



University of New Hampshire

# Fall 2018 Environmental Sciences Seminar Series

## Wednesday, October 3

2:30 –3:30pm James Hall G46

**Dr. Sue Natali**

Associate Scientist

Woods Hole Research Center

## Shifting Carbon Dynamics in the Arctic and Implications for Global Climate

Carbon has been accumulating in northern high latitude terrestrial ecosystems for thousands of years, but as the climate warms, the large pool of carbon is at risk of being thawed, decomposed, and transferred to the atmosphere. Despite the potential importance of changes in northern carbon cycling for global climate, both the sign and magnitude of the current and future carbon balance of the Arctic remain highly uncertain. To address this uncertainty, I will present ecosystem carbon cycling results from a warming and drying experiment in a sub-arctic tundra landscape, and then I will focus on carbon cycling in the Arctic during the period of greatest uncertainty, the nongrowing season (NGS; fall, winter, spring). Using a new synthesis of NGS CO<sub>2</sub> fluxes that span northern high latitude terrestrial ecosystems, I examine the drivers of NGS respiration, estimate current NGS CO<sub>2</sub> emissions for the northern permafrost region, and project NGS CO<sub>2</sub> emissions under two future climate scenarios--Representative Concentration Pathways (RCP) 4.5 and 8.5. While climate change may shift the Arctic from a carbon sink to a source, the magnitude of this response will be highly dependent on future climate change mitigation efforts.



*This Seminar, co-sponsored with the UNH Arctic Network, is part of the mini series  
"Navigating the New Arctic"*

*Host: [Bianca Rodriguez-Cardona](#), NRESS Ph.D. Candidate*

*Series sponsored by the Natural Resources and Earth Systems Science (NRESS) Ph.D. Program, in  
partnership with the Earth Systems Research Center, and the Natural Resources and the  
Environment and Earth Sciences Departments.*

# Fall 2018 Environmental Science Seminar Series

Wednesdays 2:30-3:30 pm  
James Hall G46  
The University of New Hampshire

## Mini-series on Navigating the New Arctic

Wednesday  
October 3

**Shifting Carbon Dynamics in the Arctic and Implications for Global Climate**  
**Dr. Sue Natali**, Associate Scientist, Woods Hole Research Center  
(hosted by Bianca Rodriguez-Cardona, NRESS Ph.D. Student)

Wednesday  
November 7

**Preparing for Surprises**  
**Dr. Radley Horton**, Associate Research Professor, Lamont-Doherty Earth Observatory, The Earth Institute, Columbia University  
(hosted by the UNH Arctic Network)

Wednesday  
November 14

**Understanding Terrestrial Arctic Water and Carbon Cycles and the Impacts of Climate Warming**  
**Dr. Michael Rawlins**, Associate Director of the Climate System Research Center, UMass-Amherst  
(hosted by Steve Frolking, NRESS Chair)

Wednesday  
November 28

**Developing a Climate Adaptation Baseline for Wabanaki Tribal Nations: Diplomacy, Research Methods and Priorities**  
**Dr. Darren Ranco**, Associate Professor of Anthropology and Coordinator of Native American Research, University of Maine  
(hosted by the UNH Arctic Network)

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