School of Earth and Environmental Sciences Colloquium Series

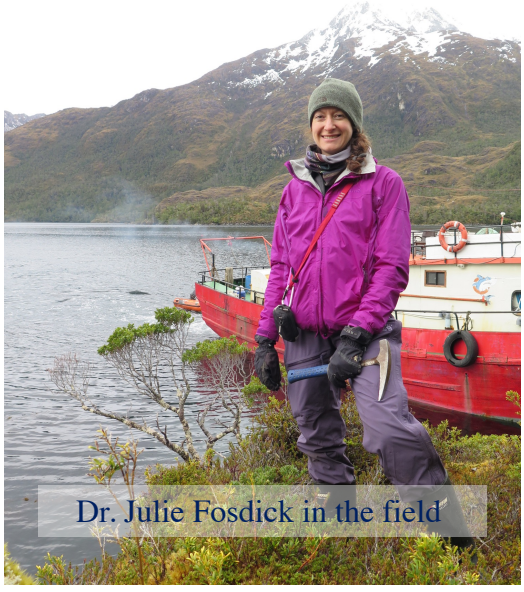
Wednesday, March 01st, 2023
12:15 – 1:30 PM
This is an ONLINE talk!

Dr. Julie Fosdick

University of Connecticut
Director, Basin Analysis and Helium Thermochronology Laboratory BAHTL
Northeast Region Delegate, Association for Women Geoscientists

From isotopes to mountain slopes: Building mountains amidst rising seas in the Patagonian Andes

Tectonic activity and climate interact to control the growth of mountains, erosion of steepened topography, and fluctuations between marine and terrestrial conditions along low-lying continental margins. The surface landscape in Patagonia – the southernmost region of South America – has been shaped by millions of years of mountain-building, climate, and long-term changes in global sea level along the coastal margin. This presentation will summarize our recent work using stratigraphy, geochronology, and thermochronology in the Cenozoic Patagonian Andes to investigate how tectonic deformation, sea level, and climate affect coastal depositional patterns and paleogeography during an important time interval for global climate.



Dr. Julie Fosdick in the field

We explore the idea that the middle Cenozoic Atlantic transgressions in Patagonia were caused by tectonic loading and deepening of sedimentary environments during Andean deformation and opening of the Drake Passage. Specifically, our work documents a newly recognized phase of Oligocene marine deposition that persisted along the basin margin from 37-27 million years ago. The revised ages of these sedimentary rocks have enormous implications for understanding paleoenvironmental conditions and tectonic influences on sedimentation during past climate optima, since these strata record high-latitude organic-rich shallow marine and transitional deposition. Our findings suggest significantly younger (by up 6 to 8 million years) timing for this period of high sea level across Patagonia. Subsequently, the onset of the first exclusively continental sedimentation during Cenozoic time in the study area began ~24 million years ago. At this time, large volumes of sediment were shed eastward from the actively uplifting Andes.

****THIS IS AN ONLINE MEETING****
Zoom link for remote attendance:
https://us02web.zoom.us/j/82229858276?pwd=UkNzM2FNY2p6cG42YjBmeHg0dGxNdz09
Meeting ID: 822 2985 8276 Passcode: 515589