



THE LABORATORY OF TREE-RING RESEARCH

presents a talk by

Eryuan Liang

(Institute of Tibetan Plateau Research, Chinese Academy of Sciences)

Dendroecology of alpine treelines on the Tibetan Plateau: an integrative understanding from xylogenesis to ecosystem

Wednesday, September 6, 2017 - 11:45am to 1:00pm

Room: Bannister 110

Abstract: The Tibetan Plateau hosts the world's highest natural treelines, being potentially sensitive to climate change. In the last 10 years, Dr. Liang has been focusing on dendroecology of alpine treeline on the Tibetan Plateau. His research aims to answer these questions: what is the physiological mechanism for alpine treeline formation based on nature treelines on the Tibetan Plateau? Whether are there significant changes in structures and patterns of alpine treeline? Whether is there a link between ecological processes of alpine treeline, shrubline, grassline and glacier dynamics? Spruce, fir and juniper treelines under different macroclimate across the Tibetan Plateau were selected to monitor microclimatic conditions, weekly wood formation and leaf phenology. A network of alpine treeline plots were set up to retrieve spatiotemporal variations of alpine treelines on the Tibetan Plateau and surrounding areas. As showed by recent publications, the onset of cell division has a very low threshold minimum temperature ($0.7 \pm 0.4^{\circ}\text{C}$) that determines the length of the growing season, and drives treeline formation in sub-humid areas. Climatic warming tended to promote an upward shift of alpine treelines at local and regional scales. However, upslope migration rates were controlled largely by interspecific interactions. It both helps to explain why many treelines have not advanced in response to climatic warming and highlights that predictions of treeline shifts based solely on climate may be misleading.