

Day 1, Thursday 19 March 2015

All presentations of day one are archived on the [workshop webpage](#).

➤ Introduction

- Opening remarks (Takeshi Nakatsuka)
- Introduction to PAGES and the 2k Network. Review of Phase 1 and goals and strategy for Phase 2 (Lucien von Gunten)
- Purpose of this meeting (Xuemei Shao)

Main points to discuss:

- T data Quality control (to be done asap). New records to fill gaps.
- Documentary data from China
- T reconstructions. What is needed from the reconstruction team's perspective?
- Isotopes data collection (responsible persons for Asia?)
- P data collection and reconstruction. What should we do?

➤ Modeling and statistics (Chair: Jonathan Palmer)

- Edward Cook

Presentation of version 2 of the Monsoon Asia Drought Atlas. The data coverage is much better than for v.1. This will be an Asia2k product.

- Huan Zhang

Presentation of a study describing long term memory in tree rings (auto-correlation) and its influence on climate reconstructions.

Bayesian multi-proxy reconstruction for T planned next. Waiting for the newly collected data.

- Jianghao Wang

Comparison between regional and global T reconstruction, based on the 2k Phase 2 global database.

The used method (including GraphEM) requires a strong screening of the records (JJA T), thus reducing the number from >900 to about 300 for this analysis

The global field reconstruction is close to being ready.

For the Asian region, two version of the reconstruction are explored. One is a "zoom in" from the global reconstruction, the other a newly created (land only) regional reconstruction (using an other, less restrictive screening). The "Zoom in" version is more skillful than the pure regional version.

Global reconstruction might be well suited for inter-regional comparisons.

Data-model recon (PMIP3 models): good agreement between models and reconstructions.

- Feng Shi

Tree ring reconstruction for All Asian Monsoon rainfall Index (SASMI) over the last 1000 years. From 400, only 15 records selected that are correlated to SAAMI. Good correlation to AIMRA (Indian Monsoon index).

➤ Lake and Ocean sediment (Chair: Takeshi Nakatsuka)

- Phil Munz

Decadal-scale varved marine sediment record from the Arabian Sea for the last 2 ka.

Foraminifera analysis and calibration in time (technical details on poster).

Resulting reconstruction looks similar to the Asia2k record, but no modern warming (similar conditions prevailing for the last ca 600 years). Exhibits 34- and 11-year cyclicities, suggesting solar forcing. Multi-decadal variability could be of Pacific origin.

- Min-Te Chen (Taiwan)

Mud drift sediments in East China Sea. Tropical ocean climate during LIA and MWP.

3-m long sediment core presented, 13 ¹⁴C data. Ca 36 cm / kyr. Alkenone analysis for SST reconstruction.

Focus on LIA and MWP: more warming in early LIA and cooling in early WMP (probably due to fresh water barrier layer effects).

Four records from the Western Pacific (WP) are suited as temperature records and pass the 2k selection criteria. **Min-Te will submit them to the 2k database.**

- Hodaka Kawahata

SST from alkenone analysis from coastal marine core in Hiroshima bay.

Terrestrial (Hiroshima City) and marine (Hiroshima Bay) temperatures extremely highly correlated ($>0.9 r^2$).

Record shows strong correlation between climate and civilizations activities in the region. E.g. major immigration events from the Asian continent to Japan occurred during cold periods. Colder periods tend to coincide with more instable periods and famines, while warmer periods were related to more stable societies.

➤ Cave deposits (Chair: Takeshi Nakatsuka)

- Naveen Ghandi

Review of speleothem research in India (see presentation for the details of the 12 mentioned records)

Two records from ca 6000 to 2000 bp, and ca 0 to 2000 BP currently being studied.

➤ Documentaries (Chair: Takeshi Nakatsuka)

- Junpei Hirano

Early modern documentary from Japan (and reconstruction).

In Japan meteorological data available only after 1875 AD. Before that only few early instrumental in single cities for short periods. But for the 19th and 18th century many diaries with daily weather recordings available. They were already used to reconstruct summer/winter T, Typhoon frequency and rainfall in the Baiu season.

Historical Weather database (HWDB) with monthly records available on the NOAA website. <https://www.ncdc.noaa.gov/paleo/study/5412>

The database consists of counts of number of days per month for each prevailing weather condition. Weather conditions recorded are: T1: Fine T2: Partly Cloudy T3: Cloudy T4: Shower T5: Thunderstorm T6: Heavy Thunderstorm T7: Little Rain T8: Rain T9: Heavy Rain TA: Hail, etc TB: Snow Shower TC: Little Snow TD: Snow.

- Kei Yoshimura

Data assimilation GCM with diary weather records from Japan.

Documentary have exact dates, which important for the models. The information converted in cloud amount, which is “understood” by models.

Cloud cover is reproduced well and results improved with assimilation.

Data assimilation could be a target for a (2k) PAGES activity.

- Zhixin Hao

High-resolution climate reconstruction from documentary data in China. Many source of documents e.g. from government, but also gazettes. Most records are in databases. They also include extreme events. > 114000 memo pieces in database. Many regional reconstructions were produced for both P and T (e.g. 15 reconstructions as listed in Ge et al. 2013.

Those records will now be contributed to the Asia2k database.

- Poorna Yahampath

Paleo-climate change in records from Sri Lanka for the last 2 ka.

Presentation of a drought history reconstruction. The main source of information for climate reconstructions are historical chronicles.

- Tree rings (Chair: Masaki Sano)

- Muhammad Wahab

Tree rings from Pakistan. A study is ongoing to test what tree species are best suited for dendroclimatological studies (8 species tested). The preliminary results are promising and reconstruction work is now in progress. Records long up to 700 years can be achieved in that region.

- Uday Thapa

Spring temperature reconstruction from Nepal since AD 1640, using tree-ring widths. This study is published in Climate Dynamics.

- Narayan Gaire

Update on dendroclimatic studies from Nepal Himalaya. Few new records available for dendroclimatic reconstructions. But many studies are in progress now.

- Shreyas Managave

Oxygen isotopes in teak trees from India.

Very good records available. Intra and inter ring studies.

- Glaciers (Chair: Masaki Sano)

- Olga Solomina

Glacier fluctuations in Asia. Glaciers are independent, their physics are well understood, and they preserve low frequency signals. But usually the signal is a T and P mixture, and the records can be discontinuous. Glaciers react very similarly globally.

For the Asia2k project, glacier data probably best suited for verification purposes. Already many records in the database.