Researchers reconstruct drought variability from teak tree rings in Southern Myanmar

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Teak forest in southern Myanmar. Credit: FAN Zexin

Teak (Tectona grandis) is a tropical, deciduous, broad-leaved tree species indigenous to Southeast Asia. Despite its high dendroclimatological potential, only a few studies have analyzed the relationships between teak ring-width and climate variability in Myanmar.

In a study published in Geophysical Research Letters, researchers from Xishuangbanna Tropical Botanical Garden (XTBG) extended the spatial coverage of high-resolution regional climate proxies in southern Myanmar by producing a new drought reconstruction from a new location.

The researchers developed a 226-year long ring-width chronology of teak, providing evidence for November–April drought variability in southern Myanmar. The three teak-bearing forest sites were namely Bago (West Yoma Forest Reserve, BAG), Mindon (Zaungtu Forest Reserve, MDN), and Paukkhaung (Phyu-Kun Forest Reserve, PKG) in southern Myanmar.

They found that teak radial growth was mainly controlled by moisture availability, making teak a suitable species for assessing drought variation in southern Myanmar.


They also found a strong association between drought variability in southern Myanmar and sea surface temperatures in the Pacific and Indian Oceans, as well as the El Nino?Southern Oscillation (ENSO) phenomenon.

"Our study confirmed the huge potential to study long-term climate change and its impacts in the tropical regions of Southeast Asia by establishing and extending climate-sensitive tree ring networks," said Prof. Fan Zexin, principal investigator of the study.

"It provides a newly developed regional teak tree ring-width chronology for a better understanding of regional hydro-climate variability in Myanmar," added Dr. Fan.


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