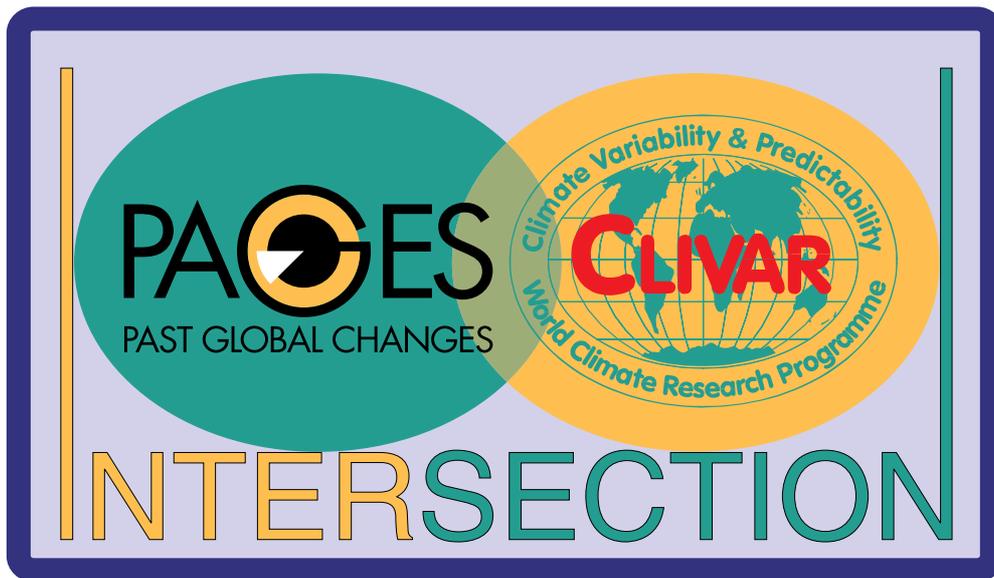


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WORLD
METEOROLOGICAL
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WORLD CLIMATE RESEARCH PROGRAMME



MINUTES OF THE SECOND MEETING OF THE PAGES/CLIVAR WORKING GROUP

AMSTERDAM 14 JULY 2001

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CLIVAR is a component of the World Climate Research Programme (WCRP), which was established by WMO and ICSU, and is carried out in association with IOC and SCOR. The scientific planning and development of CLIVAR is under the guidance of the JSC Scientific Steering Group for CLIVAR assisted by the CLIVAR International Project Office. The Joint Scientific Committee (JSC) is the main body of WMO-ICSU-IOC formulating overall WCRP scientific concepts.

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Table of Contents

Action Items	5
Meeting Summary	7
1. News from CLIVAR	7
2. News from PAGES	8
3. Review of last years activities	9
3.1 High Resolution Variability in the Holocene (HIHOL)	9
3.2 HOLIVAR	9
3.3 Workshop on ‘Reconstructing Late Holocene Climate’	10
3.4 Intergovernmental Panel on Climate Change (IPCC)	10
3.5 Paleoclimate Modelling Intercomparison Project (PMIP)	11
3.6 ARTS (Annual Records of Tropical Systems)	11
3.7 Other issues	12
4 Future Activities	12
4.1 Rapid change dynamics Workshop	12
4.2 Water (Hydrology Workshop)	12
4.3 High latitude processes	13
4.4 Other planned activities relevant to PAGES/CLIVAR	13
4.5 Carbon	13
4.6 Isotopes	13
4.7 Southern Hemisphere	13
4.8 Tropics	14
4.9 Impacts	14
4.10 Data	14
5. Other business	15
5.1 Next meeting	15
A Appendix – List of participants	A-1

Southampton Oceanography Centre
University of Southampton
Empress Dock, Southampton SO14 3ZH
United Kingdom

Tel: +44 (0) 23 8059 6777
Fax: +44 (0) 23 8059 6204
Email: icpo@soc.soton.ac.uk

Minutes of the CLIVAR/PAGES Working Group Meeting.

Amsterdam 14/7/2001

Action Items

- 1. CLIVAR SSG: Someone from the working group should definitely attend the CLIVAR SSG next year, preferably one or both chairs**
- 2. Paleo-reps: J. Overpeck and J.-C. Duplessy (WG leaders) to write letter to CLIVAR IPO and SSG nominating paleoexperts for all CLIVAR panels.**
- 3. GPOS Initiative: ICPO representative to work with the PAGES office to create advocacy documents for GPOS work with the PAGES players (e.g. Ray Bradley) and ensure that CLIVAR needs are also met and that GPOS benefits from CLIVAR sponsorship. [Note: K. Alverson will prepare a powerpoint presentation on GPOS to be presented by Will Steffen at an IGFA meeting in Stockholm in late October [John Marks (GMES, see below), Christian Patermann (EU) and Margaret Leinen (NSF) will all be there.] It is also hoped to include GPOS in the new European Commission environmental observation and monitoring document which for researchers who plan to submit a proposal under EC's 6th Framework Programme and would be interested in linking some of their workpackages directly to the GMES action plan. Any CLIVAR input to this Powerpoint file must be sent to K. Alverson absolutely no later than October 20.**
- 4. Long-term observational records: A. Villwock to prepare a statement about the crucial importance of long-term atmospheric measurements and circulate it to the working group for eventual sending to the WMO. The statement to the WMO should express the value of continuing the long instrumental records when it can be established that they are made at critical and important locations.**
- 5. IPCC: M. Mann and J. Jouzel to remain aware of what happens in IPCC and to inform the WG leaders when would be a time to comment explicitly, for example on the working group not being in favour of a stand alone paleo chapter.**
- 5.5 M. Mann and J. Jouzel to provide A. Villwock and K. Alverson a list of "IPCC questions" in order for them to carry out item 6, below.**
- 6. IPCC: A. Villwock and K. Alverson to ask every PAGES/CLIVAR workshop that CLIVAR and PAGES (respectively) endorse to address a small number of IPCC questions.**
- 7. PMIP cooperation: Action item: K. Alverson to ensure if there are specific plans to hold a PMIP meeting in the near future and inform A. Villwock [Done: Email to Taylor and Jousaume sent September 6, copies to WG chairs, A. Villwock, M. Claussen]**

- 8. PMIP and EMIC: K. Alverson to relay the WG suggestion that the PMIP organizers coordinate with the EMIC group. Ideal venue would be EGS at Nice, where the EMIC group meets annually. [Done: Email to K. Taylor and S. Jousaume sent September 6, copies to WG chairs, A. Villwock, M. Claussen]**
- 9. ARTS: CLIVAR/PAGES leaders to include an update on ARTS in their focus report to PAGES.**
- 10. HOLIVAR: K. Alverson to try to set up communication line between J. Overpeck and R. Battarbee before the meeting in Aix-en-Provence to explore the interest of the HOLIVAR programme as a European initiative in the workshop planning. [Done, Plans underway for a major meeting in 2004/5]**
- 11. High latitudes workshop: J. Overpeck to send an official letter. Expressing the committees support to E. Jansen in order for him to go ahead with his national support sources. [Done, proposal is being drafted by J. Overpeck/E. Jansen/K. Alverson]**
- 12. Carbon: K. Alverson to convey the WG recommendation to the PAGES SSC suggesting that they deal better with biogeochemical cycles. Find a leader and get involved. [Has been added to documents to be tabled at the next PAGES ex-com meeting Dec. 9, 2002]**
- 13. Isotopes: K. Alverson to send a letter on behalf of the CLIVAR/PAGES working group to the October GNIP SC meeting expressing strong support for the GNIP and the enormous scientific value for both the paleo and climate dynamics communities. [Letter written and given to Tom Edwards who will be at the meeting]**
- 14. Southern Hemisphere: M. Mann and J. Jouzel to take the lead in exploring the possibility to hold such a s workshop in collaboration with the new CLIVAR Southern Ocean Panel as a potential joint effort.**
- 15. Data: J. Overpeck to write draft letter regretting the cutting of WDC-A funding and send it to K. Alverson and A. Villwock. J. Overpeck to tell K. Alverson and A. Villwock to whom the letter should be sent. K. Alverson and A. Villwock to send the final letter from PAGES and CLIVAR in hardcopy respectively.**

Meeting Summary

1. News from CLIVAR

J. Jouzel, member of the CLIVAR SSG, reported about the progress within CLIVAR. At its 10th session the CLIVAR SSG has not taken any specific action with regard to PAGES/CLIVAR. It was emphasized again that CLIVAR has a strong interest with respect to paleo climate research esp. for the investigation of long-term natural climate variability and climate change prediction and attribution problems. CLIVAR would certainly welcome new initiatives from the PAGES/CLIVAR working group.

In this context A. Villwock, member of the ICPO, reviewed the most recent changes in the organizational structure of the CLIVAR programme. The CLIVAR SSG recommended to form implementation panels for the Pacific and the Southern Ocean sector. These panels should complement already existing efforts for the Atlantic and other regional foci of CLIVAR. These new panels will almost complete the infrastructure needed to implement CLIVAR within all components of the programme. A. Villwock pointed out that CLIVAR sets up working groups and panels only if there is a demand for international coordination for specific components of the project. As an example, the more observational oriented panels such as the Atlantic panel or VAMOS were mentioned. The goal of international programmes such as CLIVAR is to advance and facilitate (climate) research in a way that would not be possible by isolated national efforts. In addition to the regional implementation panels that serve the implementation of specific Principal Research Areas of CLIVAR, the programme has set up cross-cutting panels such as the PAGES CLIVAR working group or the Ocean Observing panel. These panels should look more into global issues and interaction. Specifically for PAGES/CLIVAR with importance of data sets was emphasized.

In addition, A. Villwock made some comments on new developments in the project office. Two new staff persons join the office: Dr. Zhongwei Yan has recently started and will look mostly after the Asian-Australian Monsoon system and related issues. In September, Dr. Daniela Turk will join the office. Having worked with Mike McPhaden at NOAA/PMEL for some time, her background will be useful for the ocean sector panels, esp. issues related to the Pacific and ENSO. A. Villwock moved to IfM in Kiel but will continue his work for CLIVAR. In addition to his previous tasks, he is now also responsible for the modelling activities with CLIVAR. Since the beginning of this year Carlos Ereño is part time working for the CLIVAR VAMOS effort out of his base in Buenos Aires, Argentina. J. Cole asked how well paleo was represented on the various regional panels. Climate modelling (S. Joussaume) panels and the SSG (J. Jouzel) both have representatives, but not all the regional oriented panels.

The next CLIVAR SSG will be in China in April/May next year. J. Jouzel notified that he is leaving CLIVAR SSG. He has suggested Valerie Mason as a good new Paleo/French representative.

Action Item: someone from the working group should definitely attend the CLIVAR SSG next year, preferably one or both chairs (J.-C. Duplessy will certainly be able to attempt if he is not at sea).

Action Item: WG leaders to write letter to CLIVAR IPO and SSG nominating paleo-experts for all CLIVAR panels.

2. News from PAGES

K. Alverson introduced IGBP and PAGES future plans in some detail. Including the need for PAGES/CLIVAR to provide PAGES with a 5-year plan including goals, timelines and products.

Action item: WG Leaders to send this to K. Alverson at PAGES IPO

Data issues were discussed. K. Alverson introduced the PAGES data board and A. Villwock the CLIVAR Data Task Team. Phil Jones is the PAGES representative on the CLIVAR data panel. There is a clear need, in particular for CLIVAR, to strengthen this liaison to meet the requirement for CLIVAR.

K. Alverson introduced GPOS (Global Paleo Observing System) as a brand new paleo initiative.

M. Claussen mentioned that some German long-term climate stations are having trouble getting funding to continue their long-term records. These stations are likely to be replaced by automatic weather stations. Through the limited capabilities of this observing system, part of the observations would be discontinued.

The panel felt that the rapid disappearance of some of the paleo archives (e.g. glaciers and corals) and long-term instrumental records is a serious issue that should be raised on a higher level.

Action Item: IPO: AV or Katherine Bouton (ICPO rep. for data management) to work with the PAGES office to create advocacy documents for GPOS work with the PAGES players (e.g. Ray Bradley) and ensure that CLIVAR needs are also met and that GPOS benefits from CLIVAR sponsorship.

One aspect that was brought up by M. Mann was how one could be fairly and objectively prioritise sites without being self-serving?

M. Claussen pointed out that there is a problem with long-term maintenance of extant instrumental records. Met stations are not funded to do climate problems, but climate people tend to see instrumental records as the met service's business. We should make a statement to the WMO, which expresses the value of continuing these long instrumental records.

J. Cole pointed out that there are other valuable long-term records such as stream flow data that are being cut back. These should be included in the statement.

There must be a prioritised plan of action. GPOS can't just be a black hole of more mud requests. This has to be transferred into a glossy document soon and spread around if it is

to produce new money. We need to increase the size of the funding pie, not redistribute or prioritise the pieces.

Action Item: A. Villwock to prepare this statement and circulate it to the working group for eventual sending to the WMO. The statement to the WMO should express the value of continuing the long instrumental records when it can be established that they are made at critical and important locations.

3. Review of last Year's activities

3.1 High Resolution Variability in the Holocene (HIHOL)

HIHOL is a joint PAGES, NSF and SCAR funded initiative that aims to provide an up-to-date picture of High-resolution climate variability in the Holocene and its links with potential climate forcings, against a background of longer-timescale changes during the last 8-9000 years.

During the 24-26 October 2000, 42 scientists from 13 countries gathered to attend the meeting of HIHOL (High Resolution Variability in the Holocene) The meeting was structured to include presentations and discussions on a number of general themes, mainly focussing on different geographic regions associated with specific climate sub-systems:

- climate forcing and global signals (insolation, solar variability,
- greenhouse gases, volcanoes, thermohaline circulation, sea level changes)
- low latitudes (tropical warm pool, Hadley cell, ENSO, monsoons)
- middle latitudes (westerly zones, NAO)
- high latitude, polar regions
- modelling efforts.

For more information, contact K. Briffa, (University of east Anglia) or visit the HIHOL website: <http://www.cru.uea.ac.uk/cru/projects/hihol/>

3.2 HOLIVAR

K. Alverson introduced the new ESF HOLIVAR (Holocene Variability) programme and the potential for complementary action with them (R. Battarbee (U. London, UK) is the leader). This ESF project seeks to bring together European scientists interested in climate variability of the last 6,000 years. The scientists are palaeoclimatologists, climate historians and climate modellers. The over-arching research questions concern how and why climate has varied naturally on different time-scales (annual to centennial) over this period and how an understanding of past variability can improve the predictability of climate models.

The first HOLIVAR meeting is to be held in Aix-en-Provence at the end of August. K. Alverson will attend and will discuss possible interactions with CLIVAR/PAGES with R. Battarbee.

3.3 Workshop on ‘Reconstructing Late Holocene Climate’

M. Mann reported on a workshop on ‘Reconstructing Late Holocene Climate’ which was held in Charlottesville, Virginia, USA, April 17-19,2001. An EOS article has been written with a set of research perspectives and suggestions, as well as areas for international cooperation suggested for the future.

Skeptics have often said that proxy data do not show the recent warming. This is largely due to the fact that many of the proxy records (corals, tree rings) end 20 years ago and need to be updated.

3.4 Intergovernmental Panel on Climate Change (IPCC)

M. Mann reported on the IPCC process. Some people have been pushing having a paleo chapter in the next (4th) IPCC report. The panel felt that this could be risky. Paleo issues need to be integrated in other sections such as detection and attribution and model validation.. Potentially a CLIVAR/PAGES open meeting addressing a series of IPCC issues timed to input into the next IPCC report would be a useful target. The convening lead authors and chairs and co-chairs will meet soon. The nomination process has begun. The timing has not been decided but it is possible that it will be longer in the future than just five years.

In addition to IPCC relevance we need to address sustainability science issues with regional records on a range of timescales. Paleo needs to make itself relevant to this new area of science.

Action Item: M. Mann and J. Jouzel to remain aware of what happens in IPCC and to inform the WG leaders when would be a time to comment explicitly, for example on the working group not being in favour of a stand alone paleo chapter.

J. Overpeck stated that the Last 2000 years, including the Medieval warm period, is a tractable issue that we may wish to target as potential input to the next IPCC. Abrupt change is another important contribution for the next IPCC where paleo should play a role.

Action Item: A. Villwock and K. Alverson to ask every PAGES/CLIVAR workshop that CLIVAR and PAGES (respectively) endorse to address a small number of IPCC questions.

The PAGES/CLIVAR activity should consider to hold an open science meeting shortly before IPCC in order to provide the state of the art on questions of most relevance to IPCC.

What do we bring to IPCC?

Long-term perspective on instrumental records was a major part of the 2000 report.

For future reports should additionally address:

Decreasing the uncertainty in reconstructions of the forcings and patterns of change. This feeds into the detection problem.

In addition, K. Alverson pointed out that a contribution to Working Group 2. Ecosystem responses to climate change would also be appropriate since there is a robust paleo record of these. M. Claussen mentioned that this is an integral part of climate system dynamics.

3.5 Paleoclimate Modelling Intercomparison Project (PMIP)

The Paleoclimate Modelling Intercomparison Project (PMIP) was discussed extensively. Since this group serves is a joint WCRP/CLIVAR IGPB/PAGES activity. The panel recommended that PMIP should concentrate more on integrative modelling and transient runs in the early Holocene e.g. 7-4 kbp. In the context of the reorganization of PAGES, PMIP should be encouraged to provide their strategy for the next 5 years to the CLIVAR/PAGES working group leaders as a contribution to the CLIVAR/PAGES document that is being prepared by the leaders (see action item). Complementary approach should be considered with GCMs and EMICs. The GAIM task force strongly favours such an approach. The panel felt that a better connection between PMIP and CLIVAR/PAGES is required. One possibility would be to tie the next CLIVAR/PAGES Working Group meeting to the next PMIP meeting

Action item: K. Alverson to ensure if there are specific plans to hold a PMIP meeting in the near future and inform A. Villwock

M. Claussen introduced the EMIC (Earth System Models of Intermediate Complexity) working group, which has 11 member models with different levels of complexity and processes explicitly included. Paper in press at Climate Dynamics.

Action Item: K. Alverson to relay the WG suggestion that the PMIP organizers coordinate with the EMIC group. Ideal venue would be EGS at Nice, where the EMIC group meets annually.

3.6 ARTS (Annual Records of Tropical Systems)

J. Cole reported on another important PAGES/CLIVAR activity, the ARTS project ARTS has brought together a diverse interdisciplinary community working on tropical climate variability, but the project has not succeeded to get funded. The First ARTS Open Sciences Meeting will be held November 4-7, 2001, Nouméa, New Caledonia. K. Alverson mentioned that tasks and activities such as ARTS and PMIP need to state their goals, time frames and products and satisfy the PAGES/CLIVAR working group that they are on target.

Action item: CLIVAR/PAGES leaders to include an update on ARTS in their focus report to PAGES (see action item above).

3.7 Other issues

J. Overpeck introduced the recently formed US CLIVAR/PAGES committee, its members and the topics discussed at their last (the first) meeting. Elucidating those aspects of CLIVAR agenda that can most benefit from paleo contributions.

J. Overpeck suggested that a new US funding initiative in abrupt change is plausible as a result of the new high profile NAS panel report about to be released on this subject.

4. Future Activities

4.1 Rapid change dynamics Workshop

K. Alverson introduced the workshop on Abrupt Climate Change Dynamics which will take place November 10-15, 2001, Il Ciocco, Italy. The meeting seems to be on target. Planning is primarily being done by the ESF. There will be a need to revisit the budget and speaker's list soon.

Update from K. Alverson: 300 people applied to attend. There are 100 spots and only partial funding for those (about 60,000 euros in grants + money from conference fees from paying attendees). T. Stocker, K. Alverson and J.-C. Duplessy are in the process of deciding final attendance list.

4.2 Water (Hydrology Workshop)

J. Overpeck introduced a paleohydrology meeting proposed to be held in Tucson Az in 2002. J. Overpeck, K. Trenberth, and E. Cook are taking the lead. The meeting will focus on the Holocene, primarily the last 2000 years. Droughts will be the primary issue, a secondary focus will be on floods. Regionally, N. America, N. Africa/ Sahel, Middle East will be targeted. Implications for sustainability should be addressed.

Action Item: K. Alverson to try to set up communication line between J. Overpeck and R. Battarbee before the meeting in Aix-en-Provence to explore the interest of the HOLIVAR programme as a European initiative in the workshop planning.

Note: K. Alverson sent an email to R. Batarbee and J. Overpeck on 23/8/2001 in the hopes of arranging a meeting with both in Aix.

In addition or as a back-up (if funding for the drought meeting is not successful) the possibilities for a paleo-hydrology session at AMS (Jan 03) or AGU (Dec 02) should be explored.

The human dimension of the variability of the hydrological cycle should be included in the topics of the meeting; What if large changes as those observed in the last 2000 years would occur again?

4.3 High latitude processes

Eyestein Jansen has introduced possible Norwegian money and venue for a PAGES/CLIVAR meeting. Arctic high resolution climate variability modeling dynamics AO-NAO dynamics. J. Overpeck felt that a US contribution from Office of Polar Programs would be fairly likely. Tracer oceanographers (Peter Schlosser), Arctic hydrology. Sea ice thinning. First part of September, 2002.

Action item: J. Overpeck to send an official letter. Expressing the committees support to E. Jansen in order for him to go ahead with his national support sources.

4.4 Other planned activities relevant to PAGES/CLIVAR

CLIVAR plans an Open Science Meeting in late 2003 early 2004, venue to be decided.. PAGES plans an Open Science Meeting in May 2004 in Peking.

4.5 Carbon

Neither PAGES nor CLIVAR does not have a group or entity focusing on the carbon cycle. There was some discussion whether PAGES/CLIVAR should be facilitating this. The panel felt that this is probably not appropriate. Nevertheless PAGES should be encouraged to interact with this community. PAGES should be playing a more active role in the carbon cycle community. **Recent developments:** The CLIVAR Project Office now has staff expertise in ocean carbon (Daniela Turk) and it is very likely that CLIVAR will also have a focus on carbon in the future.

Action: K. Alverson to convey the WG recommendation to the PAGES SSC suggesting that they deal better with biogeochemical cycles. Find a leader and get involved.

4.6 Isotopes

J. Jouzel: The isotope initiative initiated by H. Oeschger and H. Grassl. The group decided to push this as a CLIVAR/PAGES initiative to understand the link between water isotopes and climate.

Action item: K. Alverson to send a letter on behalf of the CLIVAR/PAGES working group to the October GNIP SC meeting expressing strong support for the GNIP and the enormous scientific value for both the paleo and climate dynamics communities.

4.7 Southern Hemisphere

Most of the paleoclimate data sets are collected in the Northern Hemisphere and the tropics. Nevertheless, there are some interesting paleo data for the SH (e.g. ice cores, sediments and tree rings). Thus, PAGES/CLIVAR will try to initiate an activity on paleo data in the Southern Hemisphere. The Working Group felt that this activity should be coordinated with the CLIVAR Southern Ocean implementation panel which is currently

being formed. A representative of the paleo community from a SH country would be beneficial. PAGES/CLIVAR will try to initiate an initiative. In addition, PAGES/CLIVAR will explore the possibility to organize a workshop with a special focus on the Southern Hemisphere, if possible as a joint activity with the CLIVAR Southern Ocean Panel.

Action item: M. Mann and J. Jouzel to take the lead in exploring the possibility to hold such a workshop in collaboration with the new CLIVAR Southern Ocean Panel as a potential joint effort.

4.8 Tropics

There is an ARTS meeting in Noumea coming up in November (see above). 30-40 people envisioned. In addition, a ‘Monsoon – ENSO connections workshop’ might be a good idea.

4.9 Impacts

Deal with both human and ecosystem impacts. At the PAGES/CLIVAR open science meeting should have a session with stakeholders discussing the ‘what ifs?’ Develop paleo scenarios and discuss the impacts. Involve the stakeholders in all our workshops leading up to the open science meeting. Climate forecasts are only of use if they are relevant to impacts and stakeholders.

M. Claussen informed that there would be a Paleo perspective on sustainability workshop to be held in Potsdam in October. There are four workshops organized around announcing a new building/computer in Potsdam. This is a GAIM event.

4.10 Data

CLIVAR/PAGES looks forward to seeing the PAGES Data board. We could be proactive and try to involve representation from the data board at CLIVAR/PAGES working group activities.

A. Villwock suggested that the CLIVAR community provide feedback on how to make this data more useful and available to them.

J.- C. Duplessy pointed out that the PANGAEA database is hard to extract data from both technically and due to password protections even when original data have been published in the international literature. A simple format for data storage and retrieval common to PANGAEA and NGDC would facilitate the work of the PAGES community. It should be stressed that this problem is not only dealing with Paleo-data. All the WOCE temperature-salinity profiles are still not available in open data-base although WOCE cruises are over since many years.

M. Mann reports that WDC-A is having its funding cut and will have to cut staff. We should send a note to Greg Withey cc to Mary Blacken at NESDIS, and others.

Action: J. Overpeck to write draft letter regretting the cutting of WDC-A funding and send it to K. Alverson and A. Villwock. J. Overpeck to tell K. Alverson and A. Villwock to whom the letter should be sent.

K. Alverson and A. Villwock to send the final letter from PAGES and CLIVAR in hardcopy respectively.

J. Cole pointed out that the US and Germany have data submission policies, do other countries?

5. Other business

K. Alverson pointed out the value to CLIVAR/PAGES of having a person continually working on a website and writing proposals. Although he has done this in the past he no longer has the time to commit. He suggests that a Postdoc somewhere needs to be convinced this is important. He pointed out the possibility of having a Postdoc in India, for example at the Pune Meteorological Institute, do this which may be both cheap and efficient and beneficial to all concerned. Nobody seemed interested in following Microsoft's lead on this one.

5.1 Next meeting

We should poll the working group and decide which of our workshops – either PMIP, in Paris, Polar meeting in Norway or Hydrology meeting in Tucson to piggy back on. It was agreed that we should meet at least once a year, but no specific details on the next meeting were decided.

Appendix 1:

List of Participants

Dr. Jonathan Overpeck
Institute for the Study of Planet Earth
University of Arizona
715 N Park Ave.
Tucson AZ 85721
U.S.A.
Phone: +1 520 622 9065
Fax: +1 520 792 8795
jto@u.arizona.edu

Dr. Jean-Claude Duplessy
LSCE
Parc du CNRS
F - 91198 Gif-sur-Yvette Cedex
France
Phone: +33-1-69-82-3526
Fax: +33-1-69-82-3568
jean-claude.duplessy@cfr.cnrs-gif.fr

Dr. Keith Alverson
PAGES Project Office
Universität Bern
Bärenplatz 2
3011 Bern
Switzerland
Phone: +41-31-312 31 33
Fax: +41-31-312 31 68
keith.alverson@pages.unibe.ch

Dr. Julia E. Cole
University of Arizona
Department of Geosciences
Tucson, AZ 85721-0077
U.S.A.
Phone: +1-520 626-2341
Fax: +1 520 621 2672
jcole@geo.arizona.edu

Dr. Martin Claussen
Potsdam Institute for Climate Impact
Research
Head of Dept. Climate System
Postfach 60 12 03
Telegrafenberg, Bldg.C4
D - 14412 Potsdam
Germany
Phone: +49-331-288-2522
Fax: +49-331-288-2600
claussen@pik-potsdam.de

Dr. Jean Jouzel
Lab. de Modelisation d. Climat et de
l'Environnement
Centre d'Etudes de Saclay
Orme de Merisiers, Bat 709
F-91191 Gif sur Yvette Cedex
France
Phone: +33-1-69 08 7713
Fax: +33-1-69-087716
jouzel@asterix.saclay cea.fr

Dr. Michael E Mann
Dept. of Environmental Sciences
University of Virginia
Clark Hall
Charlottesville VA 22903
U.S.A.
Phone: +1 804 924 7770
Fax: +1 804 982 2137
mann@virginia.edu

Dr. Andreas Villwock
International CLIVAR Project Office
c/o Institut für Meereskunde
Düsternbrooker Weg 20
D-24105 Kiel
Germany
Phone: +49-431-600-4122
Fax: +49-431-600-1515
avillwock@ifm.uni-kiel.de

Unable to attend

Dr. Ayako Abe-Ouchi
Centre for Climate System Research
University of Tokyo
4-6-1 Komaba
Meguro-ku Tokyo 153
Japan
Phone: +81 3 5453 3950
Fax: +81 3 5453 3964
abeouchi@ccsr.u-tokyo.ac.jp

Dr. Keith Briffa
Climatic Research Unit
University of East Anglia
University Plain
Norwich, NR4 7TJ
United Kingdom
Phone: +44-1603-592090
Fax: +44-1603-507784
k.briffa@uea.ac.uk

Dr. Mark Cane
Lamont-Doherty Earth Observatory
Columbia University
P.O. Box 1000
Palisades, NY 10964-8000
U.S.A.
Phone: +1-845-365-8344
Fax: +1-845-365-8736
mcane@ldeo.columbia.edu

Dr. Michael Gagan
Research School of Earth Sciences
The Australia National University
Canberra ACT 0200
Australia
Phone: +61-26-249-5926
Fax: +61-26-249-0738
michael.gagan@anu.edu.au

Dr. Sylvie Joussaume
Lab. de Modelisation d. Climat et de
l'Environnement
Orme de Merisiers, Bat 709
24 rue Lhomond
F-91191 Gif sur Yvette Cedex
France
Phone: +33-1-69 08 5674
Fax: +33-1-69-087716
syljous@lmce.saclay.cea.fr

Dr. Thomas Stocker
Universität Bern
Climate & Environmental Physics
Sidlerstr. 5
CH-3012 Bern
Switzerland
Phone: +41-31-631-4462
Fax: +41-31-631-8742
stocker@climate.unibe.ch