**The past is the key to the present: Using fossil plant silica to reconstruct the Cenozoic assembly of Earth’s grassland ecosystems**

Caroline Strömberg

University of Washington

Documenting how Earth’s many ecosystems, each with unique combinations of climate, flora, and fauna, came to be is critical for understanding how ecosystems function today, and will function in the future. My lab’s research has focused largely on elucidating the Cretaceous-Cenozoic assembly of grasslands ecosystems, which currently occupy 40% of Earth’s land surface and provide key agricultural products (e.g., corn, rice). We use fossilized plant silica (phytoliths) to address questions regarding the early diversification of the grass family (Poaceae), the Cenozoic spread of grass-dominated habitats, and the presumed co-evolution of grasses and herbivores. In this talk, I will highlight what have learned so far, focusing on recent work seeking to uncover biogeographic differences in grassland evolution within and among continents, examining the connection between habitat openness and grass dominance in grassland evolution, and elucidating the evolution and function of silica bodies in grasses to understand past and present interactions between grasses and grass-eaters.