

PAGES SSC MEETING
2-3 October 2006—Mendoza, Argentina
MINUTES

PRESENT SSC

Rick Battarbee, Julie Brigham-Grette (Chair), Jérôme Chappellaz, Carole Crumley, Peter Kershaw, José Ignacio Martínez, João Morais (IGBP), Bette Otto-Bliesner, Mohammed Umer, Ricardo Villalba, Pinxian Wang, Heinz Wanner (Swiss Director), Cathy Whitlock

PRESENT IPO

Christoph Kull, Thorsten Kiefer (Executive Director)

ABSENT

Eystein Jansen, Indra Bir Singh, Frank Sirocko, Ryuji Tada

GUEST

Brian Luckman (PEP I Leader)

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IPO to work with SSC to develop list of potential speakers, and to announce it on PAGES website.	19
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Place a link to the Geosystem Project on PAGES website. Julie to convey decision to the program.	19

1. Introduction & Miscellaneous

Julie welcomes the SSC to Mendoza and thanks Ricardo for organizing the meeting and the subsequent LOTRED workshop in Malargüe. Julie provides a quick summary of the positive state of affairs of PAGES with the approved funding, and mentioning the new U.S. NSF Program Manager, Paul Filmer. This is followed by a short introduction of the SSC members and guest.

1.1 Approval of Minutes from Past Meetings

The Minutes of the EXCOM meetings in San Francisco (2005) and London (2006), and the SSC meeting in Beijing (2005) are approved.

Decision: Past EXCOM and SSC Minutes are approved.

1.2 Office Staff

Thorsten highlights the IPO activities and staff duties. Jérôme comments on the fact that the Executive Director and Science Officer are scientifically active.

1.3 PAGES IPO

Thorsten explains that Michelle is on maternity leave and that Leah has taken over some of her duties. Christoph will leave the office at the end of the year. Julie asks SSC members to also advertise the Science Officer position through their networks.

João explains that other projects are organized on a more project-oriented basis, therefore outsourcing tasks to “regional nodes” and suggests that this might also be a possibility for PAGES. Thorsten argues the value of a scientifically strong, closely interacting team—including a Science Officer and an Executive Director—located at the IPO. Regional nodes, financially supported by regional funding sources, could be built to manage new regional working group activities.

1.4 Visiting Scientist Program

Thorsten presents the successful 2006 Visiting Scientist Program and explains that the IPO and PAGES benefited from the scientific interaction. He calls for SSC collaboration to enhance and maintain this level of activity. Stefan Rothe, IMAGES Data Manager, will visit from 20-24 Nov. 2006 to revise the Global Change Master Directory (GCMD) keyword list. Thorsten asks SSC members to be on-call for immediate help with specialist expertise during this time.

Julie suggests that Cathy or Bette visit the IPO to revise the U.S. National Page. She also requests the SSC to sell the opportunity to others.

Decision: SSC to get actively involved in the Visiting Scientist Program.

2. Finances

2.1 Funding Overview

Thorsten explains the new funding situation, with support for PAGES having been granted from the U.S. NSF (including a NOAA contribution) and Swiss NSF. He points out that special funding was included in 2008/9 for the 3rd PAGES Open Science Meeting in the U.S., and in 2009/10 for a joint PAGES/NCCR summer school, and stresses the need to make these events happen successfully. Furthermore, \$10,000 will be available per year for the PAGES Speaker Series, which requires immediate planning.

João explains that IGBP and other sources will provide additional funding for the attendance of SSC members at the IGBP Congress in South Africa, 4-9 May 2008, which is expected to have higher-than-usual costs.

2.2 Budget 2006/07

Thorsten briefly outlines the budget that was approved by the U.S. and Swiss NSFs. He reports on the workshop funding pool and the funds available for starting new activities.

Jérôme reports on his inquiries into ESF funding possibilities, explaining that this will only work through the normal workshop proposals procedure; there is no possibility to develop joint ESF/PAGES funding pools. Adding to this, Christoph explains the existing contacts with EuroCLIMATE. Jérôme further reports on the interest in getting PAGES involved as an outreach partner for a possible EU Framework 7 Program on the key topics “sea level” and “thermohaline circulation”.

Decision: Jérôme to keep PAGES informed on possible FP7 involvement.

Rick reports on a possible HOLIVAR follow-up that is of interest to PAGES Focus 4; HIREACH will be submitted in Nov. 2006 to ESF and will request funding for four years. Furthermore, the recently begun EU FP6 Millennium project (formerly in competition with the failed IMPRINT proposal) is of close interest to PAGES but still has no direct liaison. This should be developed.

Decision: PAGES to explore possible links with the Millennium and HIREACH projects.

Julie and Brian call for broader international interaction in order to move away from being too Europe-centered. Brian explains that a major problem is getting funding outside Europe or the U.S. for running large projects in, e.g. South America or Africa. Ignacio reports on a U.K. opportunity for proposals with a U.K. PI liaison to start projects outside the U.K. Rick mentions a similar opportunity with the U.K. Leverhulme Trust. This and similar information should be disseminated via the PAGES website.

Decisions: Ignacio and Rick to provide U.K. funding information to be made available on the PAGES website.

SSC members to explore similar opportunities for bilateral/multilateral project funding.

3. PAGES Products

3.1 Website

Thorsten gives a short overview on the latest web statistics. Rick suggests monitoring the national distribution of PAGES subscribers and including this information in the future, as it would make clear which communities should be targeted. Also, providing the download numbers over a year would make the comparison of these statistics more meaningful.

Decision: IPO to include a national overview of subscribers and download numbers over consistent, longer periods in future documents.

3.2 PAGES Product Database

The SSC acknowledges the value of the PAGES products and encourages the IPO to further develop the Product Database.

3.3 PAGES People Database

Julie highlights the usefulness of this tool, e.g. for NSF Program Managers and Journal Editors who use the PAGES people database to find reviewers based on their expertise.

3.4 National PAGES

The France and U.K. National PAGES are to be produced next. The value of the National PAGES is acknowledged by the SSC, especially the help provided to local communities through the information on funding possibilities and research institutions. The SSC requests that these pages be kept updated.

Decision: IPO to continue to update and expand the National PAGES section.

3.5 Other Website Items

The SSC encourages PAGES to use the website as a follow-up tool for workshops, by placing posters and presentations online. Brian suggests that PAGES webcast presentations and that this may also be helpful for outreach, teaching classes, etc. Greg Greenwood from MRI might be the contact person to help develop this tool.

Decisions: IPO to use the web to broadcast post-conference materials.
New tools such as webcasting of sessions should be explored.

3.6 Newsletters

Thorsten explains that the next special section on radiocarbon chronometry will be used to start up a new activity under the lead of Irka Hajdas, ETH Zurich. The special section is an effective instrument to inform the community about planned and ongoing activities, and to involve scientists with PAGES.

Carole suggests sending a letter to the archeology community to get them more involved in the Radiocarbon Working Group.

Rick suggests highlighting the new Focus 4 activities, including IHOPE (with Carole as the PAGES link) in a future issue.

Julie suggests contacting Rainer Gersonde (BIPOMAC) for a special section in 2007. She also reminds the SSC that a future issue could be used to distribute the new PAGES Science and Implementation Plan (SIP).

Thorsten suggests having a special section on paleoceanography following the International Paleoceanography Conference (ICP9) in Shanghai, Aug. 2007, with a strong lead from IMAGES. Julie and Pinxian propose to use this issue to maintain and develop links to IMAGES and other marine programs. Next year's ICP meeting could be used to set up this section.

The following special sections were agreed upon:

- 2007/1: Southern Hemisphere issue—guest editor TBD (deadline end Feb. 2007); with section on PAGES new SIP.

- 2007/2: Focus 4—possible guest editor John Dearing (to be asked); should include an article on IHOPE-PAGES-AIMES.
- 2007/3 Issue on Paleoceanography/IMAGES—guest editor Pinxian.

Decisions: IPO to prepare letter to archeological community for distribution by Carole. Future special sections in the newsletter should be thematically centered around Focus 4, Paleoceanography and the PAGES Science and Implementation Plan.

3.7/3.8 Special Issues and Book Chapters

Planned and recently published special issues and book chapters were presented to the SSC without further discussion.

3.9 Posters and Flyers

Thorsten introduces the idea of making it obligatory to present a PAGES poster at PAGES-funded workshops. Bette suggests designing the posters in such a way as to make it possible to display information from the National Page where the workshop will be held.

Julie makes the point that SSC members should act as PAGES ambassadors at meetings, displaying PAGES posters and presentation slides. The SSC suggests that the IPO design a standard PAGES presentation and that SSC members translate it into other languages.

Decision: IPO to design a new PAGES presentation. SSC members to translate it into their national language.

4. Workshops: Information for SSC on EXCOM Funding Decisions

4.1/4.2 Funded Workshops and Initiatives

No comments from the SSC.

4.3 Pending Workshop Proposals

The SSC discussed the submitted proposals that EXCOM would decide on at their meeting. October 3: Julie summarizes EXCOM's decisions, and the SSC is in agreement.

4.4 Review of PAGES Workshop Funding

Julie reports on the past year's funding situation and remarks that due to financial uncertainty, funding for workshop support was restricted.

Mohammed reports that the Cameroon workshop will be delayed by one month to 27-29 Nov. 2006. Thorsten reports on the "Indonesian Throughflow" workshop held in Kiel from 19-23 Jul. A follow-up event is planned to better involve oceanographers, and to improve past-present interaction. Peter and Pinxian ask about the involvement of Australasian communities.

Peter reports on the Australian workshop on "Integrating High-Resolution Past Climate Records for Future Prediction in the Australasian Region" held one year ago. A special issue was published in the Journal of Quaternary Science. Julie presents the idea of having a related session at the INQUA meeting next year. Peter agrees and suggests a discussion about this after the Malargüe workshop.

Thorsten reports that the "Loessfest" workshop has been postponed by approx. one year to 2008.

Decision: Peter to explore the possibility of organizing a PAGES session related to regional variability in Australasia at INQUA 2007, as a follow-up event to the 2005 workshop.

Peter asks if PAGES would consider engaging in paleoscience activities outside the PAGES SIP, e.g. in the INQUA-funded Paleo Mangroves workshop. Bette suggests using PAGES funding in such events in order to export PAGES expertise and diversify the group.

Thorsten requests feedback on the effectiveness of SSC members as liaisons to funded workshops.

Ricardo reports about his liaison with the "Past Hurricanes" workshop as a positive example and promotes the continuation of SSC involvement. Rick asks for clarification of tasks and suggests the IPO provide guidelines for the role of liaison. João suggests using the IGBP Fast-Track Initiative guidelines as a basis. Mohammed asks if reviewing the workshop abstracts could be a useful PAGES involvement in funded workshops. The SSC agrees that this would not be feasible.

Decision: IPO to generate guidelines for the role of SSC liaisons for PAGES-funded workshops.

5. PAGES Future

5.1 PAGES Activity Structure 2007 – 2009

The new structure of PAGES is briefly discussed. The SSC agrees on the following teams:

Foci

- F1 *Otto-Bliesner*, Chappellaz
- F2 *Wanner*, Jansen, Martínez
- F3 *Wang*, Kershaw, Umer, Singh
- F4 *Battarbee*, Whitlock, Crumley, John Dearing (current Focus 5 Leader)

Cross-Cutting Themes

- CCT1 *Sirocko*, Chappellaz
- CCT2 *Villalba*, Tada
- CCT3 *IPO*
- CCT4 *Brigham-Grette*, IPO

Decision: **SSC agrees on the new structure with four Foci, four Cross-Cutting Themes and the respective Steering; and the hierarchy of Foci and Cross-Cutting Themes, Working Groups, Tasks and Affiliated Projects.**

6. Research Reports

6.1 PAGES Research Reports

6.1.1 Past Climate Forcings

Christoph reports on the various PAGES/CLIVAR activities of the past year. Bette asks about how to deal with closed events, e.g. the Wengen workshop should have been advertised, even if it was an invitation-only event.

Decision: PAGES to include invitation-only events on the web calendar to keep the community informed.

6.1.2 Regional Climates: Reconstruction, Modeling, Modes of Variability

Brian reports on PEP I. Since becoming the official PEP I contact a year ago, he has not been contacted by anyone. However, the community is still linked and a lot of initiatives are ongoing, building on past PEP activities such as the installation of U.S. climate stations in cooperation with local communities. Furthermore, there is still a need to, e.g. link South and North America. Brian identifies the need for activity on tropical climate-environment reconstruction and on paleoecological reconstructions for the last century in South America, as recorded observations do not exist beyond the 1950s.

Ricardo presents LOTRED-SA as an example for using the PEP momentum for the future. Julie makes the point that the upcoming SSC meetings in Australia and South Africa will allow strengthening of the Southern Hemisphere on a latitudinal transect, therefore linking the PEPs in a more zonal mode. Peter makes the point that the recent PEP leaders need to know what is going on and that they should be involved in shaping new PAGES working groups. Rick reports that PEP III is no longer active. He presents HOLIVAR as the unofficial end of PEP III. João reminds the SSC to integrate large regional study groups such as MAIRS and AMMA when building PAGES regional groups. Pinxian asks for a strong Southern Hemisphere group that links the various regional communities.

Decision: PEP communities are to be linked to the new regional studies. IPO to communicate the new direction (“What happened to the PEPs?”) on the web.

Ignacio comments that tropical America focuses now more on El Niño and the last few millennia. This has to be considered as an example of a regionalization of the former PEPs. Use the existing communities with the new thematics. Peter asks about the timescales. Jérôme makes the point that the chosen timescales should allow process-oriented research. João comments that “paleo” should be incorporated into the regional, integrated studies.

6.1.3 Land / Ocean / Cryosphere Dynamics and Linkages

Thorsten will attend the upcoming IMAGES meeting in Dec. to foster interaction between PAGES and IMAGES, and will mention the idea of a special section in a future Newsletter.

Jérôme reports on the plans for a PAGES/CliC intersection. He mentions sea-ice as a topic of mutual interest. Ice streams in Greenland and Antarctica might provide another basis for a joint project. A related workshop could be organized between PAGES, AIMEs and WGCM with “sea level” as the hot topic. Julie mentions permafrost as another PAGES/CliC topic and the need for input for the International Permafrost Meeting in Alaska, 29 June-3 July 2008. Jérôme makes the point that it is now time to start some of the CliC-related activities with workshops. The IPY would provide the framework. The CliC SSC meeting in Boulder in Dec. would provide an opportunity to start concrete planning. Julie will consider attending.

Decision: PAGES to strengthen its links to CliC in order to initiate joint activities in the framework of the IPY. Jérôme to take the lead on the PAGES side.

Thorsten presents the “Past Atmospheric Dynamics from Eolian Records” initiative as proposed by Denis-Didier Rousseau. This initiative is restricted to the past glacial cycle and is planned as a series of three workshops, the first on the Northern Hemisphere mid- to high-latitudes. To start the initiative, a special session will be convened at the EGU in spring 2007. Frank Sirocko will be the PAGES liaison.

6.1.4 Past Human-Climate-Environment Interactions

Rick mentions the transition of former Focus 5 to Focus 4. The new Focus 4 will hold a special session at the ESSP conference in Beijing. This Focus will be driven by a paleoecological approach and still include the three former Focus groups LUCIFS (Fluvial Systems), HITE (Human Impact on Terrestrial Ecosystems) and LIMPACS (Human Impact on Lake Systems). LIMPACS is linked to the newly established International Paleolimnology Association (IPA). This organization has an obvious link to PAGES. The three former groups will be linked with a new, integrative group INTERMODS, providing the framework for integrated regional studies. In addition, the planned HIREACH project is a follow-up of the HOLIVAR program, with strong links to the new Focus 4.

6.1.5 Cross-Cutting Themes

Thorsten presents the Chronostratigraphy issue (upcoming EGU session and Newsletter) and briefly reports on the PAGES Databoard, the major outcome of which will be a Paleodata Portal, which is in preparation. Heterogeneous interests of participating parties will likely result in two parallel portals at PAGES and NOAA.

Julie presents another effort, GEON (Geosciences Network), although mostly for data on older timescales. Rich Lane at NSF has a coordination function for existing and upcoming data issues.

6.2 Integration of PAGES and IGBP Programs

João Morais reports that the new IGBP SIP has been published, highlighting the importance of PAGES and AIMES as the integrating programs. Within IGBP II, PAGES is expected to add value to all programs. João therefore calls for an integration of the needs of other programs into the PAGES SIP. Two highlights for IGBP in 2007 with respect to PAGES are:

- Publishing of the PAGES SIP
- Celebration of the 20th anniversary of IGBP in Stockholm (Sep. 2007). IGBP asks for suggestions for PAGES talks.

The IGBP Congress in Cape Town in 2008 will focus on African themes. PAGES is invited to plan for sessions. Core project SSC meetings are being planned at the beginning and end of the conference, to allow enhanced interaction between the groups. The deadline for the Congress program will be the end of 2006.

Decisions: PAGES to produce a draft Science and Implementation Plan in early 2007, to start planning for sessions for the 2008 IGBP Congress, and to provide input on possible speakers for the IGBP anniversary.

6.2.1 AIMES / PAGES IHOPE Activity

Jérôme reports on the recent AIMES meeting in Victoria, at the end of Sep. AIMES main purpose is to develop fully coupled models. It interacts with WCRP and IGBP. AIMES interest lies especially on the high latitudes (carbon cycle feedbacks). AIMES is working as a task force. Planning has already begun for the 5th IPCC report. Possible PAGES/AIMES interactions might include:

- “EPICA challenge”-type issues: explaining past greenhouse-gas changes, together with AIMES Coupled Carbon Cycle Climate Model Intercomparison Project (C4MIP)
- Understanding of feedback mechanisms and modeling of climate transitions
- PAGES-CliC Intersection themes “stability of ice sheets” and “sea level”
- Human-climate interaction

AIMES has already produced a draft SIP. PAGES should give input on topics as listed above. Collaboration will mainly be through joint workshops.

Carole reports on the IHOPE project (Integrated History and future Of People on Earth). It should be considered an ESSP cross-cutting project, as suggested at the Banff IGBP SC meeting in 2003. IHOPE aims towards understanding and modeling human-environment interaction in the past and for the future, and is designed to build on collaboration with the PAGES community.

Rick makes the point that the implementation of Focus 4 will provide such a link. IHOPE could develop into an AIMES-PAGES intersection. Carole suggests choosing key regions together with PAGES. Cathy notes that modeling might help to find the respective key locations. Mohammed points out that when societies change from hunting to domestication-based systems, their role in the climate-human relationship also changes, with the ability to influence the environment. Rick calls for a procedure to define key regions, e.g. based on “hot spots” of environmental vulnerability. Thorsten asks how PAGES can most effectively get involved in IHOPE. Carole stresses that PAGES involvement is quite urgent and that the first steps should be taken within the next 6 months.

Decision: PAGES to establish links to IHOPE within Focus 4. Carole, Rick and John Dearing to take the lead.

6.2.2 IGBP-PAGES Activities

Thorsten reports on the IGBP-SCOR FTI on Ocean Acidification. The first workshop was held 28-30 Sep. at Lamont. Past and present perspectives and expertise were combined. Outcome products will include Eos, and PAGES and IGBP Newsletter reports, and a high-profile synthesis publication is planned. This “past-present” link could be a model for other hot topics. Rick reports on the U.K. IGBP past-present initiative and stresses that all IGBP core projects need a past context. A one-day meeting with presentations on past and present linkages is planned for May 2007 in the U.K.

Decisions: IPO to distribute the U.K. “past-present” draft program among the SSC. IGBP to decide on using this approach as a model for future activities.

7 SSC: Membership and Duties

7.1 SSC members

Julie acknowledges the work done in the past by Olga Solomina, Carole Crumley and Ryuji Tada. Ignacio announces his decision to step down from the SSC due to health reasons. Ricardo also suggests that he might step down at the end of 2007. Pinxian suggests Ricardo postpone his decision and Ricardo agrees. Jérôme Chappellaz and Peter Kershaw (and Eystein Jansen in absentia) accept their renewal for a second term.

Decision: José Ignacio Martínez will step down from the SSC at the end of 2006. Ricardo Villalba, Jérôme Chappellaz, Peter Kershaw and Eystein Jansen are renewed for a second term.

7.2 New SSC members

The status of the SSC membership terms is reviewed. The SSC agrees that three new members need to be nominated to start in 2007. Julie requests input from the SSC for EXCOM's discussion on SSC member nomination.

October 3: Julie summarizes EXCOM's recommendations to nominate Takeshi Nakatsuka, José Carriquiry and Pierre Francus, and the SSC is in agreement.

Decision: SSC nominates Takeshi Nakatsuka, José Carriquiry and Pierre Francus as new members. IPO to write to IGBP for approval.

8 Forthcoming Meetings

8.1/8.2 Meetings/Workshops and Special PAGES Sessions

No discussion.

8.3 Upcoming SSC and EXCOM Meetings

Decision: Next SSC and EXCOM meetings will take place alongside the INQUA Congress in Cairns, Australia.

8.4 PAGES LOTRED-SA Workshop: Update & Last Arrangements

Ricardo outlines last arrangements for the LOTRED meeting.

9. PAGES Science and Implementation Plan

9.1 Presentation and Discussion of Implementation Ideas: Activities and Milestones

8:30 – 8:45 F1 - Past Climate Forcings
8:45 – 9:15 Discussion

Otto-Bliesner, Chappellaz

Bette presents ideas for Focus 1:

She discusses the various forcings to be addressed within the Focus and the potential to improve our quantitative knowledge of their past variations. It is suggested that efforts be concentrated on two timescales; the last few millennia and glacial-interglacial variations. Collaboration with CLIVAR/PAGES and AIMES/PAGES is highlighted.

Discussion:

- The issue of what we call forcing and feedback needs to be defined in the SIP.
- The “Atmospheric Dynamics” Working Group of Denis-Didier Rousseau could serve the development of an aerosol/dust forcing record.
- Increasing the translation of Be10, C14, etc. records into solar intensity would be useful (but may be impossible).
- Ricardo initiated a general discussion that the SIP should not be presented as being rigid but should rather be seen as giving direction and guidance. Accordingly, be cautious about the way the SIP is communicated.

9:15 – 9:30 F2 - Regional Climates: Reconstructions, Modeling, Modes of Variability
9:30 – 10:00 Discussion

Wanner, Jansen, Martínez

Heinz presents ideas for Focus 2:

To address regional spatial and temporal dynamics of past climate (i.e., climate modes) through detailed regional reconstructions and model simulations, and their combination in the form of “intelligent” diagnostics and data-model comparisons.

Discussion:

- The SSC points out that PAGES should expand the Regional Reconstruction approach to other regions beyond those already established; especially the tropics and the Southern Hemisphere need denser coverage.
- Rick: Potential of linking those reconstructions with Focus 4.
- Thorsten: Overlap between reconstructions across the deglaciation and the chronology theme on high-precision synchronization of paleoclimate/-environment records.
- Jérôme: Include other timescales than the past few millennia (e.g. past interglacials).
- Ignacio: The last deglaciation would be another time interval worthwhile addressing, especially the study of ecological change.
- Mohammed: Lack of data in Africa in order to carry out similar studies in detail. A coordinated effort is needed.
- Heinz: Temperature may be best used to compile a global picture.
- Peter: Consider precipitation.
- Bette: Precipitation is key in the tropics and subtropics, whereas at high-latitudes temperature plays the most important role.
- Thorsten: Water cycle themes (including precipitation) should be highlighted in the SIP. Should the global puzzle be a milestone in a few years?
- Heinz: It is unlikely that this will be achieved on a high-resolution basis.
- Ricardo: Consider the connection to societies, therefore also linking up with Focus 4.

- Bette: I agree to work on high-resolution reconstructions from a modeling viewpoint.
- Heinz: Also include marine archives (where Eystein's input is needed). This might develop as a link to IMAGES.
- The SSC notes that the regional reconstruction approach should be developed alongside next year's SSC meeting in Australia and the 2008 IGBP congress in South Africa, to strengthen coverage of the Southern Hemisphere.

Decisions: **Thorsten to discuss a related IMAGES link at their SSC meeting in Dec. PAGES to expand regional reconstructions to other areas, especially in the Southern Hemisphere. Target timescales for regional reconstructions to be expanded further back in time.**

10:30 – 10:45 F3 - Land / Ocean / Cryosphere Dynamics and Linkages
10:45 – 11:15 Discussion

Wang, Kershaw, Umer, Singh

Pinxian presents ideas for Focus 3:

Three main themes are proposed: (1) "BIPOMAC" and (2) "Global Monsoon", for linkages between processes in the meridional and zonal directions, respectively, and (3) "Biogeochemistry", including "Ocean Acidification". BIPOMAC has been established by Rainer Gersonde (Bremerhaven) for the IPY and is intended to continue under PAGES beyond the IPY. Monsoon groups and activities are still to be established. The ocean acidification issue can be extended from the recent PAGES-led IGBP-SCOR initiative.

Discussion:

- After his presentation, Pinxian makes a statement on the ocean-acidification issue, urging that the relevant proxies need to be developed.
- Thorsten: This will remain a hot topic in the future. Trying to define ongoing biogeochemical changes from the sediment record is an aspect to be pursued.
- Jérôme/Heinz: Need to focus on ice sheets, possibly within the BIPOMAC initiative.
- Pinxian: Influence the BIPOMAC program build up at the beginning to include PAGES ideas. Rainer Gersonde (BIPOMAC) is happy to run BIPOMAC as a PAGES initiative beyond the short period of the IPY.
- Sea-level aspects should be developed within a PAGES/CliC Intersection Working Group under Focus 3.
- Ricardo: Linkages exist between monsoon, ENSO, etc. Reconstructions should aim to also provide seasonal information.
- The SSC requests that a related monsoon activity be developed under Focus 3.

Decisions: **Implementation of the three Focus 3 Working Groups should be carried out as outlined. Pinxian and Peter to set up a monsoon activity.**

11:15 – 11:30 F4 - Past Human-Climate-Environment Interactions
11:30 – 12:00 Discussion

Battarbee, Whitlock, Crumley

Rick presents ideas for Focus 4:

Focus 4 (PHAROS) addresses the long-term interactions between past climate, ecological processes, and human activities. Emphasis lies in comparing regional-scale reconstructions of ecological and climatic processes, from natural archives, documentary and instrumental data, with evidence on past human activity derived from historical and archeological records. The research encompasses the Holocene period, with particular emphasis on the period of significant human activity. PHAROS further promotes dynamic modeling to better understand processes of climate-human-ecosystem interactions, to quantify the relative roles of different drivers in forcing change, and to provide integrated datasets for model comparison and verification.

Discussion:

After the presentation, the discussion addresses IHOPE.

- Carole: With Focus 4, PAGES could and should contribute to IHOPE.
- The new INTEMODS Regional Studies group will provide the input for IHOPE and can be regarded as the central PAGES contribution. Carole will act as the liaison.

Decision: Rick (and John Dearing) and Carole to establish contact with IHOPE and develop Focus 4 links.

- João: Synthesis and conclusion of the present Focus 5 groups LUCIFS, HITE and LIMPACS, and more emphasis on the new integrative efforts of INTEMODS is needed.
- Rick: The new INTEMODS Focus 4 integration could incorporate those communities. A fading-out of LIMPACS, HITE and LUCIFS over the coming years, moving the community towards INTEMODS seems plausible.
- Rick: All the different Foci are somehow talking about regionalization. This could and should lead to a common workshop.
- Carole: We should think about regionalization in all Foci.
- Julie/João/Rick: Focus 4 can and should develop strong links to other IGBP projects.
- Rick: It will be a task of Focus 4 to provide land-use change information to the modeling community.
- Cathy: A global synthesis can also be done by AIMES if needed (currently: fire history). Global synthesis should not be the main topic of Focus 4. INTEMODS will provide the regional details.

12:00 – 12:15 CCT 1 - Chronostratigraphy
12:15 – 12:30 Discussion

Sirocko, Chappellaz

Frank presents ideas on CCT1: (PPT by Thorsten)

The following are needed:

1. A re-evaluation of the insolation curves and a tuning target more precise than SPECMAP.
2. Narrowing the error bars for existing dating methods. More precise calibration techniques.
3. New dating methods for the time beyond U/Th, i.e., older than about 300,000 years.
4. A paleomagnetic master curve for all parts of the globe, including also short-term events.
5. An event chronology (e.g., Heinrich layers, IRD events) for continents and oceans.
6. Land-Ocean tephra chronology must be combined with ice core data during the Quaternary.
7. A high-resolution sea-level master curve.

Integration of all 7 points above into one “Table of Quaternary Chronology” without inconsistencies between land, ocean, ice = Intercomparison and calibration of dating techniques.

Discussion:

- Jérôme: Correction; new ice core chronologies are not done by tuning to reference records such as SPECMAP but independently on ice flow modeling.
- Julie/Thorsten: André Berger could lead a SPECMAP II initiative.
- Bette: Is tuning records to insolation still an approach forward?
- Jérôme: In many cases, relative dating is sufficient. There is a need for absolute dating when records are compared with insolation.
- Julie: A new reference curve is needed but the available insolation records from Berger and Laskar are sufficient.
- Pinxian: I see the potential of linking land, sea and ice records.
- Thorsten: A new SPECMAP effort could produce regional reference curves, e.g. for the Atlantic and the Pacific.
- Jérôme: In ice core science, the effort is on reducing the error bars of the dating and the same development is taking place for radiocarbon dating.

- Peter/Rick: Attention to shorter timescales (last few centuries) is also needed.
- Jérôme: I suggest a state-of-the-art planning workshop on dating methods, with approx. two specialists on each technique.
- Jérôme: When using events such as time markers, only non-climate related events should be considered (e.g. Laschamp geomagnetic event, ash layers).
- Brian: Need an intercomparison/calibration/validation of the different dating techniques.
- The general comment was made that the suggested acronym “TIMES” was seen not appropriate, as there is no programmatic meaning behind it, and the related terms in the table in the presentation are incomplete and not always consistent.

Decisions: Frank Sirocko to revise the “TIMES” acronym and table, and Jérôme to give input to text.
 IPO to explore the possibility of involving André Berger in a SPECMAP II project.
 Concepts for SPECMAP-II and a workshop on dating techniques to be developed.

14:00 – 14:15 CCT2 - Proxy development, validation, calibration
 14:15 – 14:30 Discussion

Villalba, Tada

Ricardo presents ideas on CCT2:

1. Additional proxy evidences need to be identified and obtained from areas where the coverage is relatively sparse and for time periods before AD 1600 and especially before AD 1000.
2. It is necessary to update proxy records that were collected decades ago in order to develop more reliable calibrations with instrumental records.
3. Improving access to data used in publications will increase confidence in further reconstructions (inside and outside the scientific community).
4. New analytical methods, or more careful use of existing ones, will help circumvent some of the existing limitations in paleoclimate research. It is crucial to address the uncertainty issue.
5. Our confidence in the results of reconstructions becomes stronger when multiple independent lines of evidence point to the same general result (multi-proxy approach).

Discussion:

- In general, Ricardo calls for a more dense coverage of proxy records from the Southern Hemisphere and the tropics.
- Julie: There is a lack of error propagation within proxy-derived results,
- Heinz: PAGES/CLIVAR will cover the proxy data uncertainty topic across various PAGES Foci.
- Jérôme/Ricardo: There are problems with changing relationships within the proxy calibration. Furthermore, proxy calibration must be done with better accuracy and include instrumental data from the most recent decades.
- Brian: Instrumental records are often lacking proper verification.
- Ricardo: Global change is affecting proxy records also via non-climatic changes such as CO₂ fertilization of trees.
- Pinxian: Also consider timescales further back in time, where different criteria for proxy calibration and evaluation sometimes apply.
- João: IGBP tried to network into Arabian countries but failed except for North Africa.
- Christoph: An event on proxy uncertainty within the PAGES/CLIVAR intersection and as a follow-up from the Wengen workshop is planned. This could be a first activity for CCT 2.

Decision: Promote a first “proxy data uncertainty” workshop, together with the PAGES/CLIVAR community.

14:30 – 14:45 CCT3 - Data management
14:45 – 15:00 Discussion

IPO

Thorsten presents ideas on CCT3:

The following are the major motivations for the Databoard:

1. Support availability and access to (paleo)science data.
2. Mediate between the (paleo)science community and data centers, as well as regional, topical and national databases.
3. Incite paleoscientists to contribute data and thus expand the archive of internet-accessible paleo data.
4. Provide creative ways for the scientifically fruitful utilization of databases.

Discussion:

- Julie: The use of value-added products (database-based web tools, e.g. maps) makes data centers even more attractive to users.
- Jérôme: QUEST, with endorsement from IGBP-AIMES, is developing “The Earth System Atlas” for environmental data, which especially includes value-added products derived from existing data sets. The IPO should contact Colin Prentice to discuss an AIMES link to the PAGES portal, to make sure that duplication is kept to a minimum and that PAGES offers the data portal for paleodata.
- Julie: GEON, a U.S. project, has a similar idea of providing a data portal. More related to geological deep-time data.
- Peter: PAGES should advise where and how to submit data.
- CCT3 should make an effort to fight the perception that there is no benefit to data submission.
- The SSC suggests encouraging databases to use the DOI for submitted data but mentions that the data should be peer-reviewed.
- CCT3 should work together with journals to make it obligatory to submit published data.
- Bette: Label data with something like “no peer-reviewed paper has been published yet”, when this applies.

Decisions: IPO to contact Colin Prentice to discuss responsibilities for paleodata between AIMES and PAGES. PAGES should hold the main responsibility for the paleodata issue.
PAGES website to list where paleodata should be stored, and IPO to proceed with development of the Paleodata Portal.

15:00 – 15:15 CCT4 - Dissemination and Outreach
15:15 – 15:30 Discussion

Brigham-Grette, IPO

Julie presents in ideas on CCT4:

Possible topics for enhanced impact of outreach activities include:

- Development of the Paleoclimate Speaker Series
- Topical leaflets for download (high school level)
- Web-based infomercials
- Present some examples for careers in paleoclimate research
- Make press releases on Paleoclimate Science available (links)

Discussion:

- Jérôme: Use press releases (national/international) on a Newsletter/web page.
- Heinz: A prize could be another possibility to reach out towards young scientists.
- Brian: Could PAGES contribute more directly to the paleoclimate listserv?

Decision: IPO to explore possibilities to work with scientific news agencies in order to develop a related page in the newsletter and on the website in the future.

9.2 General Discussion on Implementation Issues

Julie outlines the idea behind the Speaker Series; PAGES covers the transportation costs and the host covers local costs, such as lodging. Speakers from among the former PEP communities could be used in order to minimize traveling. This would lead to three major sets of speakers. Speakers will be advertised on the web and potential hosts can apply. Ignacio asks about potential speakers. The SSC needs to develop a list of suggested speakers and ask the scientists if they want to participate.

Decision: IPO to work with SSC to develop list of potential speakers, and to announce it on PAGES website.

The Speaker Series was further discussed and the following suggestions made:

- Rick/Carole: Use the funds for developing countries and not so much for developed countries.
- Brian: Connect lectures in a series within a region in order to minimize costs, e.g. presenting in Argentina, Chile and Bolivia on one trip.
- Carole: Make the lectures available on the web to minimize traveling and enhance visibility, especially as an alternative to lecturing in developed countries.
- Mohammed: Use the funded workshops to invite speakers to regional workshops in developing countries.
- Pinxian: Start with an experimental phase with a flexible mode for the first one/two years and try out different aspects. Start with a small number (4-5) of good speakers. Spend less money during the first years of start-up phase. Get the commitment from speakers to stay for at least a day to facilitate interaction with the local community.
- Bette: Combine both ideas; web-based presentations and personal interaction with key players.
- Ricardo: Revise the list of speakers on a yearly basis.
- Julie: Also list the topics of the possible talks. The host institutions may then choose and submit a proposal.
- Rick: The applicant (host) presents a list of local venues for the speaker.
- Thorsten: Submit a related proposal to NSF regarding extra funding for web-based outreach.
- Brian: Make an appointment at AGU/EGU to get a professional video person to make the video records.

Decision: IPO to develop details for the implementation of the Speaker Series and to revise the program after a first term. New tools such as web-based presentations, in combination with audio/video recording of the speaker, should be evaluated.

Julie asks about endorsing the Geosystem homepage (a deep time program). Cathy and Pinxian are concerned about including long timescales too much on the webpage.

Decision: Place a link to the Geosystem Project on the PAGES webpage. Julie to convey decision to the program.

9.3 Next Steps:

João reminds EXCOM to send SSC nominations for next year before Sep. 2007.

The following deadlines for writing the SIP are agreed upon:

- End Dec. – Draft chapters to the IPO (include heroes, timeline, goals, and links to other programs within IGBP and beyond)
- End Feb. – Draft SIP ready for submission to IGBP (compilation by the IPO, including necessary revisions on the chapters)
- Mid-Mar. – Commenting by IGBP officers at the IGBP-SC meeting in Brazil