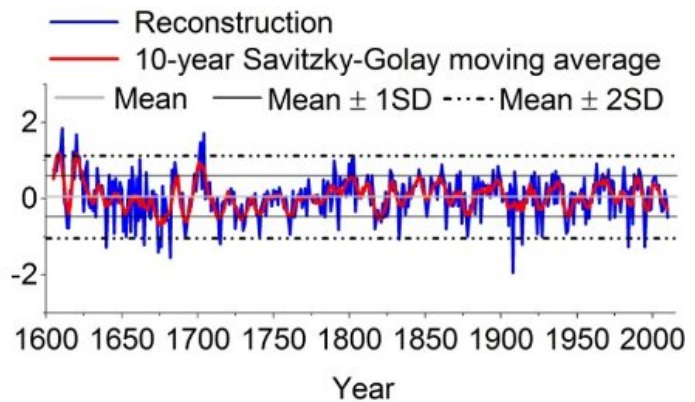


# Scientists reconstruct spring hydroclimate using living and dead alpine juniper shrubs

June 24 2020, by Li Yuan



Close-up view of Wilson juniper shrub patches around the Nam Co Lake and hydroclimate (Standardized Moisture Anomaly Index) reconstruction from 1605 to 2010. Credit: ITP

Alpine regions on the Tibetan Plateau are sensitive to climate change. Little is known, however, about their long-term hydroclimate variability due to short instrumental records.

A research team from the Institute of Tibetan Plateau Research of the Chinese Academy of Sciences established a 537-year standard shrub-ring chronology by cross-dating living and dead Wilson juniper (*Juniperus pingii* var. *wilsonii*) shrubs sampled near the Nam Co Lake on the south-central Tibetan Plateau.

Trees are absent in this area, where patches of alpine shrub species can survive. However, very few alpine shrub species there provide a rare opportunity to retrieve changes of alpine ecosystem by shrub-ring analysis. Among alpine shrubs, Wilson juniper is widespread throughout the south-central Tibetan Plateau.

The established shrub-ring width chronology is one of the world's longest shrub-ring chronologies. Shrub-ring chronology from 1605 to 2010 was then used to reconstruct mean May-June drought severity (Standardized Moisture Anomaly Index).

Two long-term dry spring periods (1637-1683 and 1708-1785) occurred during the Little Ice Age implies that cold temperature may slow down hydrological cycle.

This study, published in *Geophysical Research Letters*, highlights the importance of alpine juniper [shrubs](#) in understanding hydrological cycle in dry, continental alpine treeless areas.

The shrub-ring chronology and reconstructed data are available at the [National Tibetan Plateau Data Center](#).

**More information:** Xiaoming Lu et al. Spring Hydroclimate Reconstruction on the South-Central Tibetan Plateau Inferred From *Juniperus Pingii* Var. *Wilsonii* Shrub Rings Since 1605, *Geophysical Research Letters* (2020). [DOI: 10.1029/2020GL087707](https://doi.org/10.1029/2020GL087707)

Provided by Chinese Academy of Sciences

Citation: Scientists reconstruct spring hydroclimate using living and dead alpine juniper shrubs (2020, June 24) retrieved 19 April 2024 from <https://phys.org/news/2020-06-scientists->

[reconstruct-hydroclimate-dead-alpine.html](https://phys.org/news/2019/08/reconstruct-hydroclimate-dead-alpine.html)

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.