Amazon basin tree rings hold a record of the region's rainfall

11 October 2022, by Rachel Fritts

The data set assembled in this study is the longest oxygen isotope record from the Amazon basin to date and one of the longest such records for any rain forest in the world. To collect it, researchers collected tree ring cores and disks from more than 50 trees growing in lowland rain forest in Bolivia and montane forest in Ecuador. Samples collected from Ecuador provided data from 1799 to 2012, whereas data from Bolivia samples spanned 1860 to 2014.

The records from the two locations matched each other closely, indicating that the trees captured large-scale climate signals not confined only to the regions where the trees were. Oxygen isotope fluctuations from year to year also corresponded well to modern hydrological data, indicating a reliable record of past change.

Because precipitation and sea surface temperatures in the region are linked, the researchers also compared their findings to reconstructed sea surface temperature records. Their data set indicates that annual rainfall in the Amazon decreased as sea surface temperature rose between about 1800 and 1950. After that, the relationship between the two became shakier. In the past couple of decades, the trend reversed, a finding consistent with modern records showing that the Amazon hydrological cycle has amplified in recent years.


This story is republished courtesy of Eos, hosted by the American Geophysical Union. Read the original story here.