Special Issue

Climate and the Oxygen Isotope Patterns from Trees

Message from the Guest Editors

Stable oxygen isotope patterns from trees have become an indispensable tool for reconstructing hydroclimatic parameters. Oxygen isotope variations are less affected by aging processes and stand dynamic effects than other tree-ring parameters. Due to technological advances, isotope analyses can be pushed to intra-annual resolution, allowing for a very high dating precision. This offers new perspectives for analysing tree responses to extreme climatic events and the underlying atmospheric circulation patterns, and to link stable isotope patterns to tree ecophysiology. This special issue of Forests invites contributions describing new methodological aspects on analysing and interpreting oxygen isotope analyses in tree rings. Of special interest are studies with intra-annual resolution of isotope time series, and linkages of stable isotope patterns with wood formation and tree physiological processes. A special focus underlies climatic causes of tree-ring oxygen isotope patterns, including source water signals, atmospheric circulation, and modifications of isotopic climatic signals by fractionation processes through tree physiological processes.

Guest Editors

Prof. Dr. Achim Bräuning

Institute of Geography, University of Erlangen-Nürnberg, 91052 Erlangen, Germany

Dr. Ru Huang

Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing 100101, China

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Atmosphere
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
atmosphere@mdpi.com

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Message from the Editor-in-Chief

Continued developments in instrumentation and modeling have driven atmospheric science to become increasingly more complex with a deeper understanding of concepts, mechanisms, and interactions. This is the field that innovation built and it has led to a better appreciation for the complexity with atmosphere. Human life is intertwined in this complexity as we strive to better understand our atmosphere. Climate change is constantly stretching the limits of our thinking and forcing new ideas and concepts to be played out. Welcome to the Anthropocene!

Editor-in-Chief

Dr. Daniele Contini
Institute of Atmospheric Sciences and Climate (ISAC), National Research Council (CNR), Str. Prv. Lecce-Monteroni km 1.2, 73100 Lecce, Italy

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