

Figure 1: Nineteenth-century climate chronologies for southern Africa, including tree-ring based rainfall reconstructions for Zimbabwe (**orange**; bold line is a 10-a running mean; Therrell et al., 2006) and Karkloof (South Africa) (**green**; Hall, 1976), the speleothem record of regional hydrology from Cold Air Cave (South Africa) (**blue**; Holmgren et al., 1999) and document-derived rainfall reconstructions from the southern Kalahari Desert (Nash and Endfield, 2002a, 2008), Namaqualand (Kelso and Vogel, 2007), the Eastern and Southern Cape (Vogel, 1989) and Lesotho (Nash and Grab, 2010). Gaps in the documentary records are unclassified years. Widespread drought (**green shading**) occurred in 1820–21, 1825–27, 1834, 1860–62, 1874–75, 1880–83 and 1894–1896 (Kelso and Vogel, 2007), with an additional dry period from the early- to mid-1840s affecting the Kalahari and Zimbabwe only (Nash and Endfield, 2002b; Therrell et al., 2006).

ments in western Central Africa (Ilham Bentaleb); climate of the past 2 ka and impacts in Ethiopia (Mohammed Umer); decadal-scale rainfall variability in Ethiopia recorded in annually laminated Holocene-age stalagmites (Asfawossen Asrat); climate variability in central and eastern equatorial Africa over the past two millennia (Dirk Verschuren); and high-resolution palaeoenvironmental records from southern Africa (Brian Chase). This was a truly in-

teractive workshop, with much discussion during the presentations themselves keeping both speakers and audience on their toes. Broader discussion after each block of talks focused on internal and external mechanisms of climate variability and emphasized the role of oceans, land-surface changes, and atmospheric circulation. It was stressed that the geographically complex climate of Africa requires thorough consideration of regional climate regimes

and the exact timing of climate shifts. For this a reference map showing homogeneous modern climate regions will be established (by Sharon Nicholson) on which existing sites of paleodata for the last 2 ka will be plotted. This will reveal spatial gaps as well as show how patterns of regional variation at different times in the past compare to present-day regional patterns. During discussions it was also pointed out that the geographical boundary of Africa 2k should include Yemen and the Arabian Peninsula, and also the Sahara. Finally the group discussed a spreadsheet format for the compilation of available datasets holding all existing site and metadata information. Later, this will be filtered and reduced to include only those data that fit strict criteria for their dating reliability and time resolution. Brian Chase will lead this task. The data will be further structured into two partial datasets; those dealing with the last 2 ka at decadal- to century-scale resolution, and those that cover the last 200 years at annual resolution.

The next meetings of the Africa 2k Working Group will be conducted during the 3<sup>rd</sup> East African Quaternary Association meeting in Zanzibar, Tanzania, 8-13 Feb 2011, and the 18<sup>th</sup> INQUA Congress in Bern, Switzerland, 20-27 July 2011.

## References

- Kelso, C. and Vogel, C.H., 2007: The climate of Namaqualand in the nineteenth century, *Climate Change*, **83**: 357–380.
- Nash, D.J. and Endfield, G.H., 2002a: A nineteenth century climate chronology for the Kalahari region of central southern Africa derived from missionary correspondence, *International Journal of Climatology*, **22**: 821–841.
- Nash, D.J. and Endfield, G.H., 2008: 'Splendid rains have fallen': links between El Niño and rainfall variability in the Kalahari, 1840–1900, *Climate Change*, **86**: 257–290.
- Nash, D.J. and Grab, S.W., 2010: 'A sky of brass and burning winds': documentary evidence of rainfall variability in the Kingdom of Lesotho, Southern Africa, 1824–1900, *Climatic Change*, **101**: 617–653.
- Vogel, C.H., 1989: A documentary-derived climatic chronology for southern Africa, 1820–1900, *Climate Change*, **14**: 291–306.

For full references please consult:

[http://www.pages-igbp.org/products/newsletters/ref2010\\_2.html](http://www.pages-igbp.org/products/newsletters/ref2010_2.html) 

## PAGES regional workshop in Japan

Nagoya, Japan, 5-6 June 2010

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Due to its unique language, culture and geographical isolation, it is frequently mentioned that Japanese do not often play major roles in international societies, including political and scientific areas. In fact, the average Japanese scores of international English communication tests (e.g., Test of English for International Communication) are almost worst in the world.

In addition, young Japanese scientists rarely move to foreign countries because they worry about job opportunities upon returning to Japan. Yet, Japanese people have created many industrial and academic products, some of which are very unique and have been analogized with the isolated and specialized evolution of life on the Galapagos Islands. Likewise,

in Japanese paleoscience, there are also some unique research products that are rarely shared with the international paleoscience community. This PAGES Regional Workshop, held at the Noyori memorial conference hall, Nagoya University (prior to the PAGES Scientific Steering Committee (SSC) meeting), was designed to introduce the variety of Japanese paleosci-

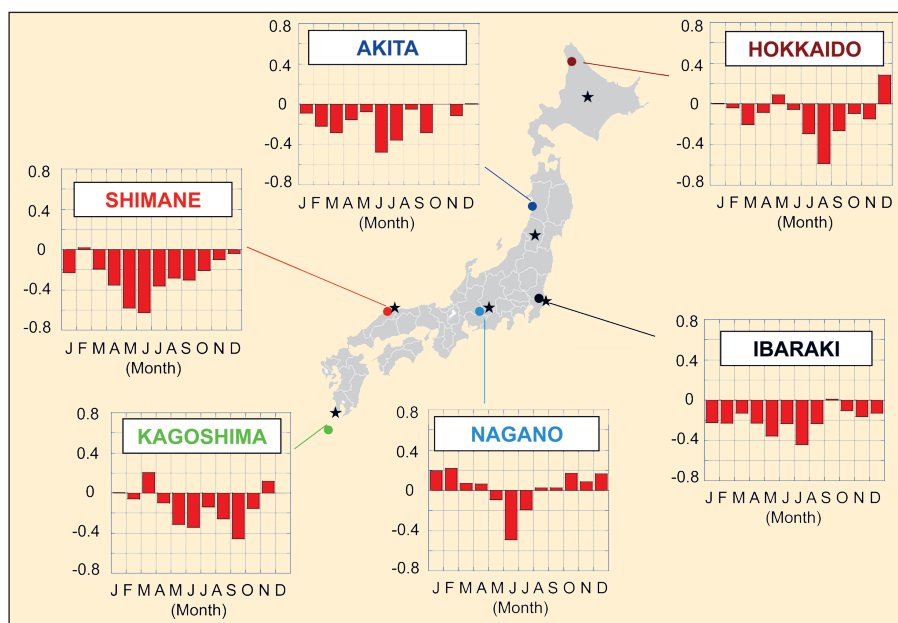


Figure 1: A new network of tree-ring cellulose oxygen isotopic ratios from Japan (Nakatsuka et al., unpublished). Correlation coefficients between the tree-ring cellulose  $\delta^{18}\text{O}$  and monthly mean relative humidity observed at meteorological stations (stars) close to the sample sites during recent 50 years show that tree-ring cellulose  $\delta^{18}\text{O}$  has a clear negative correlation with relative humidity during its growing season. This indicates that tree-ring  $\delta^{18}\text{O}$  can be a useful proxy of summer monsoon activity in Japan. Due to reduced sensitivity of tree-ring width to moisture, it is difficult to reconstruct Japanese summer hydroclimate based on traditional dendrochronological methods. Thus tree-ring cellulose  $\delta^{18}\text{O}$  provides a new option, and will be important in contributing to Japanese records for the PAGES Asia 2k reconstruction Working Group.

ence to the PAGES SSC and enhance the collaboration between the Japanese and international paleoscience communities.

84 scientists and students, including the international scientists from the PAGES SSC, attended this workshop with 21 oral and 47 poster presentations. Oral sessions consisted of keynotes by SSC members to introduce PAGES 4 scientific Foci and Cross-Cutting Themes (CCTs), followed by presentations by Japanese paleoscientists on recent research activities relating to each Focus or CCT. All fields of paleosciences were represented in this workshop, demonstrating that in Japan there is a full lineup of paleoscience research, corresponding to all of PAGES activities. Af-

ter a brief introduction to PAGES science (T. Kiefer), two topics relating to Focus 4 (Human-Climature-Ecosystem Interactions: J. Dearing) were presented, highlighting the impact of preindustrial cultivation upon Asian monsoon climate (T. Yasunari) and the historical human-nature interactions in Japanese Archipelago (T. Yumoto). After lunch, several topics within Focus 2 (Regional Climate Dynamics: H. Wanner) and CCT 2 (Proxy Development, Calibration and Validation: F. Abrantes) were presented, including IMAGES research around Japan (H. Kawahata), Himalayan glaciers and ice cores (K. Fujita), NW Pacific coral records in the early 20<sup>th</sup> century (A. Suzuki), tree-ring oxygen isotopic network

in Japan (T. Nakatsuka; Fig.1 shown just as an example of ongoing research in Japan), and Japanese documentary based paleoclimate studies (M. Zaiki). The next morning followed on from lively discussions between Japanese scientists and SSC members at an evening reception, with two sessions, relating to Focus 1 (Climate Forcings: B. Otto-Bliesner, C. Whitlock) and CCT 3 (Modeling: B. Otto-Bliesner). Presentations included topics of Holocene sea level changes (Y. Yokoyama), impacts of historical solar activity on climate change (H. Miyahara), and perspectives on glacial-interglacial modeling in Japan (A. Abe-Ouchi). Finally, in the afternoon, Focus 3 (Global Earth-System Dynamics: T. Kiefer) and CCT1 (Chronology: P. Francus, S. Colman, C. Turney) were covered with presentations on Dome Fuji ice core analyses (K. Kawamura), millennial-scale Asian monsoon dynamics (R. Tada), North Pacific overturning at the last glacial termination (Y. Okazaki), and *Emiliania huxleyi* blooming and global geochemical cycles (N. Harada).

Oral and poster presentations by Japanese paleoscientists not only demonstrated the high level of their academic findings but also suggested the potential for international contributions in the near future. As a result of this workshop, it was shown that Japanese paleoscience is of a high international level and efforts should be made for better integration of Japanese paleoscientists, and for Japanese young paleoscientists to enhance their international contributions, even though isolated circumstances, such as the "Galapagos Island" effect, may continue produce some unique creatures or some unique science...



## PAGES Calendar 2010/2011

### 3<sup>rd</sup> Past Interglacials (PIGS) Workshop

20 - 22 Oct 2010 - New York, USA  
<http://www.pages-igbp.org/calendar/>

### PAGES Arctic 2k Workshop

11 - 12 Dec 2010 - San Francisco, USA  
<http://www.pages-igbp.org/calendar/>

### Land-cover reconstructions in the monsoon affected tropical world - pollen modeling approach and data synthesis

27 - 29 Jan 2011 - Puducherry, India  
<http://www.pages-igbp.org/calendar/>

### 3<sup>rd</sup> EAQUA Workshop

8 - 13 Feb 2011 - Zanzibar, Tanzania  
<http://www.pages-igbp.org/calendar/>

### 18<sup>th</sup> INQUA Congress

20 - 27 Jul 2011 - Bern, Switzerland  
<http://www.inqua2011.ch/>

### 2<sup>nd</sup> Workshop of PAGES Regional 2k Initiative

28 July 2011 - Bern, Switzerland  
<http://www.pages-igbp.org/calendar/>