Seminar

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PhD Programme in
Science and Management
of Climate Change

Using Tree-Ring data to Develop Critical Scientific Thinking Skills

Lecturer

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Abstract

Dendrochronologists often travel to remote regions of the world in search of slow growing, long-lived trees that record the environmental conditions where they live year-by-year in their growth rings. By studying these trees, scientists learn about environments and climates, hundreds-to-thousands of years in the past. For example, scientists have used trees from such sites to reconstruct temperature variability of the past two thousand years in the Northern Hemisphere, to place exact calendar dates on ancestral pueblos in the U.S. Southwest and to reconstruct streamflow estimates for the U.S. Colorado River. Because the basic premise of dendrochronology is so easily understandable, non-expert audiences can see climate variability through time with the naked eye by looking at tree cores. Tree rings provide a wonderful window into how scientists do science and why they do it, and provide students with the opportunity to generate and evaluate relevant geoscience data and research.

Here, through the use of digital technology, we present five publically available labs, geared for community college and undergraduate instructors and their students, that tap into the excitement of launching an expedition while introducing students to groundbreaking tree-ring studies that have had important societal impact. Tree-Ring Expeditions (TREX) immerses students in the field of dendrochronology and allows them to experience science as a process, as a scientist would working within a scientific community to advance our understanding of the natural world.