



THE LABORATORY OF TREE-RING RESEARCH

presents a talk by

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Fire history and fire-climate relationships of Buryatia, Siberia

Wednesday, April 27, 2016 - 12:00pm to 1:00pm

Room: Bannister 110

Wildfire activity in the boreal forests of Siberia has been increasing over the past 20 years in response to warming temperatures, with several extreme fire years in the past decade. While extreme fire years have a strong association with temperature and drought conditions, smaller human-ignited fires occur almost every year, related to agriculture and logging. To better understand the longer-term context of wildfires and fire-climate relationships of central Siberia, we developed a fire history for the Buryatia province, where we collected 25 sites of fire-scarred material throughout the region. We dated more than 300 samples and developed a chronology of fire years from 1508 - 2010. Most fires burned in the early season at the scale of a single site. Site-level fire return intervals ranged between 11 - 27 years. For the study area, fire frequency varied throughout the past 400 years, with significant increases in the 1870's, 1940's and 1990's. Single-site fires burned in both wet and dry years, indicating that human land-use practices (grazing, agricultural burning) were a strong control of historical fire regimes. There were fourteen fire years, when fires were synchronous across three or more sites throughout the study area. Some of these larger fire years (1863, 1944, 1969, 2002) were also synchronous with other regions of Siberia and northern Mongolia. Synchronous fire years were associated with drought in the fire year, and a subset of sites also showed an association with prior wet conditions. These fire-climate relationships are partly driven by climate of the late 20th century, when fires corresponded with more severe drought conditions.