The UNC Department of Environmental Sciences and Engineering
and the Department of Chemistry present:

Atmospheric Aerosol Sources and Chemical Composition in the Changing Arctic

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Dr. Pratt's research group uses novel mass spectrometry techniques to study the chemical interactions of atmospheric trace gases, particles, and snow, with a primary focus on understanding atmospheric chemistry in the changing Arctic. She has received numerous awards, including the 2018 American Chemical Society James J. Morgan ES&T Early Career Award, 2017 Sloan Research Fellowship in Chemistry, 2016 National Academy of Sciences Gulf Research Program Early Career Fellowship, and 2014 American Society for Mass Spectrometry Research Award. She received her PhD at the University of California, San Diego with Professor Kimberly Prather and completed postdoctoral research at Purdue University with Professor Paul Shepson.

December 7
11:00am
2308 McGavran-Greenberg

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Synopsis
Unprecedented summertime Arctic sea ice loss is leading to increasing open water, thinning sea ice, ship traffic, and development. Arctic aerosol emissions are expected to rise with increasing oil and gas activities and the production of sea spray aerosol. These particles have significant climate effects, including interacting with radiation, forming cloud droplets and ice crystals, and depositing onto surfaces. Development may also be changing the air quality of native villages, leading to human health impacts. Given the complexity and evolving nature of atmospheric aerosols, as well as the challenges associated with Arctic measurements, significant uncertainties remain in our understanding of aerosol sources, evolution, and impacts in the Arctic. The Pratt Lab has conducted several field campaigns in the Alaskan Arctic, identifying aerosol sources and atmospheric aging pathways over multiple seasons. We primarily focus on the use of single-particle mass spectrometry to measure chemical composition of individual atmospheric particles in real-time. I will discuss results of studies conducted near Utqiagvik (Barrow) and Oliktok Point (Prudhoe Bay) over the past three years.