action items not fulfilled yet, have been labelled by "**on-hold**" or have been explained on a case-by-case basis.

In some cases consensus and motions have been added, whether when actions had been entailed or if they had been deemed important to understand the context of the actions involved.

The full list of action items, consensuses and motions are given in the executive summary (Appendix 1).

> **ESSAC Action Item 0905-01**: The ESSAC office will issue a call to nominate new ECORD EDP panel members in June 09.

DONE : The ESSAC Office issued a call on June 10th, 2009 with a July 12th, 2009 deadline. The deadline has been then extended to September 4th, 2009.

> **ESSAC Action Item 0905-02:** The ESSAC office will issue a call to nominate new ECORD SSEP panel members in June 09.

DONE : The ESSAC Office issued a call on June 11th, 2009 with a July 12th, 2009 deadline. The deadline has been then extended to September 4th, 2009.

> **ESSAC Action Item 0905-03**: ESSAC welcomes the future development of the monitoring of statistics data.

ON HOLD : Action item left for the ESSAC Office in Bremerhaven.

> **ESSAC Action Item 0905-04:** The ESSAC delegates will send suggestions to the ESSAC office regarding the future incoming chair.

ON HOLD.

> **ESSAC Action Item 0905-05:** Following the decisions of the co-chiefs from Expeditions 325 to replace D. Sanders by J. Braga, ESSAC will recommend to D. Sanders to send a sample request, so that he could be able to be considered as a shore-based scientist, if the sample request is accepted by SAC (Sample Allocation Committee).

DONE.

> **ESSAC Action Item 0905-08:** The ESSAC Office located in Bremerhaven will create a template for the letter of support for the ECORD Scholarships.

ON HOLD.

> **ESSAC Action Item 0905-9:** The ESSAC Office located in Bremerhaven will create a template for the letter of support for the ECORD grants.

ON HOLD.

At October 1st, 2009, the ESSAC Office moved from CEREGE/Aix-en-Provence, F, to AWI/Bremerhaven, D. New chair is R. Stein and new Science Coordinator is J. Lezius. The ESSAC Office will be located in Bremerhaven until September 30th, 2011.

1.6 ESSAC FY10 Budget

R. Stein will present facts about the FY10 Budget.

2. IODP News

2.1 Lead Agencies and Implementing Organizations

C. Mével will give a summary about the latest news regarding lead agencies and implementing organizations activities.

2.2 SAS Executive Committee (SASEC), IODP Council and IWG+

C. Mével will give a summary about the latest news regarding SASEC activities, IODP Council and IWG+.

2.3 Science Steering Evaluation Panel – SSEP

H. Pälike will present a summary of the 12th SSEP meeting that took place at the Grand Hotel Karel V Utrecht, Utrecht, The Netherlands, from May 25th to 28th, 2009. The draft minutes (v1) are given in appendix 3.

2.4 Science Planning Committee - SPC and Operation Task Force

R. Stein will present a summary of the 14th SPC meeting that took place at the IFM-GEOMAR, Kiel University, Kiel, Germany from August 25th to 27th, 2009. The draft minutes (v1.1) are presented in appendix 4.

2.5 Outreach Task Force

A. Stevenson will give a summary about the Outreach Task Force in preposition to the INVEST meeting in Bremen, Germany from September 22nd, 2009.

3. ECORD News

3.1 EMA - ECORD Council

C. Mével will give a summary about the latest news regarding EMA and ECORD Council activities.

3.2 ESO

A. Stevenson will give a summary about the latest news regarding ESO activities

3.3 ESO-EMA-ESSAC Meeting

P. Maruéjol will present a summary about the last ESO-EMA-ESSAC meeting.

Twice a year, the ECORD Managing Agency (EMA) convenes ESO outreach specialists and the ESSAC office to coordinate outreach projects and education efforts that allows ECORD to speak with a single voice to outreach partners within IODP.

A. Gerdes and A. Stevenson (ESO), C. Mével and P. Maruéjol (EMA) and R. Stein (ESSAC) attended the 2 day-meeting hosted by G. Camoin (ESSAC) in Aix en Provence from August 5 to 6, 2009.

After reporting on the past ECORD and IODP meetings and events, the following items were discussed:

- ESO outreach about NJSS and GBREC MSP expeditions,
- Review of ECORD outreach materials (core replicas, booth posters...) and publications (1) currently available for distribution - ECORD leaflet, ANSWERS, current Newsletter #12, MSP and NJSS flyers - and (2) to be released on late 2009/early 2010, Newsletter #13, ECORD Calendar 2010, new ECORD pocket brochure and GBREC flyer,
- Contents of the ECORD Newsletter #13 - November 2010
- ECORD web sites updates with the presentation of the renewed ESO web site,
- IODP Outreach TF meeting (October 22, Bremen) focusing on the future of IODP outreach with the relocation of IODP-MI in Tokyo,
- ECORD Outreach White Paper and poster for INVEST

The next meeting is scheduled for late January-early February 2010 in Edinburgh.

3.4 ESSAC representatives and National Office reports

Each ESSAC delegates will give a short summary about the latest national activities regarding IODP and ECORD issues. The current ESSAC delegates and alternates are given in the table down below:

ESSAC Delegates and Alternates

Austria	Werner E. Piller werner.piller@uni-graz.at	Michael Wagreich michael.wagreich@univie.ac.at
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Canada	Neil Banerjee neil.banerjee@uwo.ca	Ulrich G. Wortmann uli.wortmann@utoronto.ca

Denmark	Marit-Solveig Seidenkrantz mss@geo.au.dk	Paul Cornils Knutz pkn@geus.dk
Finland	Kari Strand kari.strand@oulu.fi	Annakaisa Korja annakaisa.korja@helsinki.fi
France (Vice-Chair)	Gilbert Camoin camoin@cerege.fr	Serge Berné serge.berne@univ-perp.fr
Germany (Chair)	Ruediger Stein Ruediger.Stein@awi.de	Jochen Erbacher j.erbacher@bgr.de
Iceland	Bryndís Brandsdóttir bryndis@raunvis.hi.is	Gudrún Helgadóttir gudrun@hafro.is
Ireland	Xavier Monteys Xavier.Monteys@gsi.ie	David Hardy david.hardy@gsi.ie
Italy	Elisabetta Erba elisabetta.erba@unimi.it	Leonardo Sagnotti leonardo.sagnotti@ingv.it
The Netherlands	Lucas Lourens llourens@geo.uu.nl	Stefan Schouten schouten@nioz.nl
Norway	Nalan Koç Nalan.Koc@npolar.no	Helga F. Kleiven kikki@uib.no
Portugal	Fatima Abrantes fabrantes@pro.softhome.net fatima.abrantes@ineti.pt	Luiz F. Menezes Pinheiro lmp@geo.ua.pt
Spain	Menchu Comas mcomas@ugr.es	Victor Diaz del Rio diazdelrio@ma.ieo.es
Sweden	Ian Snowball Ian.Snowball@geol.lu.se	Eve Arnold eve.arnold@geo.su.se
Switzerland	Judith McKenzie judy.mckenzie@erdw.ethz.ch	Helmut Weissert helmut.weissert@erdw.ethz.ch
U.K.	Rachael H. James R.H.James@noc.soton.ac.uk	Ros Rickaby Rosalind.Rickaby@earth.ox.ac.uk

4. Nominations and Staffing

4.1 Staffing

G. Camoin will summarize on expedition staffing.

4.1.1 Updates on expedition staffing :

The tables below summarize the staffing of all scheduled expeditions, as of October 8th, 2009.

The changes regarding the staffing of each expedition after the last ESSAC meeting are indicated.

Canterbury Basin # 317

Many changes have affected the staffing of that expedition :

- F. Paquet (France), M. Urbat (Germany), P. Haughton (Ireland) and V. Lüer (Germany) have declined the invitation to sail. F. Paquet has been replaced by J. Dinares-Turell (Italy). A short-term call for applications have been issued by the ESSAC Office on May 22nd, 2009. 6 valid applications have been received by the ESSAC Office : H. Jacot Des Combes and L. Delaby (France), D. Kemp, E. Mawbey and H. Lever (UK), and S. Stefer (Germany). H. Jacot Des Combes and D. Kemp have been invited to sail.

- K. Alain (France) has declined the invitation to sail and has been replaced by M.-C. Ciobanu (France).

- H. Jacot Des Combes (France) has declined the invitation to sail and has been replaced by H. Lever (UK).

The staffing of the expedition as of October 7th, 2009 is as follows:

Co-chief Scientist	Fulthorpe, Craig	accepted	USSAC(cc)			1				
Co-chief Scientist	Hoyanagi, Koichi	accepted	J-DESC(cc)	1						
USIO Expedition Project Manager	Blum, Peter	accepted	USIO							
USIO Logging Staff Scientist	Slagle, Angela	accepted	USIO							
USIO Logging Staff Scientist	Guerin, Gilles	accepted	USIO							
Core Description- Sedimentology(1)	McHugh, Cecilia	accepted	USSAC (1-high)			1				
Core Description- Sedimentology(2)	Murakoshi, Naomi	accepted	J-DESC (1)	1						
Core Description- Sedimentology(3)	Kemp, David	accepted	ESSAC (new, UK, 1)		1					
Core Description- Sedimentology(4)	Marsaglia, Kathie	accepted	USSAC (1-high)			1				
Core Description- Sedimentology(5)	Jaeger, John	accepted	USSAC (1-high)			1				
Core Description- Sedimentology(6)	Uramoto, Goichiro	accepted	J-DESC (3)	1						
Core Description- Sedimentology(7)	Tanabe, Susumu	accepted	J-DESC (new, 1)	1						
Core Description- Sedimentology(8)	Richaud, Mathieu	accepted	USSAC (2)			1				
Core Description- Sedimentology(9)	Lever, Helen	accepted	ESSAC (Scotland)		1					
Paleomagnetics	Dinares Turell, Jaume	accepted	ESSAC		1					
Paleomagnetics	Tinto, Kirsty	accepted	***ANZIC (NZ)					1		
Physical Properties	Carter, Robert	accepted	ANZIC (1,AUS)					1		
Physical Properties	Hepp, Daniel	accepted	ESSAC		1					
Physical Properties/downhole tools	Kominz, Michelle	accepted	USSAC (1-high)			1				
Physical Properties/downhole tools	Kim, Young-Gyun	accepted	K-IODP (s)						1	
Geophysicist (core-log-seismic)	Brusova, Olga	accepted	USSAC (1-high,s)			1				
Microbiology	Ciobanu, Maria-Cristina	accepted	ESSAC (new, France, 1)		1					
Organic Geochemistry	Lipp, Julius	accepted	ESSAC (new,GER,s)		1					
Inorganic Geochemistry	Yoshimura, Toshihiro	accepted	J-DESC (s)	1						
Inorganic Geochemistry	George, Simon	accepted	ANZIC (AUS)					1		
Micropaleontology (foram-planktic)	Kawagata, Shungo	accepted	J-DESC (5)	1						
Micropaleontology (foram-benthic)	Ohi, Takeshi	accepted	J-DESC (s)	1						
Micropaleontology (foram-planktic)	Ding, Xuan	accepted	IODP-China				1			
Micropaleontology (diatom)	Suto, Itsuki	accepted	J-DESC	1						
Micropaleontology (nannofossils)	Blair, Stacie	accepted	USSAC (1-high,s)			1				
Micropaleontology (nannofossils)	Pea, Laura	accepted	ESSAC (new,IT,s)		1					
Organic Geochemistry Consultant (USIO Funded)	Claypool, George	Appointed		8	7	8	1	3	1	0
New Zealand Observer & Sedimentology	*Browne, Greg	Appointed		Total Scientists =						28
New Zealand Observer & Micropaleontology	*Crundwell, Martin	Appointed								

Wilkes Land # 318

- D. Denis (France) has declined the invitation to sail and has been replaced by J. Bendle (UK).

The staffing of the expedition as of October 7th, 2009 is as follows :

Co-chief Scientist	Escutia, Carlota	accepted	ESSAC (cc)		1					
Co-chief Scientist	Brinkhuis, Henk	accepted	ESSAC (cc)		1					
USIO Expedition Project Manager	Klaus, Adam	accepted	USIO							
USIO Logging Staff Scientist	Williams, Trevor	accepted	USIO							
USIO Logging Staff Scientist	Fehr, Annick	accepted	USIO							
Core Description- Sedimentology(1)	Dunbar, Robert	accepted	USSAC 1			1				
Core Description- Sedimentology(2)	Passchier, Sandra	accepted	USSAC 1			1				
Core Description- Sedimentology(3)	Tuo, Shouting	accepted	IODP-China (s)				1			
Core Description- Sedimentology(4)	Howard, Will	accepted	ANZIC (AUS)					1		
Core Description- Sedimentology(5)	Kong, Gee-Soo	accepted	Korea						1	
Core Description- Sedimentology(6)	Katsuki, Kota	accepted	J-DESC (new, A)	1						
Core Description- Sedimentology(7)	Bohaty, Steve	accepted	ESSAC 2 (UK)		1					
Core Description- Sedimentology(8)	Yamane, Masako	accepted	J-DESC 6 (s)	1						
Core Description- Sedimentology(9)	McKay, Robert	accepted	ANZIC 2 (NZ)					1		
Core Description- Sedimentology(10)	Shrivastava, Prakash	accepted	India							1
Paleomagnetics	Sugisake, Saiko	accepted	J-DESC (new, A)	1						
Paleomagnetics	Tauxe, Lisa	accepted	USSAC 1			1				
Physical Properties	Roehl, Ursula	accepted	ESSAC 1 (GER)		1					
Physical Properties	Nakai, Mutsumi	accepted	J-DESC 4	1						
Physical Properties	Gonzalez, Jhon Jairo	accepted	ESSAC 2 (SP,s)		1					
Physical Properties	Hayden, Travis	accepted	USSAC 1 (s)			1				
Organic Geochemistry	Bendle, James	accepted	ESSAC (UK)		1					
Inorganic Geochemistry	Jimenez-Espejo, Francisco	accepted	J-DESC 2	1						
Inorganic Geochemistry	van de Flierdt, Tina	accepted	ESSAC 1 (UK)		1					
Microbiology	Carr, Stephanie	accepted	USSAC 1 (s)			1				
Micropaleontology (diatom)	Stickley, Catherine	accepted	ESSAC 1 (NO)		1					
Micropaleontology (diatom)	Iwai, Masao	accepted	J-DESC 1	1						
Micropaleontology (diatom)	Riesselman, Christina	accepted	USSAC 1 (s)			1				
Micropaleontology (palynologist-dinoflagelate	Bijl, Peter	accepted	ESSCA 2 (NE,S)		1					
Micropaleontology (palynologist)	Pross, Joerg	accepted	ESSAC 1 (GER)		1					
Micropaleontology (radiolaria)	Sakai, Toyosaburo	accepted	J-DESC	1						
Micropaleontology (foram-benthic)	Pekar, Stephen	accepted	USSAC 1			1				
Micropaleontology (diatom)	Olney, Matthew	accepted	USSAC (1,p-doc)			1				

NanTroSEIZE 1B - Expedition #319

Speciality 1	Japan	US	ECORD	ANZIC and Korea
Chief Project Scientist	Kinoshita, Masataka			
Chief Project Scientist		Tobin, Harold		
Co-Chief Scientist	Araki, Eiichiro			
Co-Chief Scientist		Byrne, Timoty		
Co-Chief Scientist			McNeill, Lisa (UK)	
Co-Chief Scientist		Saffer, Demian		
Sedimentologist			Buret, Christophe (F)	
Gas/Porewater Chem.	Horiguchi, Keika			
Micro-Pal.		Jiang, Shijun		
PP/Downhole/Hydrogeol.	Lin, Weiren			
Sedimentologist		Schleicher, Anja		
PP/Downhole/Hydrogeol.		Boutt, David		
Logging			Doan, Mai-Linh (F)	
Sedimentologist			Efimenko, Natalia* (CH)	
Structural Geol.		Hayman, Nicholas		
PP/Downhole/Hydrogeol.	Ito, Takatoshi			
Gas/Porewater Chem.			Wiersberg, Thomas (GER)	
Sedimentologist			Buchs, David (CH)	
PP/Downhole/Hydrogeol.		Flemings, Peter		
Structural Geol.				Huftile, Gary (A)
Sedimentologist	Kawabata, Kuniyo			
Logging	Kano, Yasuyuki			
Logging				Cukur, Deniz (K)
PP/Downhole/Hydrogeol.			Conin, Marianne* (F)	
Observatory Specialist	Kitada, Kazuya			

Logging Micro-Pal. Observatory Specialist	Kameo, Koji	Moore, Casey	Kopf, Achim (GER)	
	8	8	8	1

NanTroSEIZE Subduction Input - Expedition #322

ECORD scientists :

Kutterolf, Steffen

Pickerling, Kevin

Kitamura, Yujin

Hüpers, Andre

Tudge, Joanne

Destrigneville, Christine

Heuer, Verena

Labanieh, Shasa

Great Barrier Reef Environmental Changes #325

	Japan	USA	ECORD	Australia
Co-chief Scientist	Y Yokoyama			
Co-chief Scientist				J Webster (Aus)
Sedimentologist	H Kan			
Sedimentologist		A Droxler		
Sedimentologist			G Camoin (F)	
Sedimentologist			E Gischler (G)	
Sedimentologist			F Seard (F)	
Coral specialist	K Sugihara			
Coral specialist		D Potts		
Coraline specialist	Y Iryu			
Coraline specialist			JC Braga (Sp)	
Dating	T Esat (Aus)			
Dating		W Thompson		
Dating			A Thomas (UK)	
Palaeoclimate	A Suzuki			
Palaeoclimate	M Inoue			
Palaeoclimate		B Linsley		
Palaeoclimate			T Felis (G)	
Palaeoclimate			A Tudhope (UK)	
Palaeoclimate				M Gagan (Aus)
Foramninifera	K Fujita			
Microbiology		TBN		
Palaeomagnetics		Herrero-Bervera		
Palaeomagnetics		L Jovane		
Phys props		K Verver		
Phys props			P Gouze (F)	

Shatsky Rise #324

Shatsky Rise Berth #	Science Party #	Responsibility	Name	Status	Affiliation (ranking)
1	1	Co-chief Scientist	Sager, Will	accepted	USSAC
2	2	Co-chief Scientist	Sano, Takashi	accepted	J-DESC
3		USIO Expedition Project Manager	Geldmacher, Joerg	accepted	USIO
4		USIO Logging Staff Scientist	Iturrino, Gerardo	accepted	USIO
5		USIO Logging Staff Scientist	Evans, Helen	accepted	USIO
6	3	Core Description - Igneous Petrologist (1)	Miyoshi, Masaya	accepted	J-DESC (3)
7	4	Core Description - IgneousPetrologist (2)	Koppers, Anthony	accepted	USSAC (High)
8	5	Core Description - Igneous Petrologist (3)	Natland, James	accepted	USSAC (High)
9	6	Core Description - Igneous Petrologist (4)	Almeev, Renat	accepted	ESSAC (***)
10	7	Core Description - Igneous	Shimizu, Kenji	accepted	J-DESC (1)
11	8	Core Description - Igneous	Greene, Andrew	accepted	USSAC (High)
12	9	Core Description - Volcanologist (5)	Widdowson, Mike	accepted	ESSAC (***)
13	10	Core Description - Metamorphic/Alteration Petrologist (6)	Delacour, Adelie	accepted	ESSAC (***)
14	11	Core Description - Metamorphic/Alteration Petrologist	Murphy, David	accepted	ANZIC
15	12	Core Description- Structure	Hirano, Naoto	accepted	J-DESC
16	13	Core Description- Structure	Li, Sanzhong	accepted	IODP-China
17	14	Core Description- Sedimentology/Volcanologist (11)	Matsubara, Noritaka	accepted	J-DESC (6)
18	15	Core Description- Sedimentologist (12)	Littler, Kate	accepted	ESSAC (***)
19	16	Inorganic Geochemistry	Mahoney, John	accepted	USSAC (High)
20	17	Inorganic Geochemistry	Ishikawa, Akira	accepted	J-DESC (5)
21	18	Inorganic Geochemistry	Heydolph, Ken	accepted	ESSAC (***)
22	19	Paleomagnetics	Ooga, Mashiro	accepted	J-DESC (4)
23	20	Paleomagnetics	Tominaga, Masako	accepted	USSAC (High)
24	21	Paleomagnetics	Carvallo, Claire	accepted	ESSAC (***)
25	22	Physical Properties	Harris, Amber	accepted	USSAC (High)
26	23	Physical Properties	Prytulak, Julie	accepted	ESSAC
27	24	Micropaleontology (forams- benthic)	Ando, Atsushi	accepted	J-DESC (2)
28	25	Micropaleontology (nanno)	Mitchell-Tapping, Aleta	accepted	USSAC (Mid)
29	26	Micropaleontology (nanno)	Herrmann, Sandra	accepted	ESSAC (***)
30	27	Geophysics/logging	Kang, Moo Hee	accepted	K-IODP

The table below summarizes the distribution of berths for the 22 expeditions completed so far or scheduled and staffed.

Total berths so far	Member	NEW Financial Contribn	NEW Entitlement	ALLOC
44	France	25,2%	52,2	-8,2
56	Germany	26,0%	53,9	2,1
48	UK	25,2%	52,2	-4,2
148	*Sum*	*76,5%*	*158,3*	*-10,3*
0	Austria	0,5%	1,1	-1,1
1	Belgium	0,2%	0,3	0,7
6	Canada	1,3%	2,7	3,3
4	Denmark	2,6%	5,4	-1,4
2	Finland	0,4%	0,9	1,1
0	Iceland	0,2%	0,3	-0,3
0	Ireland	0,7%	1,5	-1,5
8	Italy	1,4%	2,8	5,2
7	The Netherlands	1,8%	3,8	3,2
6	Norway	5,0%	10,3	-4,3
2	Portugal	0,6%	1,2	0,8
9	Spain	2,6%	5,5	3,5
6	Sweden	3,6%	7,6	-1,6
8	Switzerland	2,5%	5,2	2,8
59	*Sum*	*23,5%*	*48,7*	*10,3*
207	Total ECORD		207	*0,0*

4.1.2 Nominations of co-chiefs

The following list of co-chief nominations for the expeditions scheduled in FY2011 has been sent to IODP-MI on September 17th, 2009. This list was based on nominations provided by a group including the ECORD SPC members and/or alternates, C. Mevel and H. Pälike. The list has been sent to all ESSAC Delegates and National Offices for additional nominations.

JR expeditions

Juan de Fuca

> no nomination.

- E. Davis (Canada) has declined his nomination.

South Pacific Gyre

> Kai-Uwe Hinrichs (Germany)

- John Parkes (UK) and Bo Barker-Joergensen (Germany) have declined their nominations.

Louisville

> Toni Watts (UK)

Superfast

> John McLennan (UK)

> George Ceuleneer (France)

> Rolf Pedersen (Norway)

> Damon Teagle (UK)

> Rosalind Coggon (UK)

> Benoit Ildefonse (France)

CRISP-A

> Martin Meschede (Germany)

> Serge Lallemand (France)

Mid-Atlantic Microbiology

> Wolfgang Bach (Germany)

- Olivier Rouxel (France) has declined his nomination.

Chikyu expeditions

NT2-01 Obs, NT3-01RL Obs

> Achim Kopf (Germany)

NT3-01 Riser

> Pierre Henry (France)

Okinawa

- Olivier Rouxel (France) has declined his nomination.

4.2 Updates on SAS panel nominations

G. Camoin will summarize updates on SAS panel nominations.

Two rotations of SAS panel members were considered between June and September 2009, i.e. at EDP to replace R. Person (France) and J. Thorogood and at SSEP to replace A. Kopf (Germany) and H. Pälike (UK).

Two calls for applications have been issued respectively on June 10th and 11th, 2009 with a deadline on July 12th, 2009. In July, the deadlines have been extended to September 4th, 2009.

4.2.1 EDP

Two valid applications have been received by the ESSAC Office : M.-L. Doan (France) and A. Skinner (UK).

The applications have been sent to the ESSAC Delegates on September 4th, 2009 but no vote was received by the ESSAC Office.

The EDP Chair, B. Ussler has requested the extension of J. Thorogood's term at the EDP as his expertise will be needed for the next two meetings. The ESSAC Office has accepted this extension.

Regarding R. Person's replacement, the ESSAC Office has proposed the nomination of M.-L. Doan to the ECORD Council.

A. Skinner has accepted to serve as alternate for that panel.

4.2.2 SSEP

Ten valid applications have been received by the ESSAC Office : T. Ferdelman, V. Heuer, J. Koepke, A. Kopf, A. McKensen and M. Regelous (Germany), D. Aslanian and L. Toffin (France), M. Moulin (Portugal) and U. Wortmann (Canada).

The applications have been sent to the ESSAC Delegates on September 4th, 2009 but almost no vote was received by the ESSAC Office.

The SSEP Co-Chairs have requested the extension of A. Kopf's term at the SSEP as his expertise will be needed for the next two meetings; this extension has been endorsed by the German National Office. The ESSAC Office has accepted this extension.

The replacement of H. Pälike has been postponed due to the lack of any UK application, a second call has been issued on October 13th with a deadline December 6th, 2009.

4.2.3 STP

Georges Gorin, University of Geneva, was due to rotate off STP after the spring meeting, 2010. He has been requested to organize the August, 2010 meeting in Geneva, and will thus stay on STP one extra meeting.

4.3 Subcommittee report, discussion and future actions

L. Lourens reports about the meeting of the « Nomination and Staffing » ESSAC subcommittee at the 13th ESSAC meeting in Oulu (Finland).

5. ESSAC highlight on Pacific Equatorial Age Transect (PEAT-1) Expedition

H. Pälike as one of the co-chiefs of the PEAT-1 expedition will give a report about the Pacific Equatorial Age Transect Expedition.

In March 2009, an international team of scientists board the scientific drilling vessel *JOIDES Resolution* and set off on the first of two nine-week IODP expeditions to the Equatorial Pacific. There, they employed the vessel's unique capabilities and recovered seafloor sediments to study ocean circulation and productivity.

The Pacific is intricately linked to major changes in the global climate system. The equatorial Pacific is a major center of solar warming, a region of high primary productivity, and a primary region for CO2 exchange from the deep ocean to the atmosphere. It is also the source region for the *el Niño-Southern Oscillation*. The wind-driven circulation and productivity system of the equatorial Pacific are sensitive to climate change. The equatorial Pacific also helps to maintain global climates and drives climate change as well.

Over the last 55 million years global climate has varied dramatically from extreme warmth to glacial cold, and these climate variations have all been imprinted on the biogenic-rich sediments that accumulate in the equatorial zone. The *Pacific Equatorial Age Transect* expeditions aim to recover a continuous Cenozoic record (from 65.5 million years ago to the present) of the equatorial Pacific by drilling at the paleoposition of the Equator at successive crustal ages on the Pacific plate. This will also help scientists to understand how the Earth was able to maintain very warm climates, relative to the 20th century, even though solar radiation received at the earth's surface remained nearly constant for the last 55 million years. Combined with seismic reflection studies of regional sedimentation, equatorial Pacific sediment history can be reconstructed with high confidence to improve upon earlier reconnaissance work.

6. Breakout Sessions

ESSAC Subcommittees:

Nominations and staffing

Education and outreach

Workshops, communication and vision

7. Education and outreach

7.1 ECORD Summer Schools (Reports)

7.1.1 Past Global Change Reconstructions and Modelling Techniques- Summer School Urbino, July 2009

L. Lourens will give a short report about the Urbino Summer School in Paleoclimatology. Details are to be found on the webpage: http://www.uniurb.it/ussp/

7.1.2 ECORD Summer School on Geodynamics of Mid-Ocean Ridges, Bremen September 2009, August 31 – September 11, 2009, University of Bremen, Germany

C. Mével will give a short report about the ECORD Summer School on Geodynamics of Mid-Ocean Ridges.

Figure 7-1 Participants of ECORD Summer School on Geodynamics of Mid-Ocean Ridges 2009 (http://www.glomar.uni-bremen.de/ECORD_Summer_School_2009.html)

Aims

The major goal was to bring PhD students and young Postdocs in touch with IODP at an early stage of their career, inform them about the actual research within this international scientific program, and to prepare them for future participations in IODP expeditions. Such training will be achieved by taking the summer school participants on a "virtual ship" where they get familiarized with a wide spectrum of state-of-the-art analytical technologies and core description methods according to the high standards on IODP expeditions. Therefore the course was equally balanced, with half the time dedicated to lectures and discussions and the other half to laboratory exercises.

Location and Organisation

The ECORD Summer School on "Geodynamics of Mid-Ocean Ridges" 2009 was held August 31 – September 11, 2009 at the MARUM – Center for Marine Environmental Sciences, Bremen University, Germany. It has been organized by Prof. Dierk Hebbeln, Director of the Bremen International Graduate School for Marine Sciences „Global Change in the Marine Realm" (GLOMAR), by Prof. Dr. Wolfgang Bach, head of the Petrology Group at the University of Bremen, Prof. Dr. Benoit Ildefonse, IODP-France Chair, University of Montpellier, and by Dr. Ursula Röhl, head of the IODP Bremen Core Repository (BCR). GLOMAR, MARUM and BCR jointly offered the unique training possibilities used for this summer school by providing laboratory facilities and by providing a seminar room equipped with 20 laptops (internet access, MatLab etc.).

Program

The two-week course combined lectures and interactive discussions on mid-ocean ridges with practical exercises, with the latter mainly using the facilities of the BCR. The scientific lectures and exercises have be confined mostly to the first week, whereas the “virtual ship” related practicals took part during the second week. During the weekend in the middle of the summer school an excursion was offered.

In the first week the program (see attachment) focused on lectures by and discussions with leading researchers on key topics related to, e.g., seismic and gravimetric structure of mid-ocean ridges, palaeomagnetism, geochemistry, petrology and hydrothermal processes, etc. These lectures were given by leading scientists from the field.

The weekend between the first and the second week gave the participants the possibility to join a field trip to a Devonian submarine volcanic province on Saturday, and to explore the city of Bremen at the free Sunday.

The second week of the summer school took advantage of the unique facilities of the Bremen IODP core repository and labs and aimed at introducing PhD students and young Postdocs to a full range of IODP related topics from general introduction to the program to compiling of IODP proposals and to get an insight into “shipboard” methodologies applied on the drilling vessels. The focus was on group-based practicals focusing on topics such as thin section petrography and standard shipboard methodologies such as core description, physical properties, borehole logging, etc.

Lecturer:

Ulla Röhl	University of Bremen
Wolfgang Bach	University of Bremen
Dierk Hebbeln	University of Bremen
Tony Morris	University of Plymouth
Sven Petersen	IFM-GEOMAR Kiel
Walter Hale	University of Bremen
Benoit Ildefonse	University of Montpellier
Carlos Garrido	University of Granada
Damon Teagle	University of Southampton
Niels Jöns	University of Bremen
Jörn Peckmann	University of Bremen
Sarah Davies	University of Leicester
Andreas Klügel	University of Bremen
Vera Schlindwein	AWI Bremerhaven
Margot Godard	University of Montpellier
Jay Miller	Texas A&M University
Jochen Erbacher	BGR Hannover
Jürgen Köpke	University of Hannover
Catherine Mevel	IPGP Paris
Colin Devey	IFM-GEOMAR Kiel
Donna Blackman	University of California

Participants

A total of 32 PhD students and young post-docs from several European countries and Canada participated in the ECORD Summer School.

Name	Institute/University	Country
Nicole Schroth	University of Southampton	United Kingdom
Suzanne Picazo	IPGP Paris	France
Kay Achenbach	University of Durham	United Kingdom
Isobel Yeo	University of Durham	United Kingdom
Alessio Sanfilippo	University of Pavia	Italy
Emanuele Paganelli	University of Modena	Italy
Arne Døssing	University of Copenhagen	Denmark
Antje Voßmeyer	University of Aarhus	Denmark
Michelle Harris	University of Southampton	United Kingdom
Casey Brant	University of Victoria	Canada
Ben Winpenny	University of Cambridge	United Kingdom
Ásta Rut jartardóttir	University of Iceland	Iceland
Edith Korger	AWI Bremerhaven	Germany
Bénédicte Abily	Université Paul Sabatier	France
Catherine Evrard	IFREMER Brest	France
Gaëlle Plissart	University of Brussels	Belgium
Michael Hentscher	University of Bremen	Germany
Marie Violay	University of Montpellier	France
Kathrin Faak	University of Bochum	Germany
Dominik Niedermeier	University of Bremen	Germany
Teddy Castelain	University of Leeds	United Kingdom
Sonja Theißen	IFM-GEOMAR Kiel	Germany
Elliot Hildner	University of Bremen	Germany
Svenja Rausch	University of Bremen	Germany
Liping Shu	University of Bremen	Germany
Aude Picard	MPI Bremen	Germany
Taichi Sato	University of Tokyo	Japan
Fabio Garzetti	University of Pavia	Italy
Aurélia Colin	CRPG Nancy	France
Sonja Geilert	University of Göttingen	Germany
Anne Westhues	IFM-GEOMAR Kiel	Germany
Julia Mahlke	IFM-GEOMAR Kiel	Germany

Within the summer school, the participants were given the opportunity to present their own projects in 15-minutes talks. Mrs Kathrin Faak, University of Bochum, Mrs Sonja Theißen, IFM-GEOMAR Kiel and Mr. Arne Døssing, University of Copenhagen, received awards for best oral presentations.

Outcomes and Evaluation

Anonymous evaluation forms filled out by the participants revealed a very positive feedback. The chance to look at real IODP cores and thin sections under the supervision of expert scientists was a highlight for many participants. Furthermore the statements show that the participants very much appreciated the lectures given by international experts. Nevertheless the participants gave hints for improvements as well, e.g. the length of the lectures should be shortened and the daily structure should focus on lectures in the mornings and exercises in the afternoons. Furthermore a poster session rather than 15 minutes talks has been suggested for the student presentations.

Program
ECORD Summer School on "Geodynamics of Mid-Ocean Ridges" 2009
August 31 – September 11, University of Bremen
Venue: University of Bremen, MARUM building, Room 2070, www.marum.de

Monday, August 31

09:00 – 09:15	**Welcome and opening of the Summer School**
	Dierk Hebbeln, Catherine Mevel
09:15 – 10:30	**Basement drilling: history and overview**
	Benoit Ildefonse
10:30 – 11:00	Coffee break
11:00 – 12:30	**Geology of fast-spreading ridges**
	Damon Teagle
12:30 – 13:30	Lunch
13:30 – 15:00	**Geology of slow-spreading ridges**
	Catherine Mevel
15:00 – 15:30	Coffee break
15:30 – 17:00	**Out at sea – impressions from scientific drilling**
	Jay Miller, Margot Godard, Donna Blackman, Benoit Ildefonse
17:30	**Icebreaker party with buffet**

Tuesday, September 01

09:00 – 10:30	**Seismic and gravimetric structure of mid-ocean ridges**
	Donna Blackman
10:30 – 11:00	Coffee break
11:00 – 12:30	**Geophysical survey of the Gakkel Ridge**
	Vera Schlindwein
12:30 – 13:30	Lunch
13:30 – 15:00	**Palaeomagnetism and mid-ocean ridge tectonic processes**
	Tony Morris
15:00 – 15:30	Coffee break
15:30 – 17.00	**Rock physics and structural geology**
	Benoit Ildefonse

Wednesday, September 02

09:00 – 11:00	**Student talks**
	Nicole Schroth, Suzanne Picazo, Kay Achenbach, Asta Rut Hjatardottir, Gaelle Plissart, Taichi Sato, Edith Korger, Marie Violay
	Moderation by Catherine Mevel
11:00 – 11:30	Coffee break
11:30 – 13:00	**Geochemistry and petrology of the upper mantle**
	Margot Godard
13:00 – 14:00	Lunch
14:00 – 15:30	**Petrology of crustal accretion**
	Jürgen Koepke
15:30 – 16:00	Coffee break
16:00 – 17:45	**Student talks**
	Benedicte Abily, Catherine Evrard, Kathrin Faak, Dominik Niedermeier, Alessio Sanpilippo, Emanuele Paganelli, Ben Winpenny

Moderation by Margot Godard

Thursday, September 03

09:00 – 10:30	**"Hydrothermal processes and seafloor mineralization"**
	Damon Teagle, Sven Petersen
10:30 – 11:00	Coffee break
11:00 – 12:30	**Petrology and geochemistry of serpentinites**
	Margot Godard, Wolfgang Bach
12:30 – 13:30	Lunch
13:30 – 15:00	**"Life in mid-ocean ridge rocks"**
	Jörn Peckmann, Wolfgang Bach
15:30 – 16:00	Coffee break
16:00 – 17.30	**Student talks**
	Antje Vossmeyer, Aude Picard, Casey Brant, Michael Hentscher, Svenja Rausch, Liping Shu
	Moderation by Colin Devey

Friday, September 04

09:00 – 10:30	**"Linkages between tectonics, magmatisms, and hydrothermalism"**
	Colin Devey
10:30 – 11:00	Coffee break
11:00 – 12:30	**Numerical models of mid-ocean ridges**
	Carlos Garrido
12:30 – 13:30	Lunch
13:30 – 15:15	**Student talks**
	Arne Døssing, Michelle Harris, Sonja Theissen, Teddy Castelain, Elliot Hildner, Fabio Garzetti, Aurelia Colin
	Moderation by Wolfgang Bach
15:15 – 15:45	Coffee break
15:45 – 16:45	**Open discussion – Future research directions**
	All participants
	Moderation by Damon Teagle

Saturday, September 05
Field trip to a Devonian submarine volcanic province

Wolfgang Bach, Benoit Ildefonse, Jay Miller, Niels Jöns, Jürgen Koepke

Sunday, September 06
Free time to explore Bremen

Monday, September 07
Introduction to IODP

09:00 – 10:00	**IODP and ECORD: Structure and objectives and an introduction to "the Virtual Ship"**
	Jochen Erbacher and Ulla Röhl
10:00 – 10:30	Coffee break
10:30 – 12:00	**IODP Core Curation and tour of the Bremen Core Repository**
	Walter Hale

12:00 – 13:00 Lunch
13:00 – 14:30 **Wire-line borehole logging**
Sarah Davies
14:30 – 15:00 Coffee break
15:00 – 16:15 **Core descriptions and shipboard sampling**
Jay Miller, Benoit Ildefonse, Wolfgang Bach
16:15 – 17:30 **Determining rock magnetic properties**
Tony Morris

Tuesday, September 08
Virtual Ship
Visual core description and sampling for shipboard analyses
All day, coffee and lunch breaks as usual
(four groups of 7-8 students)
Group I: Core description "Igneous Petrology" (Jay Miller, *Andreas Klügel*)
Group II: Core description "Metamorphic Petrology" (*Niels Jöns, Wolfgang Bach*)
Group III: Core description "Structural Geology" (*Benoit Ildefonse*)
Group IV: Core measurements "Paleomag" (Tony Morris)

Wednesday, September 09
09:00 – 12:00 **Visual core description and sampling for shipboard analyses – continued**
12:00 – 13:00 Lunch
13:00 – 17:00 **Determining physical properties**
(four groups of 7-8 students)
Group I and II: Multi-sensor core logger
Group III and IV: Discrete samples (mini core)
Jay Miller, Benoit Ildefonse

Thursday, September 10
Thin section petrography
All day, coffee and lunch breaks as usual
(three groups of 10 students)
Group I: Thin section description "Igneous Petrology" (Jay Miller, *Andreas Klügel*)
Group II: Thin section description "Metamorphic Petrology" (*Niels Jöns, Wolfgang Bach*)
Group III: Thin section description "Structural Geology" (*Benoit Ildefonse*)
18:00 **Barbeque party**

Friday, September 11
09:00 – 10:30 **How to write an IODP proposal**
10:30 – 11:00 Coffee break
11:00 – 12:00 **Summary and syntheses**
Participants report their findings
Scientific implications are discussed
Outlines for Site chapters are sketched up
Jay Miller, Benoit Ildefonse, Wolfgang Bach
12:00 – 13:00 Lunch
13:00 – 15:00 **Summary and syntheses, continued**

15:00 – 15:15 **Concluding remarks and farewell**

ECORD Summer School 2009/Participant Presentations

Tuesday, September 01

09:00 – 09:15 Nicole Schroth: How to build an AVR - a case study of the Mid-Atlantic Ridge at 45º N

09:15 – 09:30 Suzanne Picazo: Mantle deformation at slow-spreading ridges and OCTs : a comparison

09:30 – 09:45 Kay Achenbach:Testing models of mantle upwelling and tectonic exhumatiocrystal lattice preferred orientation in the ODP Leg 209 peridotites (15˚39'N, Mid-Atlantic Ridge)

09:45 – 10:00 Asta Rut Hjartardottir: The Northern Volcanic Rift Zone of Iceland - Mapping of fractures and fissures within a subaerial part of the Mid-Atlantic Plate Boundary

10:00 – 10:15 Gaëlle Plissart: Listvenitic schists of the Danubian ophiolite (Romania, Serbia, Bulgaria): synoceanic development along a detachment fault or obduction related formation?

10:15 – 10:30 Taichi Sato: Surface geophysical survey at Southwest Indian Ridge at 34-40˚E, implication for hotspot-ridge interaction

10:30 – 10:45 Edith Korger: The 1999 earthquake swarm at Gakkel Ridge, Arctic Ocean: A challenge to relocation and a window into ultraslow geodynamic processes

10:45 – 11:00 Marie Violay: The Brittle Ductile Transition In Experimentally Deformed Basalt

Under Oceanic Crust Conditions: Evidence For Presence Of Permeable Reservoirs At Supercritical Temperatures And Pressures In The Icelandic Crust.

Wednesday, September 02

16:00 – 16:15 Benedicte Abily: Preliminary results on Bahla massif (Oman ophiolite): Similarities with Oceanic Core Complexes

16:15 – 16:30 Catherine Evrard: Mineralogical study of ultramafic and basaltic hosted sulphide deposits from hydrothermal fields on the Mid-Atlantic Ridge between 13˚ and 17˚N: Ashadze, Logatchev, Krasnov and Semyonov

16:30 – 16:45 Kathrin Faak: Kinetic modelling to determine the cooling history of lower oceanic crust

16:45 – 17:00 Dominik Niedermeier: The eastern manus basin -geochemical and petrological features of island arc and back-arc magmatism

17:00 –17:15 Alessio Sanpilippo: The oceanic basement of the Ligure-Piemontese Basin: clues from Northern Corsica and Internal Liguride ophiolites

17:15 – 17:30 Emanuele Paganelli: Multi-stage impregnation of the lithospheric mantle at the Andrew Bain FZ (SWIR)

17:30 – 17:45 Ben Winpenny: Melt mixing and crystallisation in the Icelandic lower crust evidence from clinopyroxene and plagioclase phenocrysts

Thursday, September 03

16:00 – 16:15 Antje Vossmeyer: Pressure and Temperature Regulation of Sulfate Reduction in Deep Sea Sediments

16:15 – 16:30 Aude Picard: Effects of high pressure on microbial metabolism: implications for the deep biosphere

16:30 – 16:45 Casey Brant: Lithium and its isotopes as tracers of high- and low-temperature alteration in marine hydrothermal systems

16:45 – 17:00	Michael Hentscher: Energetics of catabolic reactions in diffuse hydrothermal fluids- clues to subseafloor microbial metabolism
17:00 – 17:15	Svenja Rausch: Carbonate veins as recorder of seawater-crust interaction
17:15 – 17:30	Liping Shu: Fluid-Rock interaction in the TAG hydrothermal system at the Mid Atlantic Ridge 26 °N

Friday, September 04

13:30 – 13:45	Arne Døssing: Extensional and Compressional Flexure across the Greenland FZ in the Norwegian-Greenland Sea: Effect of a growing spreading center?
13:45 – 14:00	Michelle Harris: An integrated study of hydrothermal alteration and cooling rates at ODP Site 1256"
14:00 – 14:15	Sonja Theissen: Modelling crustal accretion and hydrothermal circulation at mid-ocean ridges
14:15 – 14:30	Teddy Castelain: Title to be announced later
14:30 – 14:45	Elliot Hildner: Geothermobarometric and fluid inclusion data of historic lavas of Fogo Volcano, Cape Verde Islands
14:45 – 15:00	Fabio Garzetti: Structure and U-Pb geochronology of zircons from Ligurian ophiolites (Northern Appennine, Italy)
15:00 – 15:15	Aurélia Colin: A study of magma degassing at mid oceanic ridges by bubble-by-bubble analyses

7.1.3 Outlook and ECORD Summer Schools 2010

Latest news on 2010 ECORD Summer Schools will be presented.

Urbino Summer School

For general information check the webpage: http://www.uniurb.it/ussp/

ECORD Summer School

It is planned to address the three major topics of the IODP Initial Science Plan in a recurring three year cycle, thereby exploiting the unique facilities in Bremen where about 50 scientists work on the whole width of IODP-related topics. After the first full cycle comprising an “Earth History” topic in 2007 (*ECORD Summer School on Paleoceanography*), a “Deep Biosphere” topic in 2008 (*ECORD Summer School on the Deep Subseafloor Biosphere*), and a “Solid Earth Cycles and Geodynamics” topic in 2009 (*ECORD Summer School on the Geodynamics of Mid-Ocean Ridges*), we will start the second cycle with another “Earth History” topic: “Dynamics of Past Climate Changes”. The probable time frame is early September 2010.

Canada

The IODP-Canada summer school 2010 will focus on paleoceanography and paleoclimatology at high latitudes. For further information are given on the webpage: http://www.iodpcanada.ca/news_items/an-iodp-canada-ecord-summer-school-in-2010

7.2 ECORD Grants and Scholarships

J. Lezius will present a draft version of the “letter of support” for the ECORD Grants and Scholarships (cf. **ESSAC Action Item 0905-08 and 0905-9)**.

7.3 Distinguished Lecturer Programme 2009-2010

J. Lezius will present an update of the DLP, with done, upcoming and planned/postponed dates. The Program runs until June 2010 and will be replaced by new DLP (cf. 6. Breakout session Education and Outreach).

Peter Clift:

status	Date of DSLs	Institution
done	2008, October, 26	University Tuebingen, D
done	2009, January 29	Brown University, USA
done	2009, February 02	TU Delft, NL
done	2009, February 20	University of Plymouth, UK
done	2009, February 23	University of Liverpool, UK
done	2009, February 24	University of Manchaster, UK
done	2009, March 13	University of Ottawa, CAN
done	2009, March 16	Memorial University of Newfoundland, CAN
done	2009, March 25	Lamont-Doherty Earth Observatory, USA
done	2009, April 06	University of Malaya, Malaysia
done	2009, April 22	University of Sydney, AUS
done	2009, April 23	Brisbane University, AUS
done	2009, April 27	Melbourne University, AUS
done	2009, April 28	Australian National University, AUS
done	2009, May 15	University of Montpellier, F
done	2009, May 24	Dalhousie University, CAN
done	2009, May 28	Woods Hole Oceanographic Institution, USA
done	2009, September 17	Departamento de Geologia Marinha Lisbon, P
done	2009, October 08	CNRS, Nancy, F
done	2009, October 12	University of Pisa, I
done	2009, October 13	University of Florence, I
done	2009, October 29	University of Bremen, D
upcoming	2009, November 03	University of Utrecht, NL
upcoming	2009, November 09	University of Jena, D
upcoming	2009, November 23	University of Hannover, D
upcoming	2009 December 03	IPG, Paris, F

Achim Kopf

status	Date of DSLs	Institution
done	2008, October	Aberdeen, UK
done	2009, March	Grenoble, F
done	2009, March	Montreal, CAN
done	2009, March	Utrecht, NL
cancelled		Leuven, B
postponed		IFREMER, Brest, F
upcoming	2009, November 20	Melbourne, AUS
upcoming	2009, November 23	Perth, AUS

upcoming	2009, November 24	Canberra, AUS
upcoming	2009, November 25	Sydney, AUS
upcoming	2010, January	IFREMER, Brest, F
planned		Leuven, B
planned		Paris, F

John Parkes

status	Date of DSLs	Institution
done	2009, April 22-24	Aarhus, DK
done	2009, May 7	Leicester, UK
done	2009, May 12-13	Oldenburg, D
done	2009, May 15	Liverpool, UK
done	2009, May 21	Exeter, UK
done	2009, June 1	Aveiro, P
done	2009, July 5-9	NZ

7.4 School of Rock

J. Lezius will present some information about the School of Rock based on the report by: Hélder Pereira Escola Secundária de Loulé (Algarve, Portugal).

School of Rock 2009 – Cores, CORKS and Crust on the Juan de Fuca Ridge: A Hands-on, Research-based Expedition for Earth and Ocean Science Educators aboard the JOIDES Resolution during the IODP 321T Expedition – June 23rd to July 5th

Hélder Pereira, a Earth Science teacher at Loulé High School, recently participated in a two week educational program for teachers called School of Rock 2009 (SOR09) sponsored by the IODP-USIO and the Consortium for Ocean Leadership/Deep Earth Academy.

The purpose of SOR 2009 was to bring an international group of teachers from the US, France, Japan and Portugal together for 13 days to travel aboard a world class drilling ship called the JOIDES Resolution (The JR) as she sailed from San Diego, CA to Victoria, B.C. during the Integrated Ocean Drilling Program's (IODP) Expedition 321T and allow us to become familiar with the science that goes on aboard the ship.

The JR is a large ship. She is 143 meters long has a seven store high unit that houses the scientific facilities, and has a drilling derrick that rises 62.5 meters above the water line. The derrick is capable of drilling in waters from around 90 meters to 8200 meters deep and can hang a total of 9000 meters of pipe. Drilling it is conducted to extract cores of sediment and rock from the seafloor that are brought aboard and used for a variety of scientific studies dealing with Earth's climate history, movement of water through Earth's crust, how the Earth's plates move, and many others. No drilling was conducted during the SOR09; however the derrick was used to lower a pipe string about 2760 meters down to the seafloor to repair two permanent monitoring stations, embedded in boreholes in the seafloor. These stations had been installed at an earlier date but were not functioning properly due to leakage of seawater into the boreholes. The repair involved inserting the pipe string into the boreholes (a huge task at such a depth) and pumping cement from the ship into the boreholes to seal them.

This year's SOR curriculum "Cores, CORKS and Crust on the Juan de Fuca Ridge" focused on the sub-seafloor observatories called Circulation Obviation Retrofit Kits (CORKS) in Holes U1301A and U1301B and the hydrogeologic, monitoring and sampling experiments conducted there.

The SOR09 was based on data-rich, hands-on, learner-focused, inquiry techniques. Teachers worked in teams to access and analyze data, sample cores, conduct authentic scientific investigations, and discuss their conclusions in exactly the same way scientists do on IODP expeditions.

During transit periods and also while accompanying cementing operations the teachers were involved in activities devoted to meeting with the scientists, learning what sort of research projects are carried out, and developing ways to enhance their science teaching back home. The teachers made ship tours, attended lectures, participated in a wide variety of hands-on work with seafloor cores in the various laboratories, discussed teaching strategies and spent time producing materials to be used for teaching science process and seafloor research.

The teachers have chronicled their experiences aboard in photobook essays and narratives taped near the beginning and end of the expedition, as well as the blogs they posted on the JR webpage to communicate with students, family, and co- workers at home. A video conference was also conducted between The JR and Japanese classrooms where two classes in session were the recipients of an impressive live ship-to-shore interaction to both schools at the same time.

Just like scientists leaving an expedition, every teacher walked off the ship with a disc of the data they collected and entered into the database, the science presentations and pertinent publications; and all the smear slides, microfossil and sediment samples that they might need to construct powerful learning experiences with their students.

SOR09 participants came away from this experience at sea with a tremendous amount of information and a new appreciation for how world class, cutting edge science is conducted. In the future they can use the things they learned in SOR to enhance the teaching of science in their schools, conduct in-service presentations to share ideas with other teachers, and encourage their students to explore the wide variety of opportunities that are out there in the world of scientific exploration.

The teachers were also asked to adapt or develop learning activities tailored for their student or museum audiences, and/or to contribute new material for the ship's website. And each participant is required to share their SOR09 experiences and methods with their colleagues through at least one local or regional professional development event.

I truly think that my participation in the SOR09 educational program has contributed to improve my teaching strategies allowing me to take "real science" into the classroom.

Hopefully a post-expedition event will take place at the 2010. And I also think that the establishment of a European version of the Deep Earth Academy's School of Rock would be an invaluable addition to the ECORD Public Education and Outreach Program.

I would like to acknowledge Ocean Leadership/Deep Earth Academy and IODP-USIO that have funded the program. I would like to thank ECORD for accepting my application and selecting me as one of the two European teachers invited to participate in the SOR09. I would like to thank Fundação para a Ciência e Tecnologia (FCT) and IODP Portugal for their kindly financial support. I also thank Fátima Abrantes for supporting my application. And particularly I would like to thank Leslie Peart, the SOR09 Instructors and my fellow teachers, the science party and all the crew members of the expedition 321T, for their support, encouragement and teachings.

2009 School of Rock WebPhotobook is found here:
http://www.mypublisher.com/?e=6ooStfZME0MWums-wUvag8O0937EIdDZ

2009 School of Rock Blog is found here: http://sor2009-pt.blogspot.com/

7.5 ECORD Publications

7.5.1 ECORD Newsletter #13

P. Maruéjol will report on the ECORD Newsletter #13.

The 13th issue of the ECORD Newsletter will be released early-mid November 2009 with the same format as the previous issue and will be distributed in the IODP booth at AGU 2009. An electronic version will be available on-line for download at: http://www.ecord.org/pub/nl.html

This issue is made up of ECORD information from May to late October 2009, assembled as follows:

- Regular messages, news and updates from the ECORD Council, EMA, ESO, ESSAC and ECORD Outreach team.
- Reports on Education activities including ECORD 2009 Summer Schools by ECORD awarded students, MICOD (H. Brinkhuis), and 'School of Rock 2009'' by ECORD teachers,
- Reports on Workshops and Conferences including Magellan Series Workshops with 'Paleoenvironmental Evolution of the Baltic Sea through the Last Glacial Cycle, March 8-9, 2009, Copenhagen, Denmark (T. Andrén-, S. Björck, J. Harff, J. B. Jensen, B. Barker, and A. Kotilainen) and 'Beyond 2013 - the Future of European Scientific Drilling Research, April 24-25, 2009, Vienna, Austria (G. Camoin, R. Stein and M. Wagreich), and INVEST conference (W. Bach and G. Camoin)
- 'A Letter from Finland' (K. Strand, A. Korja and E. Kanto),
- 'IODP Expedition 310: New Insights for the Older Stuff (A. L. Thomas, G. M. Henderson, P. Deschamps, Y. Yokoyama, A. J. Mason, E. Bard, B. Hamelin, N. Durand and G. Camoin),
- The International Continental Scientific Drilling Program (ICDP) by U. Harms,
- The Deep Sea and Sub-Seafloor Initiative (DS3F) by A. Kopf.

The next issue - ECORD Newsletter #14, April 2010 - will be set up during the next ECORD outreach meeting in Edinburgh. The deadlines will be:

- Call for contributions - to be issued on late February 2010,
- Author's deadline - mid March 30, 2010,
- Date of release - early May EGU 2010.

7.5.2 New ECORD pocket brochure

P. Maruéjol will summarize about the new ECORD pocket brochure.

The ESSAC, ECORD-Net and ESO brochures will be replaced by a new pocket-folder with A4 loose pages inside describing the ECORD bodies with tasks/activities and MSP expeditions. Our aim is to provide more standardised and consistent ECORD documents, to avoid duplication and to allow easier updates upon need.

Subjects of the different pages have been discussed and a template being prepared. It is planned to have this pocket brochure ready when the Great Barrier Reef Environmental Changes Exp. 325 starts.

7.6 Subcommittee report, discussion and future actions

X. Monteys reports about the meeting of the « Education and Outreach » ESSAC subcommittee at the 13th ESSAC meeting in Oulu (Finland).

8. Workshops, communication and vision

8.1 Future of IODP: INVEST Report and discussion

G. Camoin will present a report about the INVEST meeting.

IODP New Ventures in Exploring Scientific Targets (INVEST) Conference,
Bremen, Germany, September 22-25, 2009.

A large flock of scientists and engineers – 583 participants from 21 nations – attended the IODP New Ventures in Exploring Scientific Targets (INVEST) Conference to discuss the future of ocean drilling. The conference was held at the University of Bremen, Germany, between September 22 and 25, 2009.

The ECORD nations have been stronlgy involved in the Conference as nearly half of the participants (261 over 583) were from 13 ECORD nations.

The number of participants by nation is listed below :

Australia	7
Belgium	3
Brazil	1
Canada	6
China	25
Denmark	6
France	44
Germany	109
Italy	4
Japan	109
Korea, Republic of	12
Netherlands	6
New Zealand	1
Norway	10
Portugal	3
Russian Federation	1
Spain	7
Sweden	3
Switzerland	7
United Kingdom	53
United States	166
Total	**583**
Europe	***261***

INVEST focused on defining new scientific research goals of a new ocean drilling program, expected to replace IODP late in 2013. The discussion of new scientific challenges was cast into five conference themes, of which each had between six and nine working groups. The list of the conference themes (CT) and related working groups (WG) is provided below :

CT1: Co-evolution of Life and Planet

WG1.1: Extent and habitability of subseafloor life and the biosphere
WG1.2: Biogeochemical function, activity and ecological roles of subseafloor life
WG1.3: Limits and evolution of life on Earth and beyond
WG1.4: Extreme environmental events and punctuated evolution
WG1.5: Paleo-ecosystems: biodiversity and biogeography
WG1.6: Co-evolution of ocean chemistry and the surface/subsurface biospheres

CT2: Earth's Interior, Crust and Surface Interactions

WG2.1: Behavior of the Geodynamo
WG2.2: Mantle flow and interactions with lithosphere
WG2.3: Variability in ocean crust composition and structure
WG2.4: Plate aging: ridge to trench
WG2.5: Subduction zones and volcanic arcs
WG2.6: Initiation of plate boundaries

CT3: Climate Change – Records of the Past, Lessons for the Future

WG3.1: Extreme and/or rapid climatic events
WG3.2: High latitude regions and stability of ice sheets
WG3.3: Rates and amplitudes of sea level change
WG3.4: Ocean-atmosphere circulation dynamics
WG3.5: From greenhouse to icehouse worlds
WG3.6: Sensitivity of the climate system

CT4: Earth System Dynamics, Reservoirs and Fluxes

WG4.1: Ocean-crust-mantle cycles
WG4.2: Controls and feedbacks on hydrocarbon storage and emissions
WG4.3: Carbon cycle and redox budget
WG4.4: Fluid flow, heat flow and hydrothermal systems
WG4.5: Continent-ocean fluxes, weathering processes and linkages
WG4.6: (Bio)geochemical element cycles
WG4.7: Tectonic-climate interactions

CT5: Earth-Human-Earth Interactions

WG5.1: Geohazards: earthquakes
WG5.2: Geohazards: submarine landslides & mass movements
WG5.3: Geohazards: volcanic eruptions & bolide impacts
WG5.4: Ocean acidification: past and future
WG5.5: Subseafloor resources
WG5.6: CO2 sequestration
WG5.7: Improving sea level change predictions
WG5.8: Climate, human evolution and civilization
WG5.9: Ultrahigh resolution records to improve climate change prediction

The afternoon of the 25th was used to discuss *Science Implementation* needs and goals, including *Observatories* and *Seafloor Experimentation*, *Tools* and *Developments*, as well as *Program Architecture* and *Education and Outreach*.

The list of the working groups is provided below :

CT6: Science Implementation

WG6.1: Observatories
WG6.2: Subseafloor laboratories and experiments
WG6.3: Platform, drilling and logging tools: needs and opportunities
WG6.4: Site characterization and integration with the borehole
WG6.5: Analytical needs and development
WG6.6: Balancing long-term projects and single expeditions
WG6.7: Program management options to optimize integration
WG6.8: Develop broad vision for outreach, branding and education

Theme and working group sessions alternated with plenary sessions in which the theme chairs reported the results of working group discussions. INVEST also featured 12 invited keynote lectures, ranging in topic from drilling technology to climate prediction to deep Earth processes. Young scientists, program offices, and industry were given the opportunity to present posters. More than 100 white papers were submitted in preparation of INVEST and were discussed in the working group sessions.

The INVEST resources are available at : http://www.marum.de/iodp-invest.html

The amazingly large numbers of attendants, including >100 students and early-career scientists as well as the avalanche of white papers provide a strong testament to the continued enthusiasm within our community and the great interest of scientists from new scientific fields. The meeting made clear just how many first-order questions about our planet are still unanswered and that ocean drilling is of paramount importance in making strides towards answering them. This impression was conveyed in each of the conference themes, but perhaps more exciting was the increased awareness of just how closely linked many subsections form different themes are. A number of new interdisciplinary frontiers that highlight some new directions for science ocean drilling emerged from the discussions. *Extreme events*, *Hominin evolution*, and *Experimentation Below the Seafloor* are just a few examples. In each of these initiatives, ocean drilling will contribute in a unique and critical way and will decisively break new ground in earth system research.

The unanimous support by a large number of our trusted colleagues to present keynote talks and chair working groups during the INVEST meeting testifies to the widely held appreciation of the unique and critical research opportunities offered by ocean drilling. However, establishing a new program will take continued and full support and active engagement by the broader community, including representatives of new and emerging fields. The next steps in preparation of the new drilling program are depicted in Figure 1.

A science plan, based on the outcome of INVEST, will be written by scientific community representatives selected and announced by November 15. This science plan, to be drafted in 2010, will form one of the principal documents justifying the new drilling program. In the meantime, the international working group (IWG+) will develop models for program architecture and scientific advisory structure.

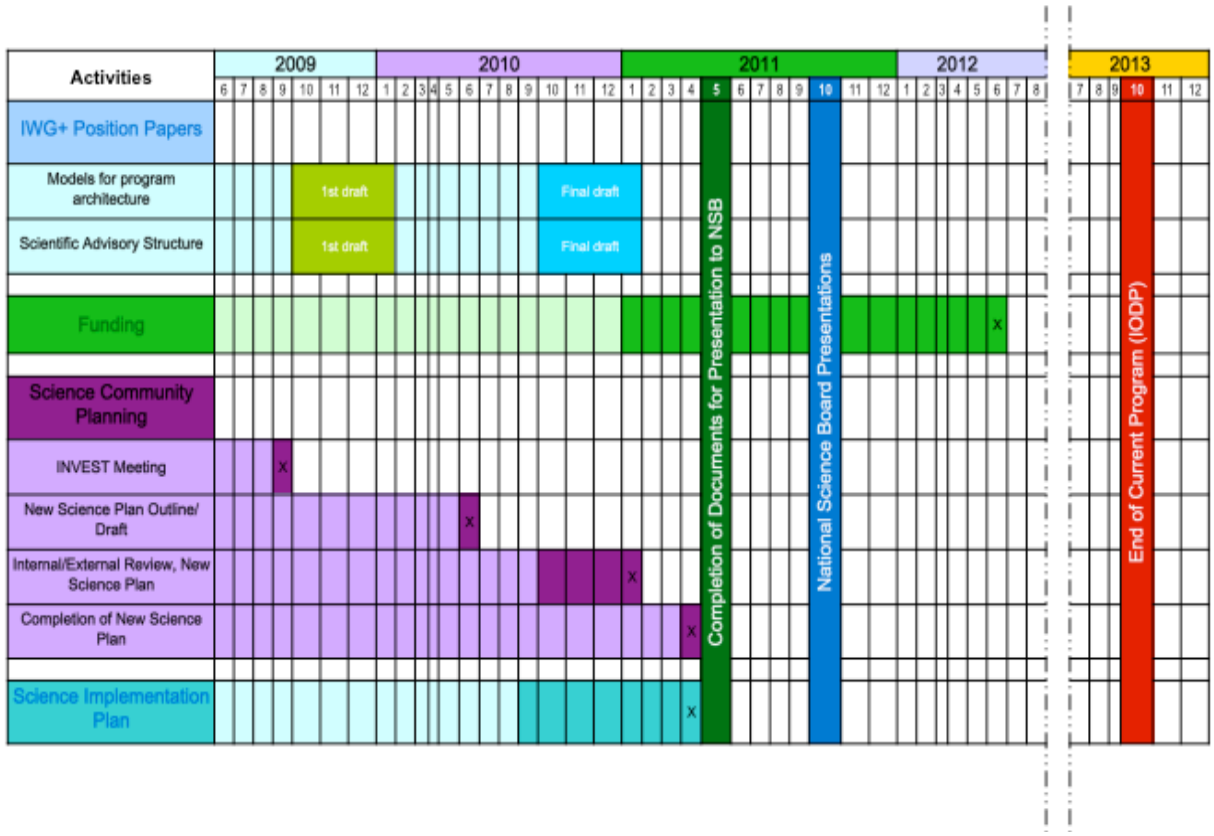


Figure 8-1 Planning scheme for the new ocean drilling program (source: Hans Christian Larsen, IODP-MI)

8.2. Further workshop reports

8.2.1 Scientific Ocean Drilling of Mid-Ocean Ridge-Flank Settings, August 27-28, Austin, Texas, USA

A short report will be presented, further details are given on the webpage:

http://www.oceanleadership.org/programs-and-partnerships/usssp/workshops/past-workshops/mor/

8.2.2 Melting, Magma, Fluids & Life (InterRIDGE and IODP), July 27-29, Southampton, UK

R. James will present a report on that workshop, more details are given in the webpage: http://www.interridge.org/WG/DeepEarthSampling/workshop2009

8.2.3 ACE Symposium Workshop: Developing an integrated strategy to recover paleoclimate records from the Antarctic margin and Southern Ocean, September 12-13, Granada S

A short report will be presented, further details are given on the webpage:

http://psp.tamu.edu/news-1/ace-symposium-workshop.html

8.2.4 Pliocene Climate, October 23-25, Bordeaux, F

R. Stein will present a report on that workshop.

Overall goal of the workshop

The warm Pliocene period is often considered as an analog of future global climate state. The causes of the termination of this Pliocene warmth, including tectonic activity, oceanic reorganization, atmospheric CO2 drawdown, astronomical forcing, and marine productivity are still contradicted. The Workshop on Pliocene Climate aims to bring together scientists working on both data and model studies in order to confront major assumptions on Pliocene climate and to define directions for future researches. More than 70 scientists and PhD students will convene in Bordeaux for the Workshop on Pliocene Climate.

For details see: http://www.plioclimworkshop.com/

Background and objectives

During the Pliocene epoch (5.3 – 2.5 Ma) Earth's climate transitioned from a warm and relatively stable state to a colder one marked by cyclic glacial-interglacial phases. Although the Pliocene has received much investigation, an understanding of Pliocene global cooling is still not clear. While, first evidence attributed it to the closure of Panama, it now seems that cooling involved complex interactions between number of mechanisms. What were, therefore, the mechanisms controlling Pliocene cooling and later the intensification of Northern Hemisphere Glaciation? Tectonic events such as the opening and closure of oceanic gateways? Changes in Earth's orbit? Atmospheric and oceanic changes across the equatorial Pacific? Impact of tropical/subtropical climate reorganizations on the polar regions? Equatorial Pacific changes related to the upwelling areas causing variations in CO2? These questions of cause-and-effect are unresolved or, at least, are still controversial among paleoceanographers and modelers.

A 3-day workshop will provide an opportunity to bring together scientists whose research focuses on Pliocene climate. Because a number of theories on Pliocene climate exist, it is necessary to discuss them critically. In order to open up new perspectives and to address the different viewpoints, all participants are encouraged to design their presentations in a way to stimulate discussion. We anticipate that this meeting will allow a comprehensive overview of new results that will further stimulate investigations and open up new collaborations between different groups working on Pliocene paleoclimates.

A special volume in a peer-reviewed journal based on joint publications will be produced after the workshop.

The workshop will be organized around 4 plenary sessions focusing on:

1. Application of Paleoclimate Proxies for the Pliocene
2. Global Impact of Gateways
3. High- versus Low-Latitude Interactions
4. Modeling the Pliocene Climate

Session 1: Application of Paleoclimate Proxies for the Pliocene

Pliocene climate and oceanic reconstructions are based on different proxies that are well known for the late Pleistocene and the Holocene. Recently, studies have revealed a controversial picture for early Pliocene climate based on different paleoclimate proxies. One could speculate, therefore, whether the application of proxies for recent periods could be also valid over a million-year timescale? Session 1 will examine the advantages, as well as the problems, associated with the application of different paleoclimate proxies.

Session 2: Global Impact of Gateways

The role played by Ocean Gateways on Pliocene climate is still not clear. Closure of Panama, Indonesian restriction and/or opening of the Bering Strait may have had a critical impact on thermohaline circulation and global climate. The extent to which these geodynamic reconfigurations may have affected increased Northern Hemisphere Glaciation remains unclear. Session 2 will compare records tied to tectonic events in order to gather together crucial pieces of the Pliocene "climatic puzzle".

Session 3: High- versus Low-Latitude Interactions

During the Pliocene, the Northern Hemisphere and Antarctica ice sheets developed significantly in different stages. This expansion of ice is thought to have controlled global atmospheric and oceanic conditions, especially at low latitudes. Related changes in climate at low latitudes may have had, in turn, a positive or negative feedback mechanism on high latitudes by the potential effects of atmospheric circulation, upwelling activities, and/or biological pump. Session 3 will focus on new paleoclimate records showing the interplay between tropical and sub-tropical climate variations compared to those observed at the polar regions.

Session 4: Modeling the Pliocene Climate

The middle Pliocene (~ 3.3 – 3.0 Ma) was the most recent of the geological timescale during which global climate was about 3 ˚C warmer than today. Scientists have argued that the Earth might once again return to a similar climatic state even before the end of 21st century. This will result in a dramatic melting of Greenland and Antarctic ice sheets. What were the main controlling mechanisms for an increase in global temperature during the Pliocene? And how could this help our understanding of present global climate change? Session 4 will involve modelers' experiments, together with data collected by paleoceanographers, in order to unravel fundamental information about Pliocene's warm period.

Convenors

- **Johan Etourneau** (Universität Kiel, Germany & Université de Bordeaux 1, France)
- **Nabil Khélifi** (Universität Kiel, Germany)

Steering Committee

- **Gerald Haug** (ETH Zurich, Switzerland)
- **Philippe Martinez** (Université de Bordeaux 1, France)
- **Christina Ravelo** (University of California, USA)
- **Antoni Rosell-Melé** (Universitat Autònoma de Barcelona, Spain)
- **Ralph Schneider** (Universität zu Kiel, Germany)

Program

Thursday 22.10.09

16:00 – 19:00	Registration
20:00	**Ice-breaker Party**

Friday 23.10.09

08:50 – 09:00	Opening Word
09:00 – 09:20	M. Sarnthein: The "Panama Hypothesis" on the Onset of Quaternary-Style Climates –– a Resumé
09:20 – 09:40	J. Groeneveld: Marine Isotope Stages (MIS) 96-101: The glacial induced closure of the Panamanian Gateway
09:40 – 10:00	C. Karas: Mid-Pliocene impact of the restricted Indonesian Gateway on ocean circulation and climate
10:00 – 10:20	A. Csank: Tales from ancient forests: multi-proxy reconstructions of Pliocene Arctic climate using tree-rings, tree-ring isotopes, moss and molluscs
10:20 – 10:40	**Coffee Break**
10:40 – 11:00	K. Sniderman: The nature and evolution of Pliocene vegetation and climates in southern Australia
11:00 – 11:20	W. Kürschner: Pliocene palaeo-atmospheric CO2 proxy records, a comparison of marine and terrestrial proxies
11:20 – 11:40	G. Bartoli: Pliocene atmospheric CO2 changes
11:40 – 12:00	M. Pagani: High climate sensitivity to atmospheric CO2 for the past 5 million years
12:00 – 12:20	G. Paris: Isotopic composition of boron in seawater during the Messinian: is Pliocene boron isotope proxy relevant?
12:20 – 13:00	Posters
13:00 – 14:00	**Lunch**
14:00 – 14:20	N. Khélifi: Potential links between changes in Mediterranean Outflow Water and North Atlantic Deep Water formation, 3.6 – 2.6 Ma ago
14:20 – 14:40	B. Risebrobakken: Latitudinal temperature gradients during the Pliocene warm phase
14:40 – 15:00	S. De Schepper: North Atlantic Current variability through Marine Isotope Stage MIS M2 (ca. 3.3 Ma)
15:00 – 15:20	D. Naafs: Pliocene climate and Northern Hemisphere Glaciation as seen from the North Atlantic
15:20 – 15:40	P. Sexton: A persistent "glacial-like" Atlantic overturning circulation regime during the intensification of Northern Hemisphere Glaciation
15:40 – 16:00	**Coffee Break**
16:00 – 17:30	Group Discussions: Global impact of gateways
17:30 – 18:00	Reporting of Panels
18:30 – 19:00	Keynote Lecture – R. Tiedemann: Tropical Pacific climate change during the Pliocene – causes and consequences
19:00	**End**

Saturday 24.10.09

09:00 – 09:20	**J. LaRiviere:** Pliocene Sea Surface Temperature Records from the mid-Latitude North Pacific
09:20 – 09:40	**G. Swann:** Salinity changes in the North West Pacific Ocean during the Late Pliocene
09:40 – 10:00	**S. Jaccard:** Subarctic Pacific evidence for enhanced abyssal sequestration of respired carbon at the onset of Northern Hemisphere Glaciation, 2.7 Ma
10:00 – 10:20	**A. Martinez-Garcia:** Plio-Pleistocene evolution of Subantarctic Atlantic temperatures: Implications for the dynamics of the Antarctic ice-sheet
10:20 – 10:40	**Coffee Break**
10:40 – 11:00	**M. Williams:** A high fidelity molluscan climate record of the Weddell Sea for a warm interval of the Early Pliocene
11:00 – 11:20	**H. Dowsett:** Global ocean thermal structure during the mid-Pliocene: Data indicate increased northern component deepwater production
11:20 – 11:40	**N. Scroxton:** Characterising the Pliocene Equatorial Warm Pool from Individual Foraminifera
11:40 – 12:00	**J. Sliko:** Pliocene corals, rainfall, and El Niño teleconnections
12:00 – 12:20	**M. Medina-Elizalde:** Tropical Pacific thermal evolution, the 100 ky cycles, and the role of greenhouse gases during the late Pliocene glaciations
12:20 – 13:00	Posters
13:00 – 14:00	**Lunch**
14:00 – 14:20	**Z. Liu:** Plio-Pleistocene SST Changes in Warm Pool Regions
14:20 – 14:40	**C. Bolton:** Evolution of nutricline dynamics in the equatorial Pacific during the late Pliocene
14:40 – 15:00	**J. Etourneau:** Reconstruction of both Walker and Hadley circulations during the Plio-Pleistocene climate transition
15:00 – 15:20	**C. Ravelo:** El Padre in the Pliocene: What lies beneath?
15:20 – 15:40	**A. Fedorov:** Expansion of the Tropical Warm Pool, Permanent El Niño conditions, and Climate Feedbacks in the Early Pliocene
15:40 – 16:00	**Coffee Break**
16:00 – 17:30	Group Discussions: High- vs. low-latitude interactions
17:30 – 18:00	Reporting of Panels
18:30 – 19:00	Keynote Lecture – **A. Haywood:** Progress, Uncertainties and Opportunities in Reconstructing & Modelling Mid-Pliocene Climate/Environments
19:00 – 20:00	Round table discussion: The near future drilling targets
20:00	**End**

Sunday 25.10.09

08:40 – 09:00	**U. Mikolajewicz:** Modelling the effect of an open Isthmus of Panama
09:00 – 09:20	**A. Jost:** High resolution climate and vegetation simulations of the mid-Pliocene, a model-data comparison over western Europe and the Mediterranean region
09:20 – 09:40	**U. Salzmann:** A New BIOME4-based Data/Model Hybrid Vegetation Reconstruction for the Middle Pliocene (Piacenzian Stage)
09:40 – 10:00	**S. Bonham:** HadCM3 Simulations of ENSO behaviour during the Mid-Pliocene Warm Period
10:00 – 10:20	**D. Hill:** Modelling Pliocene East Antarctica: reconciling ice sheet retreat and evidence for stability
10:20 – 10:40	**D. Lunt:** An estimate of Earth System Sensitivity from the Pliocene
10:40 – 11:00	**Coffee Break**
11:00 – 12:30	Group Discussions: Modeling the Pliocene climate
12:30 – 13:00	Reporting of Panels
13:00 – 13:30	Round table discussion: The future Pliocene research
13:30 – 14:30	**Lunch**
14:30 – 18:30	Excursion: “Wine and Terroir”

8.2.5 Magellan workshops

J. Erbacher will give a ESF Magellan Summary.

Forthcoming Science Meetings:

1. **Workshop Title: Workshop on Pliocene Climate**
   Dates: 23- 25/10/2009 Location: Bordeaux (FR) Convenor: J Etourneau (DE) Awarded 10K
2. **Workshop Title: Volcanic basins: scientific, economic and environmental aspects**
   Dates: 25 - 28/01/2010 Location: Grenoble (FR) Convenor: N Arndt (FR) Awarded 15 K
3. **Workshop Title: IODP Drilling of the "Shackleton sites" on the Iberian Margin**
   Dates: 9/11 - 10/11/2009 Location: Lisbon (PT) Convenor: F Abrantes (PT) Awarded 15K

Workshops held in 2009

1. **Workshop Title: Paleoenvironmental Evolution of the Baltic Sea through the Last Glacial Cycle Dates**: 08 - 09/03/2009 Location: Copenhagen (DK) Convenor: JB Jensen (DK)

Report

Summary of workshop information

The workshop brought together together 32 geoscientists, young researchers and drilling scientists to exchange ideas about the utilization of marine drilling technologies for the investigation of marginal seas with special respect to the Baltic Sea and to summarize the possibilities of paleoenvironmental reconstructions of the border area between the Northern Atlantic and Eurasia.

Targets and sites for a drill campaigns were assessed in order to sample a complete stratigraphic record of the BSB for the LGC. A drilling strategy was developed to result in the construction of the Late Quaternary history of the BSB. Optimal proxies for paleo-environmental interpretations of the development of the BSB during the LGC were selected.

The final application #672-Full3 for a Baltic IODP drilling campaign was improved.

2. **Workshop Title: Cold-Water Carbonate Reservoir systems in Deep Environments-COCARDE Dates**: 21-25/01/2009 Location: Fribourg (CH) Convenor: S Spezzaferri (IT)

Report

Summary of workshop information

35 scientists from 9 European countries, and Canada and Morocco representing 20 research teams, who are involved in IODP (689 and 673), as well as ESF EUROCORES, ESF EUROMARC and EU-FP6-7 projects met in Fribourg. Most participants from Industry had to cancel their (intention of) participation invoking temporary economic/policy constraints, but most of them (ENI, CHEVRON, TOTAL, SHELL, STATOILHYDRO, REPSOL, ONHYM) maintained close contact by e-mail.

Participants from geosciences and biology, discussed and planned future research strategies and joint projectswith the industry, ideas which have been germinated also within IODP. The themes of the workshop focused on 1) Palaeoenvironment; 2) The Microbial Filter; 3) Petrophysical Characterization; 4) Connectivity and Compartmentalization – the Fluid System; 5) Advancing our Insight in Phanerozoic Reef Systems – the Slope Niche.

3. **Workshop Title: Beyond 2013: the Future of European Scientific Drilling Research Dates**: 24-25/04/2009 Location: Vienna (AT) Convenor: G Camoin (FR)

Summer Schools held in 2009

Title: ESF - Magellan Introductory Course in Ocean Drilling Sciences (MICOD) Dates: 15-21/07/2009 Location: Urbino (IT) Convenor: H Brinkhuis (NL)

Report received, in review 15 October 2009

Short visit grant

Michael Strasser who visited Greg Moore at University of Hawaii to foster his Post-doc research at MARUM at Univ. of Bremen.

Budgetary Information

See attached table. Approximately 184K for use until the end of the program, end of 2010

Steering Committee Meeting Information

The last meeting held 12-13th February, Graz Austria. Hosted by Werner Piller.

The next meeting will be held on the Azores starting on18 Feb 19 2010 and hosted by Fatima Abrantes.

Call Information

Previous call opened on March 15th and closed on May 15th 2009. The call particularly sought proposals which encourage the use of alternate drilling methods. It was decided to only continue the calls for workshops and short visit grants. No more calls will be given for summer schools. All proposals were funded.

The most recent call opened on October 15th and will close on December 15th. We will discuss the proposals at the next SC meeting.

8.2.6. EuroFORUM 2010

R. Stein will give a summary of that workshop.

During the EGU 2010 in Vienna, the EuroFORUM 2010 will be organized. The proposal has been accepted for an Interdivision Session dealing with major achievements and perspectives in ocean and continental drilling, and a call for oral and poster contributions will be send out soon.

EGU Session CL4.9/SSP1.7

EuroFORUM 2010: Achievements and perspectives in scientific ocean and continental drilling

Convenors: R. Stein, U. Harms, H. Brinkhuis, G. Camoin, J. Erbacher, and U. Roehl

(http://meetingorganizer.copernicus.org/EGU2010/session/2717)

Abstract

Since 1968, scientific ocean drilling is recovering unique global geological records preserved in marine sedimentary deposits and basement rocks. These records obtained within the Deep Sea Drilling Project (DSDP), the Ocean Drilling Program (ODP), and the Integrated Ocean Drilling

Program (IODP) have been key for major advances in our understanding of our planet, including palaeoclimate, palaeoceanography, deep biosphere and crustal dynamics and tectonic processes.

Global continental efforts are coordinated within the International Continental Scientific Drilling Program (ICDP). Funding and support for research projects is provided to tackle challenging geoscientific themes of socio-economic relevance such as paleoclimate, earthquakes and volcanism, or unconventional energy resources.

The principal goals of the IODP-ICDP EuroFORUM 2010 are to summarize and review major scientific achievements in ocean and continental drilling with special emphasis on the European contributions to IODP and ICDP. Furthermore, perspectives and visions for drilling projects using a multi-platform approach will be tackled.

8.3 Subcommittee report, discussion and future actions

E. Erba reports about the meeting of the « Workshops, communication and vision » ESSAC subcommittee at the 13th ESSAC meeting in Oulu (Finland).

9. Review of consensus, motions and actions

10. Next meetings

Two propositions have been made at the ESSAC#12 meeting in Sesimbra, Portugal for the location of the ESSAC# 14 meeting in May 2010. In order to advice these locations, N. Koc and A. Foubert will shortly present Tromsoe and Leuven, respectively.

Propositions for the ESSAC#15 meeting in October 2010 are welcome.

11. Any other Business

Appendix 1

Executive summary of the 12th ESSAC meeting

cf. 1.3 Discussion and approval of the Agenda

ESSAC Consensus 0905-01: ESSAC approves the agenda of its 12th meeting on May 26th – 27th, 09 at the Hotel do Mar in Sesimbra, Portugal.

cf. 1.4 Items since the 11th ESSAC Meeting/ESSAC Office news

IODP SAS Panels

> **ESSAC Action Item 0905-01:** The ESSAC office will issue a call to nominate new ECORD EDP panel members in June 09.

Done: The ESSAC Office issued a call on June 10th, 2009 with a July 12th, 2009 deadline.

> **ESSAC Action Item 0905-02:** The ESSAC office will issue a call to nominate new ECORD SSEP panel members in June 09.

Done: The ESSAC Office issued a call on June 11th, 2009 with a July 12th, 2009 deadline.

Statistics

> **ESSAC Action Item 0905-03:** ESSAC welcomes the future development of the monitoring of statistics data.

cf. 3.4 ESSAC representatives and National Office reports > ESSAC Action Item 0905-04: The ESSAC delegates will send suggestions to the

ESSAC office regarding the future incoming chair.

cf. 4.1.2 Updates on expedition staffing: New Jersey Shallow Shelf, Great Barrier Reef Environmental Changes, PEAT Paleogene, PEAT Neogene, Bering Sea, Shatsky Rise, Canterbury Basin, Wilkes Land, NanTroSEIZE 319 and NanTroSEIZE 322

Great Barrier Reef

> **ESSAC Action Item 0905-05:** Following the decisions of the co-chiefs from Expeditons 325 to replace D. Sanders by J. Braga, ESSAC will recommend to D. Sanders to send a sample request, so that he could be able to be considered as a shore-based scientist, if the sample request is accepted by SAC (Sample Allocation Committee).

cf. 5. Breakout sessions (ESSAC subcommittees: E&O)

ECORD scholarships grants

> **ESSAC Action Item 0905-06**: ESSAC decides to award the grants only to the 3 stars candidates.

Note: Because of the withdrawal of 2 three star candidates ESSAC decided via electronic email to distribute the ECORD scholarships to the candidates next on the ranking list till the budget was consumed.

> **ESSAC Action Item 0905-07**: ESSAC decides to award exceptionally 1 ECORD scholarship grant to an Icelandic student, who CV was highly ranked.

In the future an ECORD scholarship grant will be given to a European non-ECORD country applicant, when this disposition can be applied.

ESSAC Consensus 0905-02: The staffing of the expedition is a long iterative process involving the PMOs, the IOs and the co-chiefs of the expedition. The chair of the respective PMO is in charge of the final negotiations with the IOs and the co-chiefs.

ESSAC Consensus 0905-03: ESSAC decides to standardize the application, which will now consist of one single PDF-File including a letter of interest (max. 2 pages), a CV (plus publication list, if existing of max. 2 pages) and a standardized letter of support.

> **ESSAC Action Item 0905-08**: The ESSAC Office located in Bremerhaven will create a template for the letter of support for the ECORD Scholarships.

ECORD summer schools

ECORD Research Grants

> **ESSAC Action Item 0905-9**: The ESSAC Office located in Bremerhaven will create a template for the letter of support for the ECORD grants.

cf. 8. Next meetings

> **ESSAC Action Item 0905-10:** The ESSAC Office will make a poll in doodle to determine the dates of the 123h ESSAC Meeting, which will be held in Finland, Finland.

ESSAC Consensus 0905-04: ESSAC approves the voting results that all three ECORD Summer Schools 2009 should get granted.

ESSAC Consensus 0905-05: ESSAC decides to breakdown the total amount of 20 k€ in 3 parts viz. 1/3 for each summer school.

Appendix 2

Draft Minutes of 12th SSEP-meeting (cf. 2.3 SSEP)

A2.1. Joint Session, Introduction

3.2.1. Call to Order (SSEP co-chair Heiko Pälike)

SSEP co-chair Pälike briefly reviewed the meeting agenda and described how the meeting would be organized.

A2.1.2. Self-introduction of panel members, liaisons, and guests

The following attendees briefly introduced themselves, and explained their function during the meeting: Schulte, Zierenberg, Jaeger, Elliott, Suzuki Nishi, Ikehara, Takazawa, Kubo, Marsaglia, Carlut, Ishiwatari, Torres, Pälike, Li, Berné, Brunelli, Wilson, Harris, Koppers, Vrolijk, Yamaguchi, Suzuki, Rosenthal, Inagaki, Aiello, Brinkhuis, Kuroda, Kopf, Pinheiro, Powell, Guerin, Ask, Zelt, Davies, Zarikian, Janecek, Kawamura, Geldmacher, Mori, Maclain, Toczko, Mitchell and the MSPHD students. Gurnis, Gallagher, and Kim could not attend.

A2.1.3. Welcome and meeting logistics (hosts Brinkhuis and Mullen-Pouw)

The SSEP thanked SSEP member Brinkhuis and local host Mullen-Pouw as well staff from the Netherlands Geological Survey for guiding a much appreciated field trip "Historical Utrecht and Geological Highlights" prior to the SSEP meeting on May 24th, introducing participants to geological building materials throughout the historical city of Utrecht. Local SSEP co-chair Pälike announced that a busy meeting schedule could be expected, with required reviews for 23 drilling proposals (3 with external review). Pälike reminded participants to speak slowly & clearly, to be sensitive to cultural and style differences, and that only one person would speak at a time (through the co-chairs), and that cross talk should be avoided.

A2.1.4. Approval of present 12th SSEP meeting agenda

The agenda for the 12th meeting of SSEP is provided as **Attachment 1b.**

A2.1.5. Approval of last (11th) SSEP meeting minutes

Pälike asks for approval of the most recent 11th SSEP meeting in San Francisco (November 2008). Pälike asked for a consensus to approve the minutes 'as is', and all members agreed.

A2.1.6. SAS Panel Reports

> **SSEP Consensus 0905-1:** The SSEP approves the revised agenda of their 12th meeting in Utrecht, 25-28 May 2009 in Utrecht, The Netherlands.

> **SSEP Consensus 0905-2:** The SSEP approves the minutes of their 11th SSEP meeting on November 10-13th 2008, San Francisco, U.S.A.

A2.1.6.1. SPC and SASEC Report

SPC chair Jim Mori gave an update for the last SASEC meeting in Lisbon (January 2009), for which he provided a review for 1) 2009 Program Plan and 2) The recent Board of Governors Ad Hoc Report. He also provided an updated on the most recent March 2009 SPC meeting in Miami, Florida: 1) Proposal Ranking, including discussions of the Asian Monsoon and Hot Spot Detailed Planning Groups (DPG), 2) new policy from SPC regarding time allocations for each drilling Expedition for APL and engineering testing and development time, typically 3 days per two-month Expedition. If the OTF then determines that there is no appropriate engineering testing or approved APL for a given expedition, the time will transfer back to the scientific objectives of the given expedition. Mori also reported on 3) Riser Contingency Planning, 4) Multi-platform operations, and approval by SPC for Torres as incoming SSEP co-chair.

A2.1.6.2. SSP Report (Site Survey Panel)

Neill Mitchell (SSP liaison) explained the role of the SSP, and reported on the outcomes of most

recent February 2009 SSP Meeting in Busan, Korea. Mitchell listed three new SSP members, and provided updates on those proposals that the SSEP panel evaluated during the meeting. Mitchell announced that the next SSP meeting will be held in Austin, TX, in late July 2009.

A2.1.6.3. EDP Report (Engineering Development Panel)

Maria Ask (EDP liaison) reviewed the role of EDP and updated the SSEP on EDP activities. She summarized current technological issues, including continuous core recovery high latitude coring activities. She then reviewed engineering and technical issues for upcoming proposals, which include SCIMPI and non- magnetic core barrels. Ask offered to report SSEP comments back to EDP regarding proposals currently under review. Ask then listed current activities from the EDP Meeting in Shanghai (January 2009): During that meeting, EDP endorsed IODP-MI engineering testing time policy on IODP platforms, responded to a request by the INVEST Steering Committee for an EDP White Paper on Technological needs of Scientific Ocean Drilling, endorsed IODP-MIs Engineering and Development plan for FY2010, and discussed motion decoupled hydraulic delivery systems (MDHDS), SCIMPI, and a new multi-sensor magnetometer logging tool. Ask reported that EDP postponed a technical review of Proposal 698-Full2. The next EDP meeting will be held in Lulea, July 2009.

A2.1.6.4. ESO Report (European Implementing Organization)

Sarah Davies (Leicester) reported on current and future activities by the European Science Operator. She noted that the lift boat Kayd mobilized for Expedition 313 (New Jersey) at the end of April in Atlantic City. The drilling operations appear to be successful, and are scheduled to last through early July. Davies reported that Expedition 325 (Great Barrier Reef Environmental Changes) is scheduled for November-December 2009, with Jody Webster and Yusuke Yokoyama as co- chief scientists.

A2.1.6.5. USIO Report (United States Implementing Organization)

Carlos Zarikian (TAMU) reported on the *JOIDES Resolution* Expedition Schedule following the first completed Pacific Equatorial Age Transect (PEAT) Expedition 320 after the ship's conversion. Following expeditions will comprise PEAT II and a Juan de Fuca CORK remedial cementing job, Bering Sea during July and September, followed by Shatsky Rise, Canterbury Basin, and Wilkes Land. Zarikian reviewed the work of the ship conversion Readiness Assessment Team prior to PEAT I, and showcased the new laboratory systems onboard the JR. Zarikian reported that Expedition 320 had turned out to be a real shakedown cruise, and that TAMU is currently working on a significant number of issues that were identified with software and other laboratory systems during Expedition 320 and the RAT cruise. Zarikian reported also that industry work in collaboration with KIGAM and the Korean National Oil Company will follow the Wilkes Land Expedition, with an additional scientific cruise now scheduled in FY2010 following the Korean Gas Hydrate work. Zarikian provided an update to planned engineering developments including the Deepstar Project, dual gradient drilling feasibility studies, and riserless mud return systems. Zarikian also reported on the IODP TAMU Director Search process, and the TAMU Publication Services status. Guerin (LDEO) then gave an update on wireline problems encountered during Expedition 320, and what remedial measures were taken to improve logging reliability.

A2.1.6.6. CDEX Report (Japan Implementing Organization)

Sean Toczko (CDEX) provided an update on the current CDEX and *Chikyu* status. He reported that *Chikyu* azimuth thruster repairs have been completed, and that *Chikyu* is now at sea on Expedition 319. He also noted that the PR event during the portcall was very popular, with 9231 visitors during one day alone. Expedition 319 started on May 10th, and spudded in on May 19th. A film crew from the BBC will report from onboard the *Chikyu* on Friday 29th May.

A2.1.7 IODP-MI Report

Barry Zelt (Science Support, IODP-MI, Sapporo Office) reported on activities at IODP-MI. He provided information about the IODP organizational structure to brief new and update existing SSEP members, and gave an overview of the current Science Advisory Structure (SAS) meeting schedule. He then provided proposal submission statistics: For this SSEP meeting, IODP-MI received 20 proposals (11 environment, 6 solid earth, 3 microbiology and sub-seafloor). As of 14

April 2009, 113 proposals were active in the system (42 solid earth, 47 environment, 24 deep biosphere). 995 unique proponents contributed to currently active proposals, with 427 ECORD, 328 US, 122 Japan, 29 ANZIC, 5 Korean, 23 Chinese, 2 Indian, and 59 other geographic proponents. Excluding three Complex Drilling Proposals (CDPs), 54 proposals are in the Pacific, 25 in the Atlantic Ocean, 13 in the Indian Ocean, 5 in the Mediterranean, 6 in the Arctic, and 7 in the Southern Ocean. Currently, 54 proposals reside with the SSEP, 21 are at SPC, 29 with OTF, and 6 in the Holding Bin, including 78 non-riser, 15 multiple, and 4 riser expeditions. For the current SSEP meeting there would be 6 full, 11 pre-proposals, 1 complex drilling proposal (CDP), 2 ancillary proposal letters

(APL), as well as 3 proposals with external reviews. Zelt explained the potential outcomes and recommendations for each proposal type. He then concluded with a reminder of the current SSEP member rotation schedule.

1.8 MSPHD program Emily Powell (Ocean leadership) introduced participants, who introduced themselves and detailed objectives and outcomes of the program, as well as expectations for the student participants in this meeting

A2.2. Reviewing process 2.1 Introduction

The SSEP co-chair Heiko Pälike reviewed the SSEP terms of reference, and explained again the conflict of interest rules (COI) that had been circulated prior to the meeting. Pälike reviewed the star grouping system, and reminded the panel that if an EDP and/or STP review was requested, a detailed justification will be added in the review.

A2.2.1 Breakout Sessions

A total of 23 proposals were reviewed during the meeting, including new external reviews available for 3 proposals. Panel members were divided into two breakout sessions for detailed discussions of the proposals: Breakout Session 1: *Solid Earth/Petrology* (chaired by M. Torres and A. Ishiwatari); Breakout Session 2: *Paleoclimate/oceanography, Faults/Fluids and Deep biosphere* (chaired by H. Pälike)

BREAKOUT Group 1 (Solid Earth, chairs M. Torres/A. Ishiwatari)

Number	Short Title	Lead Proponent	WD #1	WD#2	WD#3	WD#4	WD#5
707A-Full2	Kanto Asperity Project: Tectonics & Paleoseismology	Yamamoto	Takazawa	Carlut	Zierenberg	Ikehara	Brunelli
707B-Full2	Kanto Asperity Project: Observatories	Kobayashi	Kimura	Kopf	Takazawa	Koppers	Zierenberg
707-CDP2	Kanto Asperity Project: Overview	Kobayashi	Zierenberg	Kimura	Brunelli	Elliott	Kopf
743-Pre	Gulf of Mexico Hydrate Dynamics	Knapp	Marsaglia	Harris	Suzuki, Y	Yamaguchi	Pinheiro
744-Pre	Indian Ocean HyperSLiME	Kumagai	Elliott	Yamaguchi	Rosenthal	Marsaglia	Pinheiro
745-Pre	Shimokita Coal Bed Biosphere	Inagaki	Suzuki, Y	Vrolijk	Yamaguchi	Elliott	Pinheiro
748-Full	Nice Airport Landslide	Stegmann	Li	Harris	Ikehara	Carlut	Koppers
749-Pre	Gulf of California Rifting & Microbiology	Teske	Inagaki	Ikehara	Aiello	Harris	Koppers
752-Pre	Kanto Asperity Project: Plate Boundary Deformation	Yamamoto	Kopf	Takazawa	Kimura	Zierenberg	Koppers
548-Full3	Chicxulub K-T Impact Crater	Morgan	Yamaguchi	Elliott	Marsaglia	Nishi	Brunelli
681-Full2	Lesser Antilles Volcanic Landslides	Le Friant	Brunelli	Li	Kimura	Carlut	Takazawa

BREAKOUT Group 2 (Env.,Faults/Fluids, Deep biosphere , chair H.Pälike)

Number	Short Title	Lead Proponent	WD #1	WD#2	WD#3	WD#4	WD#5
645-Full3	North Atlantic Gateway	Jokat	Aiello	Brinkhuis	Li	Marsaglia	Wilson
672-Full3	Baltic Sea Basin Paleoenvironment	Andren	Suzuki, A	Berné	Kuroda	Schulte	Ikehara

730-Pre2	Sabine Bank Sea Level	Taylor	Rosenthal	Suzuki, Y	Kopf	Vrolijk	
736-APL2	Gulf of Mexico Paleoclimatology	Flower	Jaeger	Vrolijk	Wilson	Suzuki, Y	
737-Full	North Sea Cenozoic Climate Change	Donders	Berné	Rosenthal	Suzuki, A	Nishi	
742-APL	Shatsky Rise High-Resolution Climate	Channell	Harris	Aiello	Li	Kuroda	
746-Pre	Arctic Mesozoic Climate	Jokat	Schulte	Berné	Inagaki	Rosenthal	Brinkhuis
747-Pre	North Atlantic Paleogene Climate	Coxall	Nishi	Brinkhuis	Schulte	Wilson	
750-Pre	Beringia Sea Level History	Polyak	Vrolijk	Jaeger	Kuroda	Berné	
751-Pre	West Antarctic Ice Sheet Climate	Bart	Wilson	Jaeger	Inagaki	Carlut	
753-Pre	Beaufort Sea Paleoceanography	O'Regan	Kuroda	Nishi	Suzuki, A	Jaeger	Pinheiro
732-Full2	Antarctic Peninsula Sediment Drifts	Channell	Brinkhuis	Aiello	Schulte	Suzuki, A	Inagaki

The conflict of interest rules and confidentiality requirements were respected during the entire review procedure (breakout sessions, general sessions, and grouping). The table below lists the conflicted SSEP members, liaisons and guests who left the room during the review of the relevant proposals.

Number	Short Title	Conflict	Conflict
645-Full3	North Atlantic Gateway		
672-Full3	Baltic Sea Basin Paleoenvironment		
707A-Full2	Kanto Asperity Project: Tectonics & Paleoseismology		
707B-Full2	Kanto Asperity Project: Observatories		
707-CDP2	Kanto Asperity Project: Overview		
730-Pre2	Sabine Bank Sea Level		
736-APL2	Gulf of Mexico Paleoclimatology		
737-Full	North Sea Cenozoic Climate Change	Brinkhuis	
742-APL	Shatsky Rise High-Resolution Climate	Jaeger	Koppers
743-Pre	Gulf of Mexico Hydrate Dynamics		
744-Pre	Indian Ocean HyperSLiME		
745-Pre	Shimokita Coal Bed Biosphere	Hinrichs	Inagaki
746-Pre	Arctic Mesozoic Climate		
747-Pre	North Atlantic Paleogene Climate		
748-Full	Nice Airport Landslide	Kopf	
749-Pre	Gulf of California Rifting & Microbiology		
750-Pre	Beringia Sea Level History		
751-Pre	West Antarctic Ice Sheet Climate		
752-Pre	Kanto Asperity Project: Plate Boundary Deformation		
753-Pre	Beaufort Sea Paleoceanography		
548-Full3	Chicxulub K-T Impact Crater		
681-Full2	Lesser Antilles Volcanic Landslides		
732-Full2	Antarctic Peninsula Sediment Drifts	Jaeger	

The co-chairs ruled that a potential conflict of interest declared by Vrolijk (perceived industry and proposal title “Shimokita Coal Bed Biosphere” connection) for proposal 745-Pre was not a conflict of interest. Berné was also ruled as not conflicted for proposal 748-Full, but was only present for the discussion of this proposal in the Joint Session, not the breakout group.

A2.3. Joint Session, Proposal Dispositions

The course of action regarding each of the 23 SSEP proposals reviewed during the Utrecht meeting was achieved by consensus of the full panel. The summary dispositions were as follows:

Pre-Proposal: request Pre2 Proposal	=	4
Pre-Proposal: request Full Proposal	=	5
Full Proposal: forward to SPC	=	3 (Groupings: 4*: 2, 5*: 1)
Full Proposal: send for External Review	=	2
APL: forward to SPC	=	1
CDP umbrella: revise	=	1

Full Proposal: request revision	=	2
Full Proposal: request new submission/deactivate	=	2
Pre Proposal: request new submission/deactivate	=	2
APL: request new submission/deactivate	=	1

The specific dispositions for each proposal were as follows:

Number	Short Title	Contact Proponent	SSEP disposition
645-Full3	North Atlantic Gateway	Jokat	revise F4
672-Full3	Baltic Sea Basin Paleoenvironment	Andren	external review
707A-Full2	Kanto Asperity Project: Tectonics & Paleoseismology	Yamamoto	deactivate
707B-Full2	Kanto Asperity Project: Observatories	Kobayashi	deactivate
707-CDP2	Kanto Asperity Project: Overview	Kobayashi	revise CDP3
730-Pre2	Sabine Bank Sea Level	Taylor	develop F
736-APL2	Gulf of Mexico Paleoclimatology	Flower	deactivate
737-Full	North Sea Cenozoic Climate Change	Donders	revise F2
742-APL	Shatsky Rise High-Resolution Climate	Channell	SPC
743-Pre	Gulf of Mexico Hydrate Dynamics	Knapp	revise Pre2
744-Pre	Indian Ocean HyperSLiME	Kumagai	deactivate
745-Pre	Shimokita Coal Bed Biosphere	Inagaki	develop F
746-Pre	Arctic Mesozoic Climate	Jokat	revise Pre2
747-Pre	North Atlantic Paleogene Climate	Coxall	develop F
748-Full	Nice Airport Landslide	Stegmann	external review
749-Pre	Gulf of California Rifting & Microbiology	Teske	develop F
750-Pre	Beringia Sea Level History	Polyak	revise Pre2
751-Pre	West Antarctic Ice Sheet Climate	Bart	develop F
752-Pre	Kanto Asperity Project: Plate Boundary Deformation	Yamamoto	deactivate
753-Pre	Beaufort Sea Paleoceanography	O'Regan	revise Pre2

A qualitative grouping was assigned to those proposals forwarded to the SPC using the 5- star scale grouping. Grouping was obtained by consensus of the full panel, after evaluation against the individual grouping criteria.

A2.4. Discussion and Recommendations to SPC

Following the report from IODP-MI and SPC, which included an update on the impending consolidation and relocation of the IODP-MI offices, a lively discussion ensued with the SSEP on the relative merits and potential drawbacks of such a move. Zelt, Kawamura, Janecek left the room during these discussions due to a direct conflict of interest. The SSEP agreed by consensus on the

following statement and requests SPC to voice these concerns to the Board of Governors and SASEC:

> **SSEP Consensus 0905-3:** The SSEP has learned from the IODP Board of Governor meeting minutes and from IODP-MI that there is a plan to close the IODP-MI Washington D.C. office and to relocate a consolidated IODP-MI office from Sapporo to Tokyo between late 2009 and 2010, retaining all functions from the two current offices. The SSEP is extremely concerned about the timing of this decision at a time when all three platforms are finally operational, and just prior to IODP renewal efforts. Any reorganization of IODP-MI must not in any way interfere with the operation of IODP-MI, with respect to the science programs on all three platforms, the potential loss of experienced personnel and corporate memory, and the efficient running of the Engineering and Development Panel (EDP). We are concerned that a disruption of the drilling program at this critical time would undermine support from the scientific community that will be needed for a successful renewal of the program. We suggest that the renewal stage is the most appropriate time to discuss and implement any needed changes in the management structure. The SSEP request SPC to relay these grave concerns to SASEC and the Board of Governors.

A2.5. SSEP recommendations for INVEST program renewal

The INVEST steering committee had requested input from the SSEP as to what exciting new directions can be identified from recent drilling proposals as well as SSEP member contributions. Due to time constraints of the meeting, this discussion took the form of a round-table discussion, where each SSEP member identified pressing needs from their own research field and experience, summarized in Appendix 2. Prior to discussions, Pälike and Inagaki, in their role as members of the INVEST Steering Committee, provided an update on the meeting format, and working group themes and sub-themes. Torres provided an update on the CHART online workship in the US, Inagaki on the JDESC workshop in Japan, and Brinkhuis provided an update on the meeting that took place during EGU in Vienna during April 2009. Zierenberg moved to formulate SSEP consensus that supports the current efforts and plans of the INVEST Steering Committee, Schulte seconds.

> **SSEP Consensus 0905-4:** The SSEP supports the INVEST Steering Committee Program of scientific themes and breakout groups as presented at the meeting.

A2.6. Next SSEP meetings

Gary Wilson on behalf of Stephen Gallagher presented the logistics and details for the next planned SSEP meeting in Melbourne, Australia, 16-19 November 2009. The May and November 2010 meeting locations have been proposed to be switched around in terms of locations in the Japan and US. It is proposed to hold the May 2010 meeting in Kochi, Japan, and the November 2010 meeting in the USA (possibly Portland).

A2.6. Nominations for new SSEP co-chair, to replace Heiko Pälike

Berné nominates Henk Brinkhuis, Elliott seconds. Brinkhuis was nominated unanimously by the SSEP.

A2.7. Presentations by MSPHD students

The MSPHD students presented their impressions and learning outcomes gained during the meeting and thanked their respective mentors.

A2.8. Resolutions for outgoing SSEP members

Resolutions were presented thanking outgoing SSEP members for their years of dedication: Elliott, Gurnis, Jaeger, Zierenberg, Aiello, Kim, Kimura, Suzuki, Nishi.

A2.9. Conclusion

The co-chairs Akira Ishiwatari, Marta Torres and Heiko Pälike thanked all of the panel members for their dedication and hard work, and again thanked Henk Brinkhuis and Marjolein Mullen for hosting the meeting. Watchdogs submitted drafts of proposal reviews to the IODP-MI science coordinators (Hiroshi Kawamura and Barry Zelt) before the meeting ended.

Appendix 2a

Science Steering and Evaluation Panel

12th Meeting, May 25-28 2009
Grand Hotel V Utrecht, Utrecht, The Netherlands
Draft Meeting Agenda (Ver. 2d, May 11)

Sunday, May 24
Optional Field Excursion: *Historical Utrecht and Geological Highlights*
(Start at 14:30 from reception NH Hotel)
Optional Dinner at a restaurant in Utrecht center

Monday, May 25 (8:30-17:00)
Call to Order (Pälike)
Joint Session, Reports
- Opening Remarks by Host (Brinkhuis)
- Introduction of attendees to SSEP
- Approval of the agenda (Pälike)
- Approval of minutes from San Francisco Meeting, USA, Nov 2008 (Pälike)
- Introduction to meeting organization (Pälike)
-SAS Panel Reports
    - SPC report (Mori)
    - SSP report (Mitchell)
    - EDP report (Ask)

10:30 -----Coffee break -----

-IO Reports
    - ESO report (Davis)
    - USIO/LDEO report (Zarikian, Guerrin)
    - CDEX report (Tocko)

- IODP-MI report (Zelt)
-MS PHD'S Program (Whitney et al.)

12:30 ----- Lunch break -----

Meeting overview
- Reviewing process and breakout sessions (Pälike)
- Introduction to Whitepaper discussion& writing for INVEST

15:00 -----Coffee Break-----

-Breakout sessions (Groups and Order of Proposal Review)

Breakout Group 1	Breakout Group 2
Solid Earth and Microbiology	Paleoenvironment

	Torres & Ishiwatari		Pälike	
#	Prop	Watchdogs	Prop	Watchdogs
1	743	Ma Ha SY Ya Pi	751	Wi Ja In Ca
2	744	El Ya Ro Ma Pi	732	Bh Ai Sc SA In
3	745	SY Vr Ya El Pi	645	Ai Bh Li Ma Wi
4	681	Br Li Ki Ca Ta	672	SA Be Ku Sc Ik
5	548	Ya El Ma Ni Bn	736	Ja Vr Wi SY
6	748	Li Ha Ik Ca Ks	730	Ro SY Kf Vr
7	749	In Ik Ai Ha Ks	737	Be Ro SA Ni
8	707C	Zi Ki Br El Kf	742	Ha Ai Li Ku
9	707A	Ta Ca Zi Ik Bn	746	Sc Be In Ro Bh
10	707B	Ki Kf Ta Ks Zi	747	Ni Bh Sc Wi
11	752	Kf Ta Ki Zi Ks	750	Vr Ja In Ca
12			753	Ku Ni SA Ja Pi

In this schedule, the 548 Chicxulub proposal is included in the Solid Earth/Microbiology group, as in the case of San Francisco meeting.

-----Ice Breaker ?-----

Tuesday, May 26 2009 (8:30-17:00)
Breakout group proposal review (cont.)
10:30 ----- Coffee break -----
Breakout group proposal review (cont.)
12:30 ----- lunch -----
Breakout group proposal review (cont.)
15:00 ----- Coffee break -----
Breakout group proposal review (cont.)

Wednesday, May 27 2009 (8:30-17:00)
Joint session proposal review.
10:30 ----- Coffee break -----
Joint session proposal review (cont.)
12:30 ----- lunch -----
Joint session proposal review (cont.)
15:00 ----- Coffee break -----
Joint session proposal review (cont.)
-Discussion and Recommendations to SPC
Meeting Dinner (University Hall, Academiegebouw)

Thursday, May 28 2009 (8:30-17:00)
Joint SSEP session
-**Whitepaper discussion & writing for INVEST**
10:30 ----- Coffee break -----
-**Whitepaper discussion & writing for INVEST**
12:30 ----- lunch -----

-**Whitepaper discussion & writing for INVEST**
15:00 ----- Coffee break -----
Announcements and discussion on upcoming SSEP Meetings
Nov 2009 (Australia)
May 2010 (USA?)
Nomination of new SSEP Co-chair
Presentations by MS PHD'S students
Resolutions for outgoing SSEP members
Aiello, Elliott, Gurnis, Jaeger, Kim, Kimura, Nishi, Suzuki, Zierenberg
Conclusions

Appendix 2b

Summary of SSEP scientific discussions for INVEST

The following points were raised during the SSEP INVEST discussion

- Technological development: IODP would benefit enormously from the ability to make holes in the ground faster and cheaper. What technological changes could really change the current state of affairs? The desire to drill deeply is really hindered by high cost, and a quick solution is not apparent.
- Microbiology: It is important to drill high quality zones without contamination. The borehole observatory design is important: CORK produces hydrogen which can contaminate in-situ microbiological studies.
- Climate change: Efforts are needed to determine tipping points and gradualism in Earth's history. Additional efforts include a better model-data comparison, wider diameter cores, and better high-resolution geochemical records. IODP should generate sub-centennial resolution climate records from past greenhouse events, reconstructing carbon dioxide levels on millennial timescales for the past 120 Ma. Efforts are needed to investigate "low carb vs. high carb" environments, oceanic overturning. Another important future field will be dynamics of polar regions and climate impacts: Bipolar linkages, arctic amplification and response to global climates, impact of ice sheet and seaice changes on ecosystems and climate feedbacks, and new approaches to underlying mechanisms of sea-level change.
- Recent proposals that were identified as high quality and "Beyond the ISP" include the Gulf of Aden proposal by deMenocal, with important societally relevant links to society and the origin of H. sapiens. Similarly, the K. Edwards proposal combines many of the high priority science that IODP should do: microbial rock, fluid flow properties combined.
- Important science in the past should be identified by asking when have actual cruises met expectations, failed expectations, and exceeded expectations. There is confidence that ODP produced a lot of cruises where they surpassed expectations.
- The nature of 5* grouped proposals is that they are one offs: Mantle dynamics/ Louisville: How plumes work. IBM1: onset of subduction in broades sense, interesting questions of mantle dynamics. Depth constraints from drilling implications for mantle dynamics.
- There is a need to more strongly tie proposals to modeling predictions. The interaction is still not strong enough.
- Much exciting science comes along opportunistically, and it is wrong to decide top down what the structure should be. If someone is out there with a good idea and drilling proposal, he/she should have chance to put something in, and one needs flexibility to have these people in the system.
- Dream cruises include:
    - drill Cape Verde islands: ocean island swell with no apparent plume heads, no obvious mechanisms. They remain stationary with respect to plates

- Cretaceous climatic variations: very few proposals currently target the KT transition with paleoceanographic targets.
- Geohazard issues are becoming very important, not only for science, but also for society. There is only limited knowledge on what controls landslides, and one needs geological and sedimentological evidence obtained by drilling. This could provide some insight into hazard mitigation. Active margin research is useful for human societies.
- Strong support for Izu-Bonin Margin drilling. Additiona drilling at Petit hotspot, where one can obtain information about discontinuities in the lithosphere, and which is different from plume related volcanics. Can we drill hundreds of Petit type hotspots?
- Serpentinite: generally hated by petrologists, but exciting to study in terms of microbiology and hydrothermal systems. Recent seismological studies show that hydrated lithosphere important for seismics of the oceanic lithosphere --- slow spreading ridges. Interest to get more detailed knowledge about what these materials are.
- Exciting proposals: oceanic islands; Lesser Antilles, can look at others? Hawaii? Also submarine caldeiras, eruption & volume.
- More interest in the Cretaceous time period. During recent SSEP round no Cretaceous proposals.
- Need to develop better recovery and coring systems for chert and shale sequences in the Pacific.
- Evolution of life and the Environment during early Earth. Thus importance recognized of current KT Chicxulub proposal. This is the only current proposal with a link to Astrobiology: a window into the universe.
- Mission Mohole still of great interest: Petrologists are working on mantle peridotite. Oman ophiolite: can see contact between mantle and crustal section. Have not yet seen any in-situ Moho inside Earth. This is the oldest idea of ocean drilling. Most discussion so fat on where the best place is to drill the Moho (slow vs fast spreading ridge), and nobody can reach agreement where is best place yet. It is, however, more interested to consider the process of how material is transferred from deeper part to shallower part. IODP should think about reaction processes happening in Moho, which could be continuously modified by melt passing through. Chikyu was built to eventually implement mission MoHole. IODP community should keep idea that drilling into MoHo in future.
- ANZIC as smallest member has the biggest shopping list: Interests in Antarctic: Greenhouse, Icehouse, Hothouse, with plenty of ideas to follow up. Plate boundaries interest funding agencies, particularly if research overlaps with human timescales and interests.
- Deep drilling in the western Mediterranean: 30 years after initial DSDP expedition still valid and livid debate about Messinian, Deep biosphere in the western Mediterranean. Can we use Chikyu along N margin of Med, where high subsidence rates and high sediment fluxes

are encountered (Alps, Rhone)? Can obtain very high resolution records there.

- More traditional science includes interpretation of tectonic events that caused different sedimentary basins. A question mark: continental margins and backarc basins. Need to get record of what process caused what type of record. Trying to interpret tectonic record difficult, thus need modern analogues.
- Still interested in midoceanic ridges: hydrogen release – serpentinization, fluid circulation.
- Interested in the subduction factory. So far subduction factory mostly studied from a magmatic aspect, but fluid circulation is arguably more important. Examples include dredged metamorphosed peridotites and blueschists and eclogites from Izu forearc. On the seamounts already drilled, also recovered high P metamorphic rocks. This proves very large scale solid material in mantle wedge. Metamorphic petrologists are not included in IODP scope so far, but should be.
- Gas hydrates in Arctic shelf: relase of methane in the shallow Arctic shelfs as bottom water temperature rises: Interaction with the biosphere, and requirement to monitor effects of climatic change on permafrost release into the atmosphere.
- A new IODP needs to focus on the evolution of the climate system throughout time. We have the first glimpse, but now need 3D and temporal mapping of, .e.g., the CCD, with important input into the IPCC process.
- High resolution records of more recent climate change: western Equatorial Pacific, Cariaco Basin, Chile margin, Santa Barbara basin. So far not of very high resolution. Rapid climate change originates in high latitudes. The western Pacific source of a lot of sediments, and we could recover high sedimentation rates there. These are linked to the Asian Monsoon and ENSO --- currently undersampled by IODP
- Active mud volcanoes: instrumentation for earthquake activity: don't have to go deep, and can be used for society for EQ prediction.
- More support for Cape Verde and Petit islands. More interest in LIPS drilling. Not represented at SSEP, but big workshop community of 80-100 people. Could drill Tanehiki Plateau, Manehiki: tectonised. Connection of LIPS with OAEs

Appendix 3

Draft Minutes of 14th SPC meeting (cf. 2.4 SPC)

> **SPC Consensus 0908-02, Approve SPC meeting agenda – highlight action items**: The SPC approves the revised agenda of its fourteenth meeting on 25–27 August 2009 in Kiel, Germany.

> **SPC Consensus 0908-03, Approve last SPC meeting minutes:** The SPC approves the minutes of its thirteenth meeting on 16–19 March 2009 in Miami, USA.

> **SPC Motion 0908-01, Items approved since the March 2009 meeting:** SPC understands the validity of the proponents' strategy outlined in 742-APL to obtain a more complete paleomagnetic history for this site. However, we have major concerns about the loss of 3 days from the main Shatsky Rise expedition and the effect that this would have on the expected science results from the planned operations. The allocated drilling time for this leg is already limited due to the relatively long transit to the next port call. Therefore, SPC does not recommend 742-APL for scheduling at this time.

Mori moved; Behrmann seconded; 13 in favor (Behrmann, Blackman, Camoin, Feary, Filippelli, Jenkyns, Mori, Ohkouchi, Peterson, Screaton, Tokunaga, van der Pluijm, Yamazaki); 1 abstained (Kasahara); 3 did not vote (Kakegawa, Ruppel, Takada); 4 nonvoting (Fru□h-Green, Lee, Li, Webster).

> **SPC Consensus 0908-04, SPC discussion and prioritization:** The SPC approves the engineering development plan for FY2011. The SPC also endorses expanding the definition of IODP-related engineering developments to include those with external funding and those developed outside the IODP framework.

> **SPC Consensus 0908-05, Science Steering and Evaluation Panel (SSEP) report:** The SPC appoints Hendrik Brinkhuis as co-chair of the Science Steering and Evaluation Panel (SSEP), effective immediately.

> **SPC Consensus 0908-06, Scientific Technology Panel (STP) report:** The SPC receives STP Consensus 0908-05 on expedition measurement plans and Consensus 0908-06 on platform time for non-expedition specific purposes.

> **SPC Consensus 0908-07, Scientific Technology Panel (STP) report:** The SPC accepts STP Recommendation 0908-09 on routine microbiological sampling on IODP expeditions, with the understanding that primary expedition objectives receive top priority.

> **SPC Consensus 0908-08, Engineering Development Panel (EDP) report:** The SPC receives EDP Consensus 0907-07 on field testing of the riserless mud recovery system, 0907-11 on the EDP roadmap, 0907-13 on integrating engineering development, and 0907-14 on the at-sea engineering testing policy.

> **SPC Consensus 0908-09, Engineering Development Panel (EDP) report:** The SPC receives EDP Consensus 0907-12 regarding two vicechair leadership for the EDP. The SPC directs the EDP to nominate one vice-chair according to the panel's terms of reference.

> **SPC Consensus 0908-10, Engineering Development Panel (EDP) report:** The SPC accepts EDP Consensus 0907-15 on the current support of EDP by IODP-MI and forwards it to IODP-MI. The SPC acknowledges the valuable role that IODP-MI provided to EDP, and wishes to see a good continuity of this function during and after the relocation of offices.

> **SPC Consensus 0908-11, Report on International Working Group *Plus* (IWG+):** The SPC receives the IWG+ guidance for INVEST and endorses all elements of the guiding principles. The

SPC recommends that discussions of post-2013 scientific ocean drilling incorporate: (1) more seamless integration with other major geoscience programs (e.g., ocean observatories, ICDP, ANDRILL), as appropriate; (2) further recognition of the importance of onshore to offshore transects for some types of scientific studies; and (3) substantial flexibility in program and expedition planning and formulation.

> **SPC Consensus 0908-12, "Flexible Expedition Implementation" Working Group report:** The SPC commends the efforts of the "Flexible Expedition Implementation" Working Group (Filippelli, Ohkouchi, Peterson) to explore schemes at the proposal level and SPC level that would ensure achievement of top science objectives while allowing maximum implementation flexibility. The SPC endorses the guidelines outlined in the working group report and acknowledges the need to be more pro-active in maximizing scientific outcomes for the program while retaining the primary objectives of proposals. The SPC will consider evaluating, on a case by case basis, possibilities for combining expedition objectives and/or staffing and crew, and/or for implementing flexibility in the length of expeditions. To aid in future scheduling considerations, the SPC asks IODP-MI to contact proponents of proposals currently residing at SPC and at OTF (but not scheduled) to prioritize their scientific objectives in light of potentially reduced implementation and operational times.

> **SPC Motion 0908-13, OTF Report: IODP expedition scheduling II:** Of the two options presented for prioritizing the Superfast Spreading Crust (Proposal 552-Full5) + Costa Rica Seismogenesis Project (CRISP) Phase A (Proposal 537A-Full5) slot in the FY2011 *JOIDES Resolution* schedule (see below), the SPC prefers option 2.

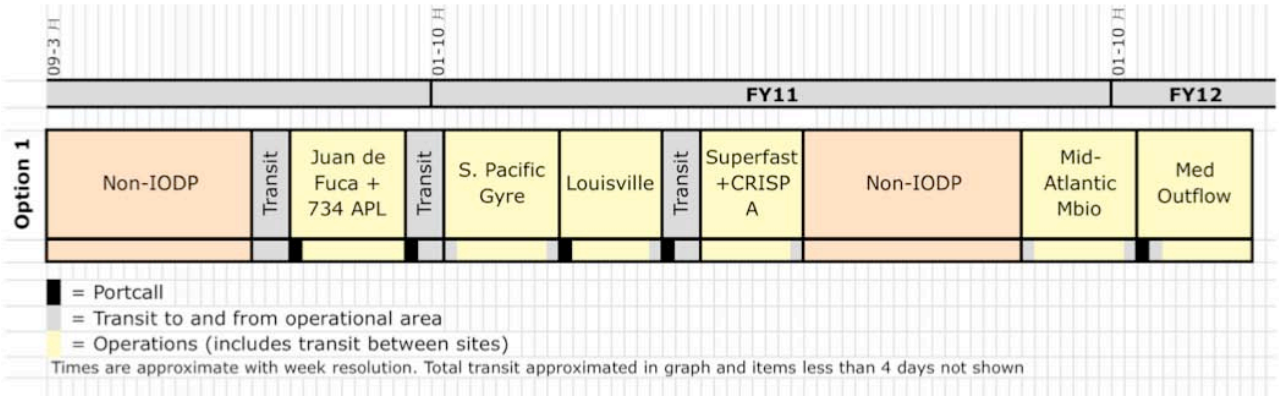
(1) Deep objective of Superfast is the prime objective; if the existing hole is not suitable, CRISP A will be the contingency.

(2) Superfast and CRISP A are both objectives. If conditions at Superfast warrant, a decision tree will decide whether an increased proportion of time would be spent at Superfast, or a decreased proportion of time.

Peterson moved; Jenkyns seconded; 13 in favor (Behrmann, Blackman, Feary, Filippelli, Jenkyns, Kakegawa, Kasahara, Mori, Ohkouchi, Peterson, Sato, Takada, van der Pluijm; 1 opposed (Fru□h-Green); 4 non-voting (Lee, Li, Stein, Webster); 2 absent (Screaton, Yamazaki)

> **SPC Consensus 0908-14 OTF Report:** IODP expedition scheduling II: The SPC approves the following *JOIDES Resolution* schedule for late FY2010 and FY2011: (1) Juan de Fuca Flank Hydrogeology (Proposal 545-Full3) and Cascadia Accretionary Prism CORK (Proposal 734-APL); (2) South Pacific Gyre Microbiology (Proposal 662-Full3); (3) Louisville Seamounts (Proposal 636-Full3); (4) Superfast Spreading Crust (Proposal 552-Full5) + Costa Rica Seismogenesis Project (CRISP) Phase A (Proposal 537A-Full5); and (5) Mid-Atlantic Ridge Microbiology (Proposal 677-Full).

The SPC asks the Operations Task Force (OTF) to use the guidelines of the Flexible Implementation Working Group report to develop a plan that optimizes the allocation of operational days to these expeditions. Scheduling of the Mediterranean Outflow (Proposal 644-Full2) expedition is tentatively set for early FY2012 but needs to be confirmed later.



> **SPC Consensus 0908-15, OTF** Report: IODP expedition scheduling II: The SPC approves the following five-month operational plan and contingencies for *Chikyu*, with starting date in FY2011 to be determined. Case 1 (top priority): (1) Site NT2-01 (observatory); (2) Site NT3-01 (riser drilling); and (3) Site NT3-01 (riserless observatory). Case 2 (second priority): riser drilling at Site NT3-01. Case 3 (third priority if the Kuroshio current is determined to be too strong for riser drilling): (1) Site NT2-01 (observatory); (2) Site NT3-01 (riserless observatory); (3) NT3-01 (non-riser drilling of riser top hole); and (4) Okinawa Trough Deep Biosphere (Proposal 601-Full3). If extreme Kuroshio currents prohibit Case 3, Case 4a and Case 4b are to be considered (more information needs to be provided by CDEX to determine the priority ranking between cases 4a and 4b): Case 4a: (1) Site NT2-01 (observatory); (2) Site NT3-01 (riserless observatory); and (3) Okinawa Trough Deep Biosphere (Proposal 601-Full3). Case 4b: (1) Site NT2-01 (observatory); (2) Site NT3-01 (riserless observatory); and (3) Mariana Convergent Margin (Proposal 505-Full5).

> **SPC Consensus 0908-16, OTF Report: IODP expedition scheduling II:** The decision tree for the Superfast Spreading Crust (Proposal 552- Full5) + Costa Rica Seismogenesis Project (CRISP) Phase A (Proposal 537A-Full5) slot in the FY2011 *JOIDES Resolution* schedule would involve several steps, guided by the following basic premises: (1) Superfast would be implemented first, with the only objective being the deep hole; (2) CRISP A would have a guaranteed operational window (~50% of the operational days). If hole conditions at Superfast preclude significant advancement of objectives, operations will cease at Superfast and begin immediately at CRISP A objectives. If site conditions are adequate and Superfast can commence, operations will continue at Superfast, and stop without debate at a time such that ~50% of the operational days can occur at CRISP A.

> **SPC Consensus 0908-17, Approval of new Engineering Development Panel (EDP) chair:** The SPC appoints Bill Ussler as chair of the Engineering Development Panel (EDP), effective immediately.

> **SPC Consensus 0908-18, Nomination of SPC members on Operations Task Force (OTF):** The SPC nominates Junzo Kasahara, Gretchen Frueh-Green and (after her expected appointment to the SPC on 1 October 2009) Barbara John as new members of the IODP-MI Operations Task Force (OTF).

> **SPC Consensus 0908-19, Other business:** The SPC deactivates the following three ancillary project letters (APLs): Proposal 712-APL (Sediment-CORK Trial Installation); Proposal 728-APL2 (Gulf of Papua Coralgal Barrier Reef); Proposal 742-APL (Shatsky Rise High-Resolution Climate).

> **SPC Consensus 0908-20, Other business:** The SPC appreciates the post-expedition reports from Expeditions 314, 315, and 316 (collectively, Phase 1 of the NanTroSEIZE effort), and commends the NanTroSEIZE participants, co-chief scientists, the project management team (PMT), and CDEX for their success at truly integrating efforts across expeditions and for rapid dissemination of high quality publications resulting from these efforts.

> **SPC Consensus 0908-21, Other business:** The SPC thanks Tom Janecek for his invaluable service to the IODP since the program's inception and for his strong commitment to scientific drilling throughout his career. Tom's technical and scientific knowledge, keen insights, and thorough understanding of complex issues will be sorely missed by the SPC. The SPC wishes Tom every success in his future endeavors.

> **SPC Consensus 0908-22, Review of motions and consensus statements:** The SPC thanks Yong Il Lee for his careful and conscientious service to the IODP program. He was the first Korean representative (Interim Asian Consortium) to the SPC and has set a fine example for future SPC members from Korea. Thank you, Yong Il!

> **SPC Consensus 0908-23, Review of motions and consensus statements:** The SPC is happy to acknowledge Carolyn Ruppel's deep knowledge of the program, and her comprehensive understanding of interactions between U.S. federal agencies and the drilling program that have frequently informed our discussions. Thank you Carolyn, there is no question that we will miss your energy and contributions.

> **SPC Consensus 0908-24 Review of motions and consensus statements:** The SPC gratefully thanks Jan Behrmann for his dedicated service on the SPC, and especially for his careful presentations and impartial assessments of science objectives. His insight, humor, and leadership on issues related to tectonics, hydrogeology and subduction zone processes have been critical in shaping SPC decisions. The SPC also thanks Jan for his valuable contribution as liaison to the OTF and the ICDP.

> **SPC Consensus 0908-25, Review of motions and consensus statements:** The SPC thanks Jim Mori for his great efforts in serving as chair over the last two years. He is recognized for his international outlook which acknowledged the various cultural differences of this panel, as well as trying to accommodate varying opinions to accomplish difficult jobs.

> **SPC Consensus 0908-26, Review of motions and consensus statements:** The SPC thanks Jan Behrmann for organizing this meeting and pre-meeting field trip. He provided gracious hospitality and pride for the city of Kiel.