BOOKS

TREE-RING STUDIES RESEARCH IN ASIA, edited by N. Pumijumnong, Q. Zhang, D. Eckstein, and P. Baas. 112 pp., illustrations, 2009. Reprinted from special IAWA Journal Issue, 30(4). Price EUR 20.00 or US $20.00 (paperback, to be ordered from the IAWA Office, P.O. Box 9514 2300 RA Leiden, The Netherlands; E-mail: eevn@euronet).

These proceedings of nine papers presented at the first Asian dendrochronological conference held in Bangkok, Thailand, of high quality are commensurate with the expectation set by the IAWA Journal. They cover a broad area of dendrochronological research using a range of approaches ranging from ring-width, cambial activity, and stable isotope analysis to facilitate archaeological dating and dendroclimatic studies from the Quinghai-Tibetan Plateau, Lijiang Region, southeastern China, coastal western Korea, and central Japan, and India (Himalaya to Peninsular region) through a review of previous studies.

As the immediate environment varies continuously with time, local conditions give rise to unique effects on the tree cambium, so the net products of seasonal processes are recorded in the wood structure by tree rings. The trees stand retaining an unchanging record of these seasonal processes. However, many wood properties tend to vary colinearly and often their variance arises from common causes making it difficult to decouple different components arising from climatic effects and the growing conditions that produce them. Bhattacharyya and Shah in this publication indicated that one way might be to include other anatomical features, including cell size, vessel area, and variation of local wood density.

From the review of tree-ring studies undertaken in India, Bhattacharyya and Shah noted that only a few trees with datable tree rings were assessed but that many might be suitable. They pointed out that anatomical features other than tree rings noted above should be included to provide a better understanding of past climactic change and other aspects of environmental, ecological, and geomorphological studies.

Studies undertaken by Liang, Eckstein, and Shao on cambial activity of *Pinus tabulaeformis* provided information on the seasonal dynamics of cambial activity and the annual variation of tree growth, intra-annual dynamics of wood formation (with the aid of high-quality color photomicrographs) that can help develop in understanding of the mechanism of growth-ring development. It was noted that the results may provide a benchmark for future monitoring activities in ecologically similar regions to help with studies in climate change.

Studies on Qilian *Juniperus* from the Northeastern Qinghai-Tibetan Plateau by Shao et al provided a dating chronology for archaeological wood of the area and the extent to which crossdating can be expected for archaeological dating chronologies. They showed that dendrochronological techniques provide highly reliable dating of past events with *J. przewalskii* from arid and semiarid regions and that the dating chronology developed in their study can be used beyond the study area with some provisos, especially concerning severe drought conditions.

Sho et al developed approximate 300-yr chronologies using tree rings and stable carbon-isotope cellulose composition to augment the development of chronologies from *Chamaecyparis obtusa* from central Japan. They found that correlating ring data with monthly climatic information revealed that radial tree growth is related to temperature in the early spring and the number of days of precipitation in early summer of that year and the previous year's summer to autumn rain.

A millennium-long tree ring record of climate variability was developed for the Qilian mountains, northwestern China, by Zhang et al based on tree-ring width relationship with growing

season moisture variability of *J. przewalskii*. It was noted that the ring-width related chronologies will be helpful for understanding the driving mechanism of the Asian monsoon and westerlies in northwestern China over that period. A separate 300-yr temperature reconstruction was developed by Tian et al for the northeastern margin of the Qilian Mountains, a data sparse and environmentally sensitive region; this may also provide useful information for gauging the response of ecosystems to climatic change.

Guo et al reported on 112-yr and 165-yr tree-ring chronologies for *Picea likiangensis* and *Tsuga dumosa,* respectively, in south China. The researchers found that the chronology of *T. dumosa* is useful for reconstructing the May–June, Palmer Drought Severity Index and the reconstructions were able to identify major wet periods since the 1860s.

Fourteen tree-ring width chronologies were developed along three altitudinal gradients for three mountain ranges in arid north central China from studies by Fang et al.

Finally, Park and Lee studied tree rings from a locally grown pine used for coffins from coastal western Korea. They estimated that according to tree-ring analysis and by comparison with master chronology that the cutting dates of the trees for the coffins were from the mid-1600s and that their estimates had revised the age of the type of graves to be younger by at least a century than that estimated by archaeologists once again showing the value of studying tree-ring chronologies.

With a paucity of data from this region, this special IAWA Journal issue publication—*Tree-ring Research in Asia*—provides a range of approaches that validates techniques and ideas along with new knowledge for improving the interpretation and extension of tree-ring chronologies. It is a powerful source of interesting and highly useful information for students and researchers and those interested in broader social and past climatic issues.

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