# School of Earth and Environmental Sciences
# Spring 2024 Colloquium Series

**Wednesday, September 25, 2024**
**12:15 PM -1:30 PM**
**Science Building C-207**

**Zoom ID: 865 5163 5654**
**Passcode: 684900**

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## Modeling wetland biogeochemistry and its responses to climate change

Wetlands are hot spots of carbon sequestration, methane production, and biogeochemical cycling. Wetlands are sensitive to changes in climate, sea level, and other environmental factors, potentially driving feedbacks to global climate change. However, wetland ecosystems are currently not well represented in the computational models used to project climate change and ecosystem-climate interactions. I will discuss recent efforts to improve representation of arctic and coastal wetland ecosystems in the U.S. Department of Energy's Energy Exascale Earth System Model (E3SM). Simulating redox biogeochemistry in wetland soils allows model representation of how the cycles of carbon and other elements respond to patterns of flooding, salinity, and iron availability. We have also incorporated salt marsh, mangrove, and tundra plant communities into the model. Together, improvements to vegetation, hydrology, and biogeochemistry enhance the accuracy of models that are critical for understanding and projecting climate and ecological changes.