

School of Earth and Environmental Sciences Colloquium Series

Dr. Alia Lesnek

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Reconstructing late Quaternary climate and tectonics with glacial deposits in the Teton Range, Wyoming

Alpine environments are exceptionally sensitive to external disturbances, which poses serious challenges for conservation efforts and hazard assessment. Yet the sensitivity of alpine environments to these disturbances also presents opportunities to better understand how modern and future climate change could influence other geologic processes, such as glacier retreat and fault movement. In this presentation, I will discuss how we are using in situ cosmogenic ^{10}Be dating and geospatial analyses of late

Pleistocene glacial deposits in Wyoming's Teton Range to (1) evaluate the influence of climate change on regional tectonics and (2) reconstruct past climate trends in the Mountain West. By calculating open-ended slip rates from fault-offset glacial deposits, we determine spatiotemporal patterns of Teton fault motion since the late Pleistocene and clarify the role of regional deglaciation on fault activity. Reconstructions of tiny "slab glaciers" constrained by ^{10}Be ages on associated glacial fans will enable us to model changes in glacier equilibrium line altitude since ~15,000 years ago, providing an unusual opportunity to examine temperature and precipitation shifts during the earliest phase of the last glacial-interglacial transition. These results demonstrate the wide-ranging impacts of climate change on Earth processes highlight the unrealized potential of slab glacier deposits as archives of past climate change.

Wednesday, Sept. 13th

12:15-1:30 PM

Science Bldg. C-207

Zoom ID:

820 5441 6677

Passcode: 895367

