Climatic reconstruction from tree rings.

- - [PDF] Climate Reconstruction Using Tree

Description: -
-Climatic reconstruction from tree rings.
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Weather and climate -- v.8Climatic reconstruction from tree rings.
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Tree rings provide snapshots of Earth's past climate

Background Tree-ring chronologies allow assessment of hydrologic variability over centuries to millennia, gives historic context for assessing recent droughts, and can be used in climate change research.

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Wavelet analysis was done using software available online available at ;. Rings of trees growing in temperate climates can indeed tell their age through their annual rings and also help determine the age of wood used to construct buildings or wooden objects.

Paleo

In a paper appearing in the Journal of the American Statistical Association, statistics and tree ring researchers from Otago, the US and UK examined the statistical methods and procedures commonly used to reconstruct historic climate variables from tree-ring data. The resulting reconstructions are validated with rigorous statistical analysis, and not used unless statistically valid. The high correlations were observed among the ring width, NDVI and PDSI, particularly in the growing season, which appears to be a common feature of the response of the tree growth, regional vegetation on the climate for the grassland and forest in the semiarid and arid regions of northern China.

Climate History in Tree Rings Builds Understanding of Climate Future

Tree-ring and NDVI response to climatic variables Correlation for the STD chronology with climatic variables from Hailar meteorological station 49°13′N, 119°45′E and monthly PDSI 48. Power in the 10—20 year range was found from the 1840s—60s and 1890s—1910s. The dry and warm year appear to cause the lower tree-ring growth, even missing rings.

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The first-order autocorrelation coefficient was 0.

4 Tree Rings

At the same time, southeastern parts of the continent are seeing heavier than normal rains. Average annual precipitation is ~350mm. In the 20th and at the beginning of the 21st centuries, general increase of air temperature was observed.

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When records are sought for the last two millennia, the number of available tree ring chronologies declines markedly Hughes 2002 , so confidence in reconstructed patterns is reduced. In terms of causal mechanisms, tree ring records are likely to be the result of multivariate, and often nonlinear, biophysical processes.

CiteSeerX — Growth trends Tree

Long-term trends and its linkages with atmosphere—ocean cycle were performed by the power spectral, wavelet and teleconnection analysis. There is greater frequency of severe dry years during recent decades, especially after ~1986.

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