

Dear 2kers

In this circular we report on the strategic 2k Network Meeting that was held in Bern this July, the decisions that were taken regarding the future activities of the consortium, and related meetings and products. We also elaborate on the activity of the regional 2k groups and their structure, and on upcoming deadlines for PAGES workshop support.

The PAGES Scientific Steering Committee (SSC), at its annual meeting (July, 2011), nominated Chris Turney (also a SSC member) as co-coordinator of the PAGES 2k Network, alongside Heinz Wanner. Chris is an Australian Research Council Laureate Fellow and Professor of Climate Change at the University of New South Wales. We welcome Chris in his new role as 2k co-coordinator!

This circular is being sent to all group members listed in section 8. Feel free to forward it to Working Group corresponding members and interested colleagues.

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1) THE 2ND 2K NETWORK MEETING IN BERN, JULY 2011

The 2nd PAGES 2k Network Meeting took place in Bern, Switzerland, on 28 July 2011, the day after the XVIII. INQUA Congress. A total of 31 participants attended the meeting. The participant's list and some of the group presentations can be found in the PAGES2k dropbox folder (see section 4). Below is a summary of the discussions and the decisions taken by the plenary:

After the welcoming address by the PAGES director Thorsten Kiefer, the PAGES 2k coordinator Heinz Wanner gave an introduction on the scientific objectives, the concept and the schedule of the PAGES 2k project. This was followed by group and guest presentations, and by discussions in the afternoon.

The eight Regional 2k Groups

Representatives of the eight regional groups summarized their respective past activities, the results achieved since the first meeting in Corvallis in July 2009, and their possible contributions to the planned PAGES 2k consortium paper: Mohammed Umer (Africa2k), Tas van Ommen (Antarctica2k), Sami Hanhijärvi (Arctic2k), Takeshi Nakatsuka (Asia2k), Joelle Gergis (Aus2k), Jürg Luterbacher and Jesus Fidel Gonzalez-Rouco (Euro-Med2k), Henry Diaz (NAM2k), Martin Grosjean (LOTRED-SA). Despite the difficulties encountered by several groups in identifying and processing significant high-resolution proxies, the participants were impressed by the progress made within each group. Not surprisingly, the discussion was centered on how to include and compile the best data in the available time, and how to organize the rapidly growing global data set.

Modified Paleoclimate Reconstruction (PR) Challenge

Eugene Wahl (NOAA, USA) presented the modified concept and first available datasets of the PAGES-CLIVAR Paleoclimate Reconstruction (PR) Challenge. The attending PR Challenge co-leaders Eugene Wahl and Nicholas Graham invited all meeting participants to participate in the PR Challenge. A report on the PR Challenge was published in the last PAGES news 19(2): 71-72.

PMIP3 and other last millennium simulations

Hugues Goosse shared information on the existing/planned simulations being carried out by the PMIP3 community and by groups working with EMICs. He and Bette Otto-Bliesner expressed their interest in collaborating with the 2k reconstruction community. *Decision: Within the framework of the 2k synthesis, a close collaboration with the modeling community is fundamental. It is still open whether model simulations will be ready for inclusion in the 2k consortium paper next year, but close collaboration with the modeling community is definitively planned for the final 2k synthesis.*

The NOAA Paleoclimate Database

Eugene Wahl offered that NOAA supports the 2k climate reconstruction process by hosting the 2k datasets. They are ready to adapt their Paleoclimate data bank to the needs of the 2k groups.

Decision: Each regional group appoints a data manager. All data managers will meet at a workshop in Boulder (Colorado) on Dec. 1 and 2, 2011 (see section 3).

Consortium paper on 2k regional temperature reconstructions

A longer discussion focused on two key questions:

- Is it possible to carry out reliable temperature reconstructions in each regional team within such a short time?
- Wouldn't it make more sense to reconstruct precipitation (e.g. for Africa)?

Decision: The plenary decided to start with temperature reconstructions first because it is likely to be most useful for consideration in IPCC AR5, and to retain the current momentum of the 2k project. A strong emphasis on precipitation will be set for the final 2k synthesis. See section 2 for details on the timeline for the 2k Consortium paper.

Ocean2k group

Following a suggestion by Mike Evans, the 2k plenary decided to start an initiative to form a working group on high-resolution paleoceanographic reconstructions of the last 2k. It is still open whether this group will be able to deliver a first result for the consortium paper.

Decision: The plenary decided to form an Ocean2k reconstruction group. The PAGES IPO, in contact with Mike Evans, will immediately start assembling the core team.

Final 2k reconstruction synthesis

The 2k plenary discussed the schedule (see section 7) and the goals for the final 2k reconstruction synthesis. A strong effort will be made to carry out significant regional precipitation reconstructions and to study relevant circulation patterns and modes. In addition, the collaboration with the modeling activities will have to be implemented and organized.

Decision: A first draft on the organization of the synthesis process will be sent out after the meeting of the drafting team in May 2012 (see below). Final decisions will be taken at the 3rd 2k Network synthesis meeting in 2013.

In the evening all participants enjoyed a delicious dinner in the restaurant Marzilibrücke in Bern.

2) CONSORTIUM PAPER ON T-RECONSTRUCTIONS (IPCC AR5)

At the meeting in Bern, it was agreed that the 2k Network should work towards a consortium paper for the 31 July 2012 manuscript submission deadline of IPCC AR5. To meet this target, a firm timeline was set up:

To provide enough time for the writing team to produce a meaningful synthesis, it was agreed that drafts of the regional time series and accompanying explanatory text sections should be completed by January 2012.

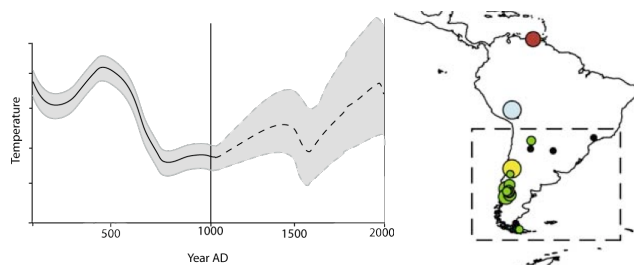
A small writing team will be formed and work iteratively by email to produce a first order draft of the manuscript. In May 2012, the writing team will meet in Bern and work towards a submission by 20 July 2012. The draft will be circulated among the regional groups at all stages.

Each regional group is asked to provide:

- 1) Reconstruction data and graph, both with indication of uncertainties
- 2) Table listing the proxy records used for the reconstruction. Columns must include: Type (and name) of the proxy, location (coordinates), length (in time), resolution, and reference to original work.
- 3) Short text describing the methods used to create the reconstruction.

It was acknowledged that the contribution of the regional groups might differ in terms of quality, temporal range, and spatial coverage. Therefore, information should be given on the spatial coverage and uncertainties in the time series, e.g. as illustrated in the graph below.

Also, a map showing the location of the proxy data, their type (e.g. color or symbol) and length (e.g. size of the symbol) could be useful to visualize the proxy data coverage (example from Neukom et al. 2010, *Clim Dyn*; <http://dx.doi.org/10.1007/s00382-010-0793-3>). The writing team could produce such maps for every region based on the provided proxy table.



Some regional groups have also announced that they will work on an additional paper describing the time series, the proxy records used and the methods in more detail. We encourage all regional groups to produce such a paper, which can then be used as reference for the consortium paper.

Summary timeline for the 2k-Consortium paper on T-reconstruction:

- 1-2 December 2012: Regional data managers meeting in Boulder (section 3)
- January 2012: Submission deadline for the regional synthesis drafts
- May 2012: Writing team meeting in Bern
- 20 July 2012: Submission deadline

3) DATA MANAGEMENT MEETING

As decided during the 2k Network Meeting in Bern, a data manager meeting hosted by Eugene Wahl and David Anderson will be held on December 1-2, 2011 at the NOAA-paleoclimatology office in Boulder Colorado, USA. The date was chosen to accommodate participants attending the AGU fall meeting in San Francisco on December 5-9.

The goal of this meeting is to finalize the data management and archiving of the entire 2k Network dataset at the NOAA data center. Prior to the meeting, the data management

group will work in on-line discussions on a provisional framework for the database and on testing the format. The meeting will then be used to decide on the final structure of the database, discuss problems and input the regional datasets. Therefore, the bulk of the regional dataset should be collected prior to the meeting, and the regional data managers should bring them along.

Please be reminded that according to the free and open exchange data policy as implemented by the US (and many other) National Science Foundations, IPCC and PAGES (as project of IGBP), all proxy data series used for regional climate reconstructions must be made available on a publicly accessible database such as the NOAA data center.

Further topics for the meeting:

- Data format/categories (for input and for users)
- Data submission scheme
- Data visualization/display

The following data managers have been nominated:

1. **Africa2k**: Brian Chase (brian.chase@univ-montp2.fr)
2. **Antarctica2k**: Mark Curran (Mark.Curran@aad.gov.au)
3. **Arctic2k**: Sami Hanhijärvi (sami.hanhijarvi@helsinki.fi)
4. **Asia2k**: Masaki Sano (sano.masaki@b.mbox.nagoya-u.ac.jp)
5. **Aus2k**: Joelle Gergis (jgergis@unimelb.edu.au)
6. **EuroMed2k**: Sebastian Wagner (sebastian.wagner.info@gmx.de)
7. **LOTRED2k**: Ignacio Mundo (iamundo@lab.cricyt.edu.ar)
8. **Nam2k**: Eugene Wahl (Eugene.R.Wahl@noaa.gov) and André Viau (aviau@uOttawa.ca)

4) 2K NETWORK DROPBOX FOLDER

We have set up a “dropbox” folder for the 2k Network project. The files are not public and only accessible by the invited 2k Network members. To have access to the 2k Network folder, accept the email invitation. If you have not received an invitation yet or if you know somebody that should be added, please contact Lucien von Gunten. He is administering the 2k dropbox.

The folder includes files of general interest such as a member list, meeting files and circulars. Feel free to use this space to add, share or update files that are relevant to the 2k Network. Please note that all users can add, modify and delete the files in the shared folder. Also, ensure that you duplicate the file(s) of interest to you rather than to drag them from the folder, as this would remove the file from the dropbox folder. We will make a backup of the folder from time-to-time.

2k Regional group dropbox folders:

Dropbox (or similar alternatives) is an efficient way to share “private” files. We therefore encourage the regional groups to create a shared folder for their members.

5) REGIONAL 2K GROUP ACTIVITIES: UPDATE

Euro-Med2k

The Euro-Med2k group agreed to write a review paper including a comprehensive assessment of proxy data available from the European-Mediterranean area covering the past 2k. In addition, a book chapter on the Mediterranean2k (evaluation of available terrestrial and marine proxies and the potential for climate reconstructions) is in press with Elsevier.

At a later stage, other initiatives of the group will include a data-model comparison paper using the new statistical based reconstructions from Europe-Mediterranean covering the past 2k with new paleoclimate runs that will become available.

A next Europe/Med2k meeting is planned for early 2012 and a session “Multi-proxy climate evidence of the last two millennia” has been included in the EGU 2012 skeleton program (PAGES2k contributions will be much welcomed).

Arctic2k

The Arctic2k group is currently focused on producing a reconstruction of the spatial and temporal variability of the Arctic climate, with a comparison to the instrumental records of the recent past. To this end, the group is continuously gathering available high-quality proxy records from the Arctic region. The group is planning a meeting in Helsinki in November 2011 to discuss the collected proxy records, the current state of the reconstructions and to finalize the plans for a publication. The aim is to produce an article in time to be available for the IPCC AR5 writers.

Aus2k

Following the 2nd Aus2k workshop in Perth in April 2011, the group is now preparing submissions for a special issue of Journal of Climate (deadline 15 October 2011). The issue will include a high-resolution multi proxy warm season temperature reconstruction spanning the last millennium, which will form Aus2k's contribution to the Regional 2k network consortium temperature paper.

The group has secured Australian federal funding support to employ a research support (Raphael Neukom until 2012) and NOAA funding to help cover page charges associated with the special issue. Most recently, an Australian Cooperative Research Network grant announced funds to support a research fellow at the University of Melbourne to work on ‘Decadal climate variations in climate proxy records’, a project aimed at compiling the regions low resolution records for the Aus2K initiative.

NAm2k

Following presentations given at the PAGES 2k network workshop in Bern on 21 July 2011, it was agreed that the Arctic2k and NAm2k activities would be closely

coordinated. Eugene Wahl has agreed to serve as a point person to establish a database focal point at the NOAA/NCDC Paleoclimatology site in Boulder, CO.

For North America, the bulk of the paleodata available for climate reconstructions covering the past 2000 years comes from tree rings. A number of field reconstructions covering this period have already been published, and the efforts of NAM2k will be focused on evaluating possible methodologies to utilize the existing information in the 2k framework.

The next NAM2k meeting will be held in Tucson, USA (30 Oct–2 Nov 2011) and will mainly focus on the dendroclimatology record. The workshop, led by the “tree-ring evaluation group” will have the following goals: to compile relevant paleodata, produce a roadmap to develop spatiotemporal analysis maps for different regions, and explore the potential of combining lower-frequency data (e.g. pollen). A timetable for developing reconstruction products will be established during this meeting.

Antarctica2k

The first workshop of the PAGES Antarctica2k Working Group was held on 19-20 July 2011 at the University of Bern. This meeting made a successful start with regard to building a community for reconstruction and the development of a plan to undertake the reconstructions in the PAGES 2k Network timeframe. The participants resolved to make a priority of an Antarctic temperature reconstruction. This will be based on data that can be assembled, cross-dated and quality controlled by the end of October. These records will be synthesized and a product derived by January 2012. While the synthesis will be based on highly resolved ice core records, the Working Group intends to combine the record with lower-resolution data from less-well resolved ice cores and non-ice core proxies to explore lower frequency variability and make qualitative assessments of change.

Later in the PAGES 2k Network timeframe the Antarctica2k group will investigate reconstructions for other variables including precipitation. Three subgroups were established to progress the work of the Antarctica2k effort: a data group led by Mark Curran is assembling the input records and dealing with dating and quality control, a synthesis group led by Tas van Ommen will drive the actual high-resolution reconstruction and a ‘non-ice’ proxy group led by Dominic Hodgson is working on the complementary lower-resolution records.

Africa2k

The Africa2k group met in Bern on 23 July 2011. The meeting mainly focused on the planning of outputs and of the synthesis, and coordinating the contribution to the metadata base. Three publications are in preparation or planned: The first will focus on “temperature variability in Africa” and line up with the timeline needed for IPCC AR5.

It was discussed that it would be very difficult for the Africa 2k group to write a review that extended much beyond the instrumental period, as bulk of temperature records do not extend much beyond the instrumental period. Therefore, the paper will use the

GHCN dataset as a starting point and complement it with proxy records. The second and third paper will compare key proxy records over the past 2ka, and discuss climate variability during the past 500 years.

Asia2k

The Asia2k Working Group held its first workshop on 26-28 August 2010 at Nagoya, Japan to elucidate the present state of 2k reconstructions in Asia and find potential contributors to the group. On the basis of discussions at this workshop and at the 2nd Asia Dendrochronological Conference (20-23 August 2011, Xi'an, China) the group has decided to start with the integration of annual resolution records of past climate, such as tree rings, corals, stalagmites and historical documents, using the Monsoon Asia Drought Atlas (MADA) framework from Cook et al. (2010).

The group has also started to find potential contributors to Ocean 2k from the regions of Northwestern Pacific Ocean, Indian Ocean and their marginal seas. The 2nd Asia 2k workshop will be held on 9-10 January 2012 in Chiang Mai, Thailand.

LOTRED South America

LOTRED SA is producing a special issue for *Climate of the Past*: "Climate Variations in South America over the last 2000 years" with a Sep 2011 deadline for submissions. Upcoming activities and workshops are being discussed at the moment.

6) 2K NETWORK SESSIONS AND PRESENTATIONS

AGU sessions

Two 2k-relevant, PAGES co-sponsored sessions were accepted at the 2011 AGU Fall meeting in San Francisco, USA (Dec 5-9): *Climate of the Common Era*, by Anchukaitis et al. (PP28) and *Arctic climate and environmental change through the Holocene*, by Balascio et al. (PP14). These sessions received 45 (PP28) and 34 (PP14) abstracts respectively (view the abstracts: <http://sites.agu.org/fallmeeting/scientific-program/>).

WCRP Open Science Meeting poster

A poster at the PAGES/CLIVAR session C18 "Using Paleoclimate Observations and Analysis for Improving Earth Systems Prediction" at the WCRP Open Science Meeting (24-28 October 2011, Denver, USA; <http://www.wcrp-climate.org/conference2011/>) will present the PAGES 2k Network and the status of data compilation and climate field reconstruction across all eight regions.

7) UPCOMING MILESTONES

- 2011/2012: Regional meetings of regional 2k Working Groups
- 2012: Temperature publication by 2k Consortium
- 2013: 3rd PAGES 2k Network synthesis meeting
- 2014: Publication of 2k synthesis journal/book

8) MEMBERSHIP OF THE REGIONAL 2K GROUPS









Organizational structure of the regional group members:

a) Group Leaders (GL): The GL coordinate the work of their group. They submit funding proposals and organize regional group workshops. They represent their group at the global PAGES 2k workshops.

b) Group Members (GM): GMs participate in the work of the group. They help to process data and contribute to publications. If required, they can be invited to replace a GL at a global PAGES 2k workshop.

c) Data Managers (DM): DM's administer the regional proxy datasets. They coordinate the collection, quality assessment and archiving of the proxy data records.

d) Corresponding members (CM): CMs are invited to attend regional workshops. They contribute to the scientific 2k process in an ad hoc way and are not listed in the following table. The comprehensive list of all Corresponding Members can be found online on the respective 2k groups' webpages.

REGIONAL GROUP	GROUP LEADERS (GL)	GROUP MEMBERS (GM)	DATA MANAGER
 AFRICA2K	D. Nash, M. Umer	A. Asrat, B. Chase, S. Grab, A-M. Leziné, S. Nicholson, T. Shanahan, D. Verschuren	B. Chase
 AUS2K	J. Gergis	A. Lorrey, S. Phipps	J. Gergis
 ASIA2K	T. Nakatsuka	H. Borgeonkar, B. Buckley, E. Cook, Q. Ge, J. Palmer, M. Sano, R. Shankar, O. Solomina, M-T Chen	M. Sano
 ARCTIC2k	A. Korhola	S. Hanhijärvi, P. Francus, D. Kaufman, D. Klitgaard-Kristensen, K. Kreutz	S. Hanhijärvi
 ANTARCTICA2K	T. van Ommen	M. Curran, H. Fischer, D. Hodgson, V. Masson-Delmotte, L. Thomas, B. Vinther	M. Curran
 EURO-NEED2k	J. Luterbacher	D. McCarroll, F. Gonzalez-Rouco, B. Vinther, S. Wagner, E. Zorita	S. Wagner
 LOTRED-SA	M. Grosjean, R. Villalba	R. Neukom, I. Mundo	I. Mundo
 NAM2K	H. Diaz	S. Anderson, E. Cook, N. Graham, M. Hughes, D. Kaufman, B. Luckman, D. Meko, G. Pederson, S. Stahle, S. St George, V. Trouet, A. Viau, E. Wahl	E. Wahl, A. Viau
2k Network collaborators		H. Goosse, M. Evans, F. Charpentier-Ljungqvist	

The group leaders are asked to report changes in the members list to the PAGES IPO.

9) MEETING SUPPORT

Regional 2k groups seeking support for meetings can submit a proposal to PAGES (visit [MyPAGES>Meeting Support](#)). **The next deadline for proposal submission is 1 November 2011, with the following call closing on 1 March 2012.** For workshops that require a funding decision to be made before the next funding call deadline, a “Fast-Track” option exists.