2nd Workshop of the PAGES Asia2k Working Group

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The 2nd Workshop of the PAGES Asia2k Working Group was attended by 21 paleoclimate researchers from Japan, China, USA, Russia, Switzerland, Sweden, Nepal, and Pakistan. The workshop aimed at (1) collecting proxy records that are not yet stored in any public repositories, (2) producing and discussing a preliminary reconstruction of annual temperature fields based on the available proxy records, and (3) conducting a methodological training course focused on statistical climate reconstruction techniques.

Asia2k committee member Edward Cook (Lamont-Doherty Earth Observatory, USA) gave an introduction to the temperature field reconstruction methods, followed by presentations from data holders who contributed their data to the workshop. While the Monsoon Asia Drought Atlas (MADA; Cook et al. 2010) derived from 327 tree-ring chronologies is currently the most extensive, high-temporal resolution reconstruction record available for Asia, a variety of new proxy records consisting of additional tree rings, ice cores, speleothems, lake sediments, and historical documents were contributed. The new records were incorporated into the Asia2k database along with the MADA series resulting in a total of 467 proxy records (Fig. 1).

A task group was assigned to produce a preliminary reconstruction of temperature fields. As shown in Figure 1, tree rings are the dominant proxy records in Asia. By incorporating the well-organized MADA procedures, a preliminary analysis using tree-ring records was created, including the newly contributed data. More specifically, a modified form of point-by-point regression (PPR), a well-tested and easily interpreted principal component regression method, was employed to produce past temperature fields.

The participants discussed all proxy records with an emphasis on climatic interpretation, seasonality, preservation of low- and high-frequency variability, and calibration/verification. The integration of time series of different resolution was also discussed, acknowledging that creating a multi-proxy reconstruction is undoubtedly a challenging task. In this regard, the Working Group agreed to produce a comprehensive reconstruction of temperature fields based on two different approaches. One approach is based solely on tree-ring data, to which a variety of methods is employed to reduce uncertainties and biases. The other approach also attempts to utilize several methods, but will also include non-annually resolved proxy records. Both analyses are conducted independently, making it possible to objectively compare and improve the final reconstruction products.

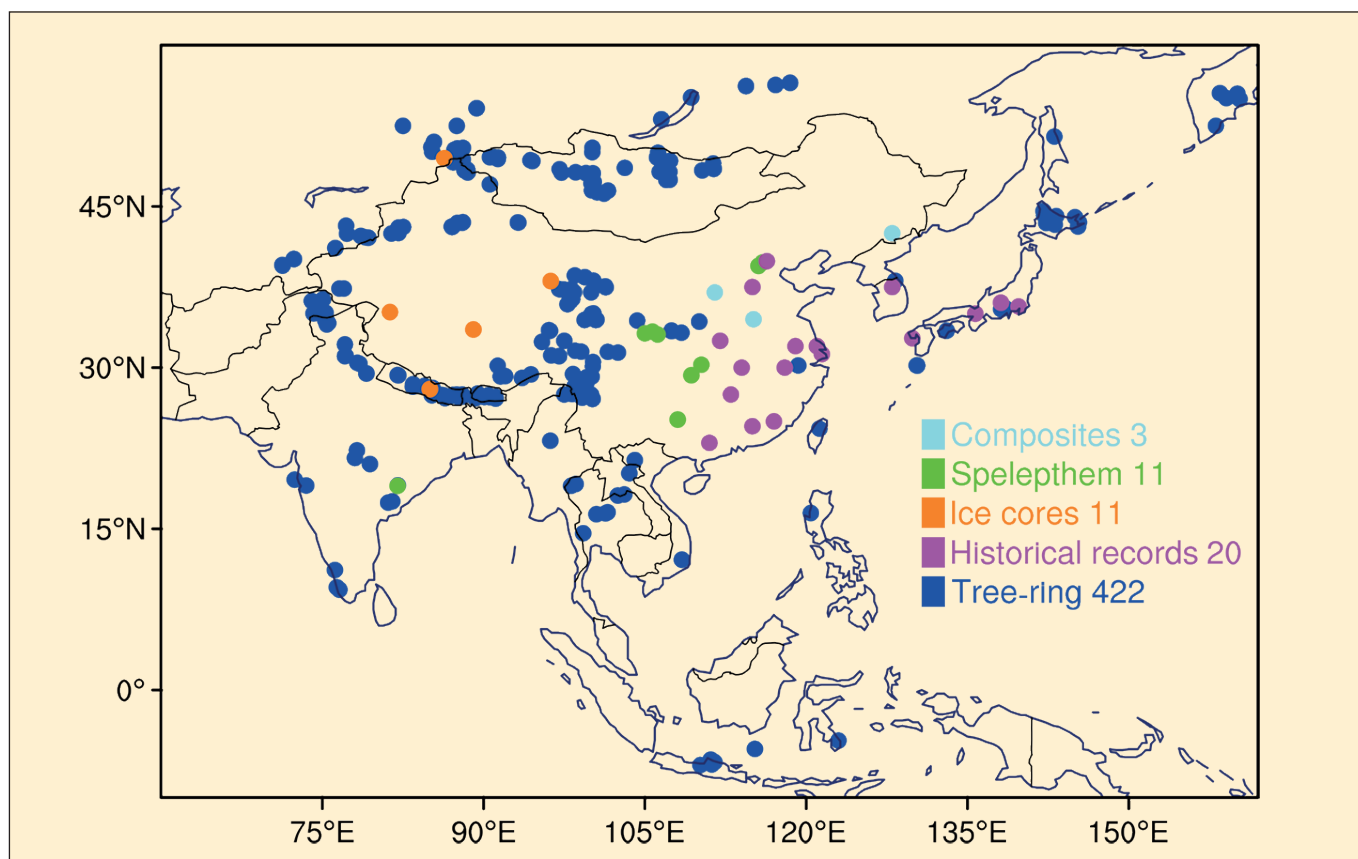## References

Cook ER et al. (2010) Science 328: 486-489

Figure 1: The locations, types and numbers of available proxy records considered by the Asia2k group.