

## **SUMMARY MINUTES**

### **PAGES SSC MEETING**

**12-13 July 2009 — Troutdale, Oregon, USA**

#### *PRESENT SSC*

Fátima Abrantes, José Carriquiry, Jérôme Chappellaz, Steven Colman, John Dearing, Zhongli Ding, Pierre Francus, Peter Kershaw, João Morais (IGBP), Takeshi Nakatsuka, Bette Otto-Bliesner (Co-Chair), Michael Schulz, Mohammed Umer, Ricardo Villalba, Heinz Wanner (Co-Chair), Cathy Whitlock, Eric Wolff

#### *PRESENT IPO*

Thorsten Kiefer (Executive Director), Louise Newman (Science Officer), Leah Witton (Project Officer)

#### *ABSENT*

Eystein Jansen

# **SUMMARY OF DECISIONS AND ACTIONS**

## **Decisions**

SSC unanimously approved the minutes from past meetings.

SSC approved the 2009/2010 budget.

Info Sheets will be pursued where appropriate but not made a high priority.

PAGES will not produce a yearly publication summarizing key paleo-findings.

PAGES to encourage the paleocommunity to inform IPCC lead authors on key paleo-findings.

The annual PAGES SSC meeting for 2010 will be held in Japan from 7-8 June 2010.

José, Pierre and Takeshi were unanimously re-nominated for another 3-year term.

The SSC nomination procedure will remain as is (self nominations are not allowed).

IPO to present a model for corresponding SSC members at the next SSC meeting.

Alan Mix, Denis-Didier Rousseau, Chris Turney are elected to PAGES SSC for 2010.

PAGES Working Groups to provide an annual report, updated goals and timeline.

Fátima will be involved in Focus 2 (and CCT 2) and Steve in CC 1 (and Focus 2).

PAGES to discuss with IMAGES options for hosting a staff member at the IPO.

PAGES to hold a YSM/OSM regularly every four years.

The 2nd PAGES YSM and 4th PAGES OSM will be held in 2013.

IPO to develop a YS listserver and send out a YSM questionnaire.

## **Actions**

SSC to send IPO contact details for key officials to receive the PAGES newsletter.

SSC to add PAGES website link to their email signature.

SSC to regularly check the online information for their Focus/CCT.

IPO to work on an outreach page on the PAGES website.

IPO to inform future guest editors about newsletter schedule.

IPO to work on layout of the online newsletter with regard to news and references.

IPO to look into including full reference list in the individual article downloads

SSC to distribute the "Pocket Guide to PAGES Science" at relevant meetings.

IPO to publicize the workshop funding decisions on listservers with the date for the next Open Call.

IPO to contact EGU/AGU session conveners to ensure PAGES is listed in the title of PAGES-initiated sessions.

IPO to send information on reappointments and new SSC members to IGBP for ratification.

IPO to request additional information on the Indian proposal and other possible venues for the next OSM.

IPO to clarify the type of support that can be requested from NSF for an OSM outside of the USA.

## 1. Introduction & Miscellaneous

Bette chaired the meeting on the first day, Heinz on the second. Bette welcomed everyone and thanked the IPO for their work organizing the YSM and OSM. SSC members then introduced themselves.

Corrections to the agenda:

- Fátima Abrantes comes from Portugal (not USA as listed in Section B).
- Deadline for travel claims is 15 September (not 15 July as listed in Appendix D).
- Heading for Section 2.2 should be “Budget Overview 2009/2010” (not 2008/2009).

### 1.1 Approval of Minutes from Past Meetings

**Decision**      **SSC unanimously approved the minutes from past meetings.**

### 1.2 IPO Staff

Thorsten went over staff changes and explained that while peripheral staff had changed, core staff had stayed the same.

### 1.3 Visiting Scientist Program

Thorsten outlined the Guest Scientist Program and the sorts of tasks that visitors take on. He also pointed out that although the IPO no longer had a dedicated guest room, there was office space available to share and an increased budget to contribute to accommodation. He reported that there had been fewer visits during the last year, due in part to the office move. He announced that Bette Otto-Bliesner would visit while in Europe to work on the NSF proposal, and that Dorte Dahl-Jensen might visit to work on the newly granted European Framework 7 project “Past4Future”. He encouraged the SSC to publicize the program. Heinz pointed out the bonus of having the Oeschger Centre and IPCC Working Group 1 Technical Support Unit in the same building. There were no immediate suggestions for future guest scientists.

## 2. Finances

### 2.1 Funding Overview

Thorsten outlined the budget listed in the agenda, detailing the extra money from the US NSF for the YSM and the block grant changes from IGBP. He indicated that while the exact numbers of the final YSM/OSM budget are still unknown, he thought that the finances did not look too bad and the meeting costs stayed in the budgeted framework. He explained that the US NSF money was deposited into a US dollar account, thereby giving the IPO more flexibility with the timing of the conversion into Swiss francs and some control over exchange rate fluctuations. He also clarified that the PAGES-relevant Swiss NCCR summer school upcoming in August 2009 reoccurs every 4th year, when the emphasis is on past climate.

### 2.2 Budget Overview 2009/2010

Thorsten outlined the considerable savings resulting from the IPO’s move to the Oeschger Centre—no charge for rent, utilities, internet provision or cleaning services—and stated that these savings could be used for additional workshop support. He then went over the proposed budget for the next fiscal year, commenting that the funding required for the NCCR Summer School was less than planned and that more funding had been allocated for journal publications because of the OSM (e.g., page charges for *Climate of the Past*). He also described the breakdown of costs for PAGES newsletters—printing and shipping being roughly 50-50—and noted that hardcopy subscriptions had gone down from ca. 3,700 to 1,600 as a result of a general trend towards digital subscriptions.

Thorsten then outlined the approved European Framework 7 proposal “Past4Future”, headed by Dorte Dahl-Jensen and involving other SSC members (Michael, Jérôme, Eric), for which PAGES is the partner for outreach and transfer of knowledge (a commitment to hosting the website and publishing 2 newsletter issues).

**Decision**      **SSC approved the 2009/2010 budget.**

Jérôme: PAGES should be more proactive in reaching policy makers. SSC should suggest key officials in their countries to whom newsletters should be sent.

**Action**      **SSC to send IPO contact details for key officials to receive the PAGES newsletter.**

### **3. PAGES Products**

#### **3.1. Website**

Thorsten reported that he was still not satisfied with the software being used to analyze website use. He said that the newsletter download statistics provided by the new software were probably more realistic than those in the past because only complete downloads were counted. However, only downloads of the full newsletter were included in the numbers and not individual articles. He was of the opinion that community feedback was a better measure of whether the newsletter was popular. Thorsten also mentioned that a map showing the location of website visitors was being trialed at the very bottom of the homepage but that it provided only a very rough overview.

General discussion about the website followed, with suggestions being made for improvement of clarity and navigation, as well as general search functionality. The IPO reiterated that many of the design elements were intentionally “low-tech” so that the website loaded more quickly for people in developing countries with slow internet connections.

**Action**      **SSC to add PAGES website link to their email signature.**

##### **3.1.1 PAGES Information**

Thorsten called to the SSC for help in keeping the online information about PAGES science up to date. Members should regularly check their Focus/CCT and send the IPO any activities to be listed, changes to be made, etc.

**Action**      **SSC to regularly check the online information for their Focus/CCT.**

##### **3.1.2 PAGES Product Database**

The SSC discussed PAGES Info Sheets at length. It was commented that while some paleo fact sheets existed (e.g., USGS, NOAA), the majority of other related sheets dealt with present-day topics and did not provide a paleoperspective. There was general agreement that the Info Sheets were a good idea but that to be useful, they would need to be updated regularly and also publicized widely. It was also commented that to be of maximum use, they would need to be translated into other languages. The suggestion to have them produced by the co-editors in conjunction with the publication of each special section of the PAGES newsletter was still thought to be a good idea. However, it was noted that addressing a “big question” in this way was not always possible depending on the topic of the special section. Taking into account the limited resources of the PAGES IPO, it was decided that an outreach page (under “resources”), aimed at the level of senior high school students, with links to existing resources would be a good first start. Eric volunteered to help. João also offered the help of Owen Gaffney, the new Director of Communications at IGBP. AGU was mentioned as a place to publicize PAGES public resources.

**Decision**      **Info Sheets will be pursued where appropriate but not made a high priority.**

**Action**      **IPO to work on an outreach page on the PAGES website.**

##### **3.1.3 PAGES People Database**

Thorsten reported that new members were now being added into the 4D database system automatically.

### 3.1.4 National PAGES

Thorsten reported that not a lot of effort had been directed over the last year to adding new National PAGES. It was mentioned that a page for Argentina would be a valuable addition. Louise commented that some communities were very active and updated their pages regularly. Thorsten remarked that the IPO had no feedback on how useful the pages were for the national communities. João suggested linking the PAGES National Contacts to their respective IGBP National Committees.

### 3.1.5 Other Website Items

Thorsten referred the SSC to the metadatabases that were online for various groups and to the trial version of the PAGES “Paleodata Portal”.

## 3.2 Newsletters

Louise outlined the coming issues of the PAGES newsletter. Proposals from Stephen Jackson and Dominik Fleitmann for special issues on “Peatland Paleoscience” and “Paleoclimate Records in Evaporative Basins”, respectively were provided to the SSC as additional handouts. The SSC then discussed the various topics, and the following timeline and focus for future issues was agreed upon:

- March 2010 – Peatland Paleoscience – Guest Editors: Stephen Jackson, Dan Charman
- August 2010 – Paleofire – Guest Editor/s: Cathy Whitlock and one other TBA  
Comments: Cathy reported that the Palaeofire Group had met at the OSM and were very motivated.
- December 2010 – Evaporative Basins – Guest Editors: Dominik Fleitmann/Isabelle Cacho/Syee Weldeab
- March 2011 – Paleomonsoon – Guest Editors: Pinxian Wang and one other TBA  
Comments: The 2nd PAGES Global Monsoon Symposium will be held in September 2010.
- August 2011 – Regional socio-ecological systems – Guest Editors: TBA

Information for policy makers was discussed and it was suggested that a box of policy relevant information be included in the newsletters where appropriate. The online newsletter was also discussed. It was pointed out that the newsletter news elements (Inside PAGES, Calendar) could easily be missed and that thought should be given to how to make important sections more obvious. It was also remarked that the full references were not included in the individual article downloads. Thorsten commented that an HTML version of the newsletter was currently beyond the scope of IPO resources.

**Action**      **IPO to inform future guest editors about newsletter schedule.**

**Action**      **IPO to work on layout of the online newsletter with regard to news and references.**

**Action**      **IPO to look into including full reference list in the individual article downloads**

## 3.3 Special Issues/Synthesis Articles

The IPO clarified that PAGES publications are those with a clear acknowledgment to PAGES or that arise from a PAGES workshop or meeting.

Omission: HITE publication – Gaillard, M.-J., Sugita, S., Bunting, J., Dearing, J.A. and Bittmann, F. (Eds.) 2008. Human impact on terrestrial ecosystems, pollen calibration and quantitative reconstruction of past land cover. *Vegetation History and Archaeobotany* 17:5, 415-615.

## 3.4 Publications in Preparation

No comments.

## 3.5 Posters and Flyers

The SSC was given a number of the “Pocket Guide to PAGES Science” to distribute and reminded that there was also a collection of PAGES posters to download from the website.

**Action**      **SSC to distribute the “Pocket Guide to PAGES Science” at relevant meetings.**

### ***3.6 New Overview Product***

#### Discussion:

The SSC discussed at length the feasibility of a yearly publication summarizing key paleo-findings. It was felt that such an undertaking was a good idea in principle but very complicated in practice. It was noted that the scope was very broad and that it would be very difficult to ensure that no omissions were made. Suggestions discussed included a summary section in the newsletter, on the state-of-the-art of paleoscience, a summary of Foci and CCT achievements, a list of the 10 most important achievements in paleoscience, and a summary of IPCC paleo-findings. The idea of submissions of extended abstracts was also raised but Thorsten pointed out that the “Science Highlights” section on the PAGES website had been abandoned in the past because it was not well used and was too selective. It was suggested that it was more important to raise the awareness of paleoscience in general rather than to publicize the specifics, and that emphasis should be placed on how to promote paleoscience most effectively. It was eventually decided to abandon the idea of a yearly publication and instead to encourage the paleocommunity to inform IPCC lead authors of key paleo-findings. PAGES website would provide the relevant information and links for the community.

**Decision** PAGES will not produce a yearly publication summarizing key paleo-findings.  
**Decision** PAGES to encourage the paleocommunity to inform IPCC lead authors on key paleo-findings.

### ***3.7 PAGES Science Plan and Implementation Strategy***

## **4. Funded Workshops and Initiatives**

### ***4.1 2008 Funded Workshops and Initiatives***

No additional comment on information in the agenda.

### ***4.2 2009 Funded Workshops and Initiatives***

No additional comment on information in the agenda.

### ***4.3 Pending Workshop Proposals***

Thorsten outlined the workshop and Working Group proposals that the EXCOM would decide on at their evening meeting, and sought feedback and input from the SSC. He noted that the budget figures represented what was available but that it did not all need to be spent and could be transferred to the next round. He reiterated that with the increasing number of activities being proposed, the rough rule of thumb was to provide \$10,000 to initiate a Working Group and \$5,000 for further meetings. There was a general discussion about PAGES funding of INQUA groups and the desire was voiced for efforts to be better tied together, as was attempted during the SSC/INQUA meeting in Australia in 2007.

**Action** IPO to publicize the workshop funding decisions on listservers with the date for the next Open Call.

#### Second-day discussions:

Heinz reported on EXCOM’s decisions on funding for workshop proposals (support for West African INQUA workshop and Tephrochronology meeting in Japan) and the SSC supported the decisions.

### ***4.4 Upcoming Large Meetings***

PAGES sessions at large meetings were discussed. Thorsten suggested that EGU/AGU sessions be considered necessary elements of implementation of PAGES Working Groups. It was agreed that such sessions were important in terms of outreach. The opinion was voiced that it would be good to have “PAGES” listed in the title of sessions coming out of PAGES science, even if PAGES was not officially a session sponsor.

**Action**      **IPO to contact EGU/AGU session conveners to ensure PAGES is listed in the title of PAGES-initiated sessions.**

## ***4.5 Next PAGES committee meetings***

The location of the next SSC meeting was discussed. It was agreed that the meeting should once again be held in a country where PAGES would like to engage the local paleocommunity. Thorsten reported that Japan and Mexico had been informally proposed. Takeshi reported that the National PAGES committee had offered to host the SSC meeting in Japan and that this would be an important opportunity to involve the Japanese community, who had not yet substantially contributed to the international PAGES community. No topics for the proposed regional meeting to be held alongside had yet been proposed. João noted that an IHOPE group was starting within Japan. Other suggestions for 2010 included piggybacking on the 2010 paleoceanography meeting in San Diego in Aug/Sept or the AIMES OSM in the UK in May. Concerns voiced included reducing the CO<sub>2</sub> footprint, choosing a location to minimize travel time and reducing cost. The final decision was put off until the second day.

### Second-day discussions:

Jérôme pointed out that from Jan 2010, he would no longer be on the AIMES SSC and this meant no PAGES representation. It was agreed that there was a need to get AIMES and PAGES together to discuss their integrative role but that this might be better done in a smaller group with Co-Chairs and IPO staff. The SSC then took a vote about the location of the 2010 meeting.

**Decision**      **The annual PAGES SSC meeting for 2010 will be held in Japan**

*Note: In the meantime, the dates 7-8 June 2010 have been fixed.*

The SSC also discussed options for 2011, including holding the meeting alongside the 28th INQUA Congress in Bern in July, and alongside a regional meeting in Mexico, but no firm decision was made. José mentioned that a group of YSM/OSM participants had discussed having a workshop addressing tropical paleohydrology in 2011 (May/June or October/November). They had proposed Mexico and Colombia as venues, alongside an SSC meeting and possibly a young scientist activity.

## **5. SSC & EXCOM Membership**

### ***5.1 Current SSC Members***

**Decision**      **José, Pierre and Takeshi were unanimously re-nominated for another 3-year term.**

### ***5.2 New EXCOM Members***

No additional comments.

### ***5.3 New SSC Members***

Bette welcomed Fátima Abrantes and Steve Colman to the SSC. The SSC then discussed the nominees for 2010 and made their recommendations to the EXCOM for their evening meeting. As in previous years, discussion centered on the need for a balance between national inclusiveness, gender and age, scientific expertise and standing in the community. Bette reminded the SSC of the US NSF requirement of a US Co-Chair and asked the SSC to consider that it was an advantage for future Co-Chairs to have been to more than one SSC meeting before taking on this role. Other discussion items included the suggestion made at the YSM that a young scientist be included on the SSC, and the concept of Corresponding Members. The SSC also discussed the current nomination procedure and voted on whether to continue with the no self-nomination policy. It was felt that while PAGES might lose some interested people who did not want to ask colleagues to nominate them, an outside filter in the form of a nominator was still the better option.

**Decision**      **The SSC nomination procedure will remain as is (self nominations are not allowed).**

### Second-day discussions:

Heinz reported on EXCOM's deliberations about the nominees for 2010 and there was further discussion by the SSC on the selected candidates. Heinz stated that it had been very difficult to achieve the required gender and geographical balance. Heinz also reported that EXCOM had discussed Swiss representation in order to have someone to replace him at the end of 2010.

The SSC discussed the idea of having Corresponding SSC Members as a way to draw on the experience of other people actively involved in PAGES (e.g., Focus Leaders), or of younger scientists who did not yet have the strong standing needed to represent their communities on the SSC. An alternative suggestion was to invite the Foci, CCT and WG leaders as guests to meetings, where appropriate. The SSC decided to put off a formal decision on corresponding membership until the next meeting and have the IPO then present a possible framework for this option.

- Decision**      **IPO to present a model for corresponding SSC members at the next SSC meeting.**  
**Decision**      **Alan Mix, Denis-Didier Rousseau, Chris Turney are elected to PAGES SSC for 2010.**  
**Action**        **IPO to send information on re-appointments and new SSC members to IGBP for ratification.**

## **6. IGBP Update**

- IGBP has a new Director of Communications, Owen Gaffney. João encouraged PAGES to contact Owen and make use of his expertise.
- The next IGBP SC meeting will be held in France in 2010  
*Note: In the meantime, scheduled for Grenoble, France, 16-18 Mar 2010.*
- Executive Directors of IGBP Core Projects will probably be included again in IGBP SC meetings.
- An open call to host the 2012 Open Science Conference "Planet Under Pressure: New Knowledge, New Solutions" has been announced.
- Since IGBP's resources will be funneled into the integration, synthesis and exploration (ISE) topics (see below), this year's annual call for Fast Track Initiatives will be the last one for a while.
- ICSU has started an electronic consultation to gather questions on the future of Earth System research and to reshape ESSP by 2014, with an ICSU visioning meeting to be held 30 Sep-2 Oct 2009. A question was asked about the status of the merger of the large programs. João replied that nothing had been decided and that above all, during the next 5 years, IGBP needed to be visionary, better define itself, and that the community needed to be more vocal and active in putting IGBP in the forefront.

João informed the SSC about the IGBP ISE products discussed at the SC meeting in Japan. There will be a 2- to 3-year cycle of topic development and synthesis. The 3 selected for initial funding are:

- Earth System Impacts from Changes in the Cryosphere (ESICC) (R. Bradley)
- Megacities and Coastal Zone (A. Newton and T. Zhu)
- Global Environment Change and Sustainable Development: Needs of Least Developed Countries (P. Dube)

The following are finalizing implementation plans, and if approved, will be carried out up to 2012.

- Limits to growth (S. Running)
- Geo-engineering (L. Russell/D. Schimel)
- Nutrient cycling (J.W. Erisman/C. Lancelot)
- Global Nitrogen Assessment (J.W. Erisman/J. Galloway)
- Resilience and Earth System prediction (D. Schimel)
- The role of land cover and land use in modulating climate (P. Kabat/D. Yakir)
- Aerosols (K. Law)

He highlighted the following information about the topic WGs:

- WGs need to provide policy-relevant information on mitigation and adaptation.
- WG Leaders will contact relevant Core Projects for input.
- WGs should reach out to other research groups within ICSU and to other research programs.
- WGs should be balanced in terms of gender, regions, etc.

#### Discussion:

The SSC agreed that PAGES needed to be proactive in getting involved in the IGBP ISE topics and needed to explain to other IGBP groups how PAGES could contribute, particularly because PAGES is perceived to be more of a climate program. John mentioned that Focus 4 could contribute to the megacities topic. It was commented that tipping points had been a high priority and would be a topic central to PAGES but were not included. João replied that this would be part of the “Resilience and Earth System prediction” topic. The opinion was voiced that IGBP should concentrate on forming an interface to policy makers rather than on the science, which was already being done by the Core Projects. João argued that IGBP felt that there was a lot of science that would fall between the Core Projects and needed to be integrated in the explicit topics. He added that the implementation of IGBP’s synthesis would also strike a balance between scientific integration and policy relevance and would therefore promote an active science-policy interface.

## **7. PAGES Working Groups**

The SSC discussed the current Working Groups, their structure and deliverables. It was suggested that a goal outline and action timeline be requested from all the WGs, particularly from some of the less active ones. An annual report was also required, especially for discussion at the SSC meeting, and the timing of this was discussed.

**Decision**      **PAGES Working Groups to provide an annual report, updated goals and timeline.**

WG openness was discussed. The perception exists that it is difficult to get involved in some groups (e.g. PIGS and ADOM). Bad advertising might be the cause of these groups appearing “closed”. It was suggested that the workshop model be to pre-invite some people but to leave slots open to be filled after advertising the meeting. It was also suggested that PAGES should give advice on participants early on, e.g., when the WGs apply for funding. One way to do this would be to circulate incoming workshop proposals for recommendations from the SSC.

## **8. PAGES Research Activities**

The logistics of interaction with related groups outside PAGES was discussed: Where and how does PAGES interact with the groups shown at the base of the Foci diagrams in order to include paleoscience? Do we send people to attend their meetings? Do we participate in setting them up? Do we ask IGBP to remind the groups when endorsing them to include paleoscience? It was commented that sending interested people to meetings was usually the most efficient way but that in some cases (e.g., AMMA), they should instead be invited to a PAGES meeting. It was also noted that some connections (e.g., CLIVAR) needed to be stronger, with more than just collaboration on paper.

Involvement of the new SSC members in the Foci and CCTs was discussed.

**Decision**      **Fátima will be involved in Focus 2 (and CCT 2) and Steve in CC 1 (and Focus 2).**

### **Focus 1: Climate Forcings (Jérôme, Bette)**

Jérôme and Bette reported on Focus 1 elements. Implementation is mainly taking place under the Secondary Forcings Theme, with some activity on sea level (PALSEA), paleofire, dust transport (ADOM), and modeling (PMIP) (see agenda for meetings). A workshop on atmospheric dynamics and dust transport is planned. There is a need for Primary Forcings activities on solar variability and volcanic forcing, i.e. workshops to get the communities together. The following topics were discussed:

### Modeling Intercomparisons

PMIP and PCMIP are PAGES-endorsed and Bette is exploring the possibility of them becoming PAGES WGs. PMIP3 has developed new simulation priorities. CMIP5 simulations will contribute to IPCC AR5 and paleo-simulations of the LGM, early Holocene and last millennium will be included.

### Paleofire

It was felt that the Palaeofire WG had lost momentum and was not an open WG. Workshops had been oriented towards the tasks of QUEST and therefore rather “closed”. PAGES had not contributed to all of them. It was suggested that PAGES get more involved in broadening the leadership of the WG. Workshops on regional and local scales/issues would be good. Thorsten reported that the Africa Palaeofire workshop (originally scheduled for fall 2008, then postponed to fall 2009) was still on the agenda but would probably not be held until 2010. Mitchell Power and Eric Odada are working on acquiring the necessary funding.

### Solar/volcanic

It was agreed that workshops on solar and volcanic forcing should be organized separately. The solar forcing meeting should integrate <sup>10</sup>Be data from both hemispheres and involve solar physicists. Heinz volunteered to work on solar forcing. Potential funders could be EPRI (Electric Power Research Institute) and ISSI (International Space Science Institute in Bern). Eric volunteered to work on a volcanic group, which might also assess new methods to separate stratospheric and tropospheric eruptions.

### Ice sheets

Bette and Eric will interact on advancing the ice sheet reconstructions topic.

## **Focus 2: Regional Climate Dynamics (Heinz, Cathy, José, Eystein)**

Heinz reviewed the Focus 2 structure theme by theme, as well as the implementation progress:

### Last glacial cycle

No specific workshops or WGs exist at present. Bette suggested that SynTraCE-21000, an activity combining data compilation/database and transient modeling of the evolution of the Earth System over the last 21,000 years, could contribute to this Theme. Workshops were held in 2008 and 2009, with an emphasis on the marine and terrestrial realm, respectively. At the 2009 workshop, the group had considered applying to become a PAGES WG. Peter mentioned that the INQUA INTIMATE groups also address the glacial-Holocene transition for the N. Atlantic and Australasian regions.

### Reconstruction

The activity here is under the Paleoclimate Reconstruction (PR) Challenge. A workshop to compare and discuss different methods of pseudo-proxy generation is being planned, perhaps alongside Fall AGU.

### 2k Network

The 2k Theme is centered on regional groups, which met for a one-day workshop during the YSM. Interest and motivation is high. The group aims to study 2000 years, even though some modelers focus only on the last millennium. The regional groups for N. America, S. America, Australasia and Europe are well structured. The African group is also establishing itself well but suffers from lack of data and regional representation. The Arctic and Antarctic group have momentum but still need to decide on leadership. Eastern Asia is still underrepresented as a group. Takeshi agreed to take the lead and Zhongli agreed to support representation from different regions in China. Meetings of regional groups should be held in 2010. In 2011, the 2k network will meet (alongside INQUA in Bern) to discuss the state-of-the-art and the next steps towards synthesis. While it was noted that the results could have a big impact for IPCC, it will not necessarily be possible to follow this schedule for all regions. The synthesis publication could be a special journal issue that could also be printed as a book.

### Holocene

Heinz is planning a large session during INQUA in 2011.

Thorsten reminded the SSC that global data synthesis projects also fit under the “regional dynamics” definition of Focus 2, e.g., MARGO-type time slice studies are global but yield regional-scale spatial patterns. The question was raised as to whether characteristic periods during the Holocene could be a

worthwhile target, but Michael replied that with respect to the increasing modeling abilities over the next years, the preference was to address the Holocene with transient runs.

### **Focus 3: Global Earth-System Dynamics (Peter, Takeshi, Eric, Michael, Zhongli)**

Michael and Eric reported on Focus 3 WG activities and issues:

#### Past Interglacials

Past interglacials is addressed by PIGS, who have a second workshop coming up, as well as by an ESF conference held in Austria in June 2009, the IPICS NEEM project, and the new EU Project Past4Future.

#### Marine Biogeochemistry

The topic of ocean acidification does not have strong momentum in the paleocommunity. Thorsten will follow up on initiating a workshop on past carbon cycle perturbations and ocean acidification with the goal of an overview publication.

#### Abrupt Change

The SSC had no clear overview of the status of BIPOMAC but gauged it to be rather inactive after IPY. WG Leaders (Rainer Gersonde and Julie Brigham-Grette) need to be asked to provide a work plan.

#### Hydrology

The next Global Monsoon meeting is planned for 13-15 Sep 2010 in Shanghai, China. Bette was asked for names to contribute to the meeting. Thorsten said that the 1<sup>st</sup> Global Monsoon workshop was a good example of a group that had been well-balanced between paleoscientists (PAGES) and climatologists (recent monsoon program representatives). Mohammed mentioned a meeting on geophysical and drilling site proposals (Nov 2009, Addis Ababa) and the prospect that this would result in more long monsoon records in the African region.

### **Focus 4: Human-Climate-Ecosystem Interactions (John, Mohammed)**

John reported that Focus Leaders had met in 2008 to develop Focus Themes, and that in the last year, the new Themes had been consolidated and WG Leaders and Theme Coordinators appointed. Current Theme Leaders are: Water – Roland Hall/Peter Gell; Land Cover – Marie-José Gaillard/Shinya Sugita/Scott Mooney; Biodiversity – Shonil Bhagwat/Kathy Willis; Soil/Sediment – Nick Preston/Thomas Hoffmann; Regional Integration – John Dearing. Theme leaders for Carbon still need to be decided. The Leaders are currently working on timelines and meetings for the coming months. Plans are to hold an Integration meeting to discuss the challenges of bringing different data together and linking them to modeling. A goal is to produce a demonstration article exemplifying the protocol for one region. Kathy and Shonil plan to organize a meeting to connect paleoecologists and modern conservation biologists to seek ways on how to overcome different timescales of interest. John together with IHOPE colleagues will produce a briefing paper for IPCC AR5 WG2 on how paleoscience can contribute. *Note: Emailed to WG2 Co-Chairs, Chris Field and Vicente Barros on 9 Sep 2009.*

John mentioned that he had met people at the YSM/OSM who could be involved in Focus 4 to counter the current eurocentricity. Cathy called for the inclusion of fire, especially for regional integration efforts.

John stressed the need to get scientists to slightly reorient their science in order to address key questions about modern environments and to explain how to learn about it from the past. IHOPE could be a good project for this. He also remarked that he avoided using the term “paleo”, as it gives the impression of something fossilized and anchored in the past, not the future. Heinz stressed the broader importance of Land Use/Land Cover Change reconstructions.

### **CCT 1: Chronology (Pierre)**

Pierre reported that activity had been low in the last year. Special sessions were held at AGU and EGU, and the Varves WG was organized. Plans and suggestions for CCT 1 organization were discussed. Pierre mentioned that he was planning another trip to the PAGES office next year to work on CCT 1. He stressed the need to increase links to existing chronology groups (e.g., INTIMATE and the ESF paleochronology program). It was felt that a CCT 1 Steering Committee, with experts from different

chronological approaches, could be good. Steve expressed willingness to work on the topic and to coordinate with Pierre. In addition, Chris Turney, SSC nominee (*since approved*) could bring in additional expertise.

There was a discussion on dating support for developing countries. The question was raised as to whether it would be feasible to organize a pool of funds from international sources for radiocarbon dating specifically for developing country scientists. NSF has a model whereby developing country scientists receive discount rates. It was suggested that PAGES could act as a mediator to bring groups together who have a mutual interest.

### **CCT 2: Proxy Development, Calibration and Validation (Ricardo, José)**

Ricardo reported that the results from the PAGES/CLIVAR workshop in Wengen in 2006 had been published in a large synthesis paper in *The Holocene*. A workshop on uncertainties in high-resolution proxy data was held in June 2008 and resulted in white papers and a workshop report with recommendations and follow-up activities. Future workshops dealing with model/proxy data integration could be on: Use of regional downscaling and forward modeling of proxy time series; Reconstruction and modeling of water isotopes in precipitation; Strategies for using model output to guide proxy data sampling and quantifying process uncertainties.

Michael noted that some activities proposed were also at the core of CCT 3 and that there should be interaction between the two. It was commented that activities so far were mainly on calibration and plans for proxy development were queried. Eric announced that he would resume earlier plans for a workshop or WG on sea ice proxies and that he might try to get Leanne Armand involved as a co-leader. Thorsten suggested a workshop on documentary data. These archives are important because they provide data on seasonal variation and there are still many untapped sources, e.g., in the Arabian world. He indicated that Quansheng Ge (Inst. of Geographical Science & Natural Resources Research, CAS) had shown interest in linking to PAGES and holding such a workshop.

### **CCT 3: Modeling (Michael, Bette)**

Michael and Bette reported that the first CCT 3 workshop had been on data assimilation (Apr 2009, Vienna, Austria) and had helped form an initial network between the groups exploring assimilation techniques. However, they said that it was too early to get beyond the competition of the groups. A special session with a wider scope around data assimilation is proposed for the next EGU. A useful approach for another model-data comparison workshop in 2010 might be to focus on modelers who have water isotopes included in their models.

### **CCT 4: Data Management (Thorsten)**

Thorsten reported that developing the Paleodata Portal had been the major activity in the past year, that it was now in the publicizing stage, and that the IPO would target more databases to contribute. NEOTOMA was mentioned as a good database to add their data to the portal. The last meeting of the Databoard was in 2006. Thorsten said that he had made some attempts to set up another meeting for data visualization, etc. but had been unsuccessful so far.

Cathy and Peter pointed out that the Portal did not display datasets they had submitted to one of the databases being harvested. Thorsten replied that the IPO would look into it. Michael commented that data centers were not equipped to provide data in formats that support data-model comparisons. He stated that IPCC used a standardized data format for model output, which allowed for easy access to at least a certain sub-set of variables using a web-based interface. He suggested that PAGES should lobby for this idea in the paleo-modeling community.

## **9. PAGES links to other projects**

### **9.1 IMAGES**

Thorsten reported on changes to IMAGES leadership with Larry Peterson (Miami) being new Chair replacing Eelco Rohling (Southampton). Much was still very uncertain, including the location of the IMAGES office, which might move from Bremen/Kiel to Southampton (proposal by Eelco Rohling & Ian Hall). Larry plans to finalize the IMAGES science plan. Thorsten noted interest among IMAGES leaders to support the new PAGES Nitrogen Cycle Working Group to run it as a joint PAGES-IMAGES group.

A discussion about IMAGES in general and on involvement with PAGES followed. It was pointed out that some kind of community group was needed to operate the ships, and that IMAGES could perhaps play a larger role in deciding where the coring would take place, planning potentially in collaboration with paleo organizations such as PAGES. Jérôme mentioned that there would be an audit of IMAGES France this autumn. Possible collaborations with ICDP-IODP was briefly discussed and considered to provide scientific opportunities for IMAGES. Thorsten stated that he was open to whatever collaboration IMAGES was happy with, up to an adoption of elements of IMAGES within PAGES as the very last resort. It was suggested that PAGES offer to host an IMAGES staff member at the IPO.

**Decision**      **PAGES to discuss with IMAGES options for hosting a staff member at the IPO.**

### **9.2 IPICS**

Eric reported on recent developments in IPICS and on the workshop during the PAGES YSM, where sessions and breakout groups had been held for each of the IPICS projects.

- IPICS has produced 4 scientific white papers and a technical white paper on drilling challenges.
- Meeting products for the 2k project will be to compile existing records by Dec 2009 and to identify which new cores are being drilled and where the gaps are.
- IPICS 2k will contribute to PAGES “Last 2 Millennia” Theme in the form of an Antarctic2k WG.
- A new white paper for NEEM/last glacial will be prepared, leading to a science plan.
- An *Eos* article on the oldest ice core project is in draft form (lead author Jeff Severinghaus).
- A 40k synthesis journal article is in preparation.
- There are no plans for another large IPICS meeting, smaller workshops will be held instead. There are, however, plans to hold a general ice core science symposium, e.g., with the International Glaciological Society (IGS) in 2013.
- The International Association of Cryospheric Sciences (IACS) will also probably endorse IPICS.

It was agreed that the level of PAGES endorsement was satisfactory to everyone and would continue.

### **9.3 PAGES/CLIVAR Intersection**

Thorsten provided an overview of the PAGES/CLIVAR WG meeting (Italy, June 2008) and the key scientific issues being addressed (see SSC Agenda for details). He explained that EXCOM had reviewed the new Vision Document at their last meeting in San Francisco in Dec 2008 and had requested that CLIVAR be more prominent in the Intersection. He reported that the CLIVAR Scientific Steering Group had recently held a meeting (Spain, June 2009) and that they were happy with the direction that the Intersection was heading. Discussion followed on how to invigorate the Intersection, in particular CLIVAR’s role in the Intersection.

*Note: Following the SSC meeting, the Vision Document was modified with more references to CLIVAR science and was released and advertised in the newsletters of PAGES and CLIVAR.*

### **9.4 IHOPE**

John reported that IHOPE had now been formally accepted as a collaborative project between IGBP (AIMES and PAGES) and IHDP. A meeting in Japan had been held last year sponsored by the Global Land Project (GLP), resulting in a paper in (Dearing et al., in prep.) looking at the need for long time

perspectives of socio environmental aspects of environmental change. He outlined an upcoming workshop (Santa Barbara, USA, 22-26 Sep 2009) on applying the IHOPE approach to the Mayan and Roman periods, and explained that another step was to see if workshops could be organized for other regions, such as Europe, that would also overlap with the regional aspect of Focus 4. He commented that the workshops so far had received funding for a restricted number of people and had thus been by invitation only but that hopefully this would change and membership would be expanded. AIMES would most likely include IHOPE at their Open Science Meeting in May 2010. He also mentioned that a paper entitled "Toward An Integrated History to Guide the Future" by van der Leeuw et al. submitted to *AMBIO* was in review. Thorsten commented that beyond Focus 4, PAGES had limited connection to IHOPE so far, but that studies of the Roman period were perhaps something that PAGES could contribute significantly.

João informed the SSC that the IHOPE Research Plan had been submitted to IGBP and IHDP for review but that clarification on implementation was still needed. A proposal for governance, recommending equal representation of PAGES, AIMES and IHDP, had been included and needed to be approved by PAGES. John replied that the IHOPE EXCOM would be composed of 5 people and that one should come from PAGES, implying that there would always need to be a dedicated person on PAGES SSC to fill this position.

## ***9.5 IPCC***

Heinz provided an overview on IPCC and the different options for chapter structure were discussed amongst the SSC. Bette commented that the number of paleo people included in AR5 was encouraging.

## ***9.6 Group on Earth Observations (GEO)***

Michael and Thorsten provided some background on PAGES involvement with GEO (see SSC Agenda for details). GEO had seen the need for the inclusion of paleoscience while writing their Implementation Plan (2005-2015) and had contacted PAGES. Thorsten reported that the PAGES 2k Theme was now involved in a GEO Sub-Task and that he had been asked to update the respective section of the GEO Work Plan Progress Report. He was uncertain at this point about what return PAGES would get from the GEO involvement.

## ***9.7 EU Framework Program 7 project "Past4Future"***

No additional comments. See notes under Section 2.2 above.

# **10. YSM and OSM**

## ***10.1 Review of YSM and OSM***

(This section was dealt with last on the second day. After discussions had ended, Heinz thanked the SSC members rotating off and presented them with a gift. The meeting was then concluded.)

The SSC had a general discussion about whether the YSM and OSM should be continued, and whether separately or together. The SSC discussed whether the perceived value of the meetings was sufficient to justify the time and money invested in their organization. Feedback from participants had been very positive, with many young scientists enthusiastic about the benefits of holding the two meetings together, especially in terms of their access to established scientists. The SSC agreed that the meeting had also been important for the interaction of the senior scientists in the community and had exposed them to a good summary of a variety of topics. It was felt that PAGES should establish a tradition of holding these meetings together in four-year cycles, and it was hoped that this regularity would boost visibility and thereby attendance levels. The participation of US scientists had been disappointing, considering the fact that the meeting had been purposely held in the US to boost their attendance but it

was agreed that there had been many contributing factors to the moderate participation. Nonetheless, the SSC felt that reenergizing the US PAGES community was still needed.

A discussion followed on whether the YSM should be held every two years, once in between the OSM and once together. Alternative suggestions included PAGES holding its own summer school or skills clinic in between the OSMs, or holding a YSM alongside an SSC/regional meeting. While further activities were believed to be of great benefit, there would be significant issues concerning funding and IPO capacity. The final decision was to leave the general structure as it was, with a four-yearly YSM alongside an OSM, but to consider another meeting of some sort in between as appropriate.

**Decision PAGES to hold a YSM/OSM regularly every four years.**

**Decision The 2nd PAGES YSM and 4th PAGES OSM will be held in 2013.**

General feedback on the OSM:

- YSM “upgrade” talks was a good idea but the timing was wrong. These talks should have been held before the hot topic discussions.
- Some people commented that there were too many talks, and that this was particularly a problem when the talks ran over time.
- It was good to have a venue where there was not a lot to do outside the meeting because it meant that people attended the whole time.
- The soccer match was a good social event to bring people together.

The SSC then discussed the suggestions that had been made during breakout sessions at the YSM about young scientist (YS) involvement in PAGES:

- Communication pathway (e.g., listserv for YSM participants).

Thorsten commented that some form of communication platform would be established (e.g., listserv, online forum) and invited the SSC to join.

- Inclusion of a YS on committees (e.g., SSC) and panels, and at workshops as observers.

It was agreed to be a benefit to have early career researchers involved, whether on the SSC or in Working Groups. Questions were how this person would be selected, what role they would play and what formal position they would have. The value of having a YS on the SSC before a PAGES YS group was well-established was questioned. It was also felt that attendance at the SSC might not be of great benefit to the YS representative. An alternative suggestion was to post the SSC minutes on the YS listserv and ask for comments and ideas on what was discussed. It was also proposed that YS involvement could be on an informal basis, by inviting local YS to SSC and regional workshops, as appropriate.

- Organize PAGES summer schools and/or skill clinics.

See discussion above.

It was agreed to send out a questionnaire for feedback from the meeting, with another questionnaire perhaps a year after the meeting to find out whether networks established during the YSM had survived. The IPO would also investigate other YS networks for ideas.

**Decision IPO to develop a YS listserv and send out a YSM questionnaire.**

## ***10.2 YSM and OSM Publications***

Thorsten outlined the proposed meeting publications, in open-access journals:

- OSM – *Climate of the Past* special issue (Eds.: Thorsten, Eric, Bette, Cathy).
- YSM – *IOP Conference Series: Earth and Environmental Science* proceedings issue (Eds.: several young scientists and Thorsten).

He explained that there was also some interest in having a PAGES newsletter issue on the YSM. The SSC then discussed the format of these publications and whether to include young scientists’ papers in the OSM special issue. It was felt that while their inclusion would draw more attention to the young scientists, it would make the issue larger and more costly. The proceedings issue also had the advantage

of providing the young scientists with a publication much faster. It was agreed to target the OSM overview speakers first and reevaluate the situation when there was a better idea of numbers.

### ***10.3 Future Meetings***

Thorsten presented the Indian proposal to host the next OSM in Goa (Thamban Meloth would lead the Local Organizing Committee) or Hyderabad (Ashok Singhvi would lead). Other suggestions made were South America, Africa and Australia (Melbourne). The SSC discussed several issues including attendance of European/American scientists and NSF funding. It was agreed that more details about the Indian proposal were needed before a formal decision could be made. João encouraged PAGES to engage with the Indian IGBP National Committee and regional networks, e.g., APN. It was agreed that the IPO should also solicit proposals from other interested groups (South Americans, Australians) who had shown informal interest in hosting the next OSM (or possibly the one after).

**Action**        **IPO to request additional information on the Indian proposal and other possible venues for the next OSM.**

**Action**        **IPO to clarify the type of support that can be requested from NSF for an OSM outside of the USA.**

## **11. PAGES NSF and SNF Proposal**

Thorsten outlined the meeting he, Bette and Steve had with Paul Filmer (NSF Program Manager) after the YSM and indicated that the latest date for PAGES to submit a new proposal to NSF would be Jan 2010.

Heinz reported on the corresponding proposal with SNF. Paul Burkhard (SNF Program Manager) had indicated that the Swiss continued to be interested in international collaborations.

The SSC then discussed the writing of the proposal and the vision for PAGES in the future. PAGES involvement with IPCC was also discussed. The opinion was expressed that a shift in emphasis would take place from WG I (Physical Science Basis of Climate Change) to WG III (Mitigation of Climate Change), and that PAGES should strengthen its ties to the adaptation and mitigation communities in order to develop and shape the paleoscience that was needed for the future. It was proposed that PAGES should treat climate as a forcing for other changes and give more weight to analysis at a regional rather than a global level. More explicit connections to other IGBP and IHDP projects, and DIVERSITAS were also recommended. A contrary opinion was that PAGES “home” was much more the physical basis of climate and thus should not move too close to WG II (Impacts, Adaptation and Vulnerability). It was felt that while PAGES should be aware of the needs of WG II, the open questions on sensitivity, etc. would not be answered within the next 4 years and that this was where PAGES focus should lie. A counter argument was brought that the other groups involved in WG II were not dealing with long timescales yet and that PAGES help on this was needed. Another major topic of conversation was the timing of proposal deliverables with respect to IPCC AR5 (and IGBP), and whether PAGES should tune its plans in order to have results incorporated within AR5. It was decided that while AR5 was obviously of great relevance, as in previous years, the proposal would not overly stress the connection.