Prof. Tim Bertram

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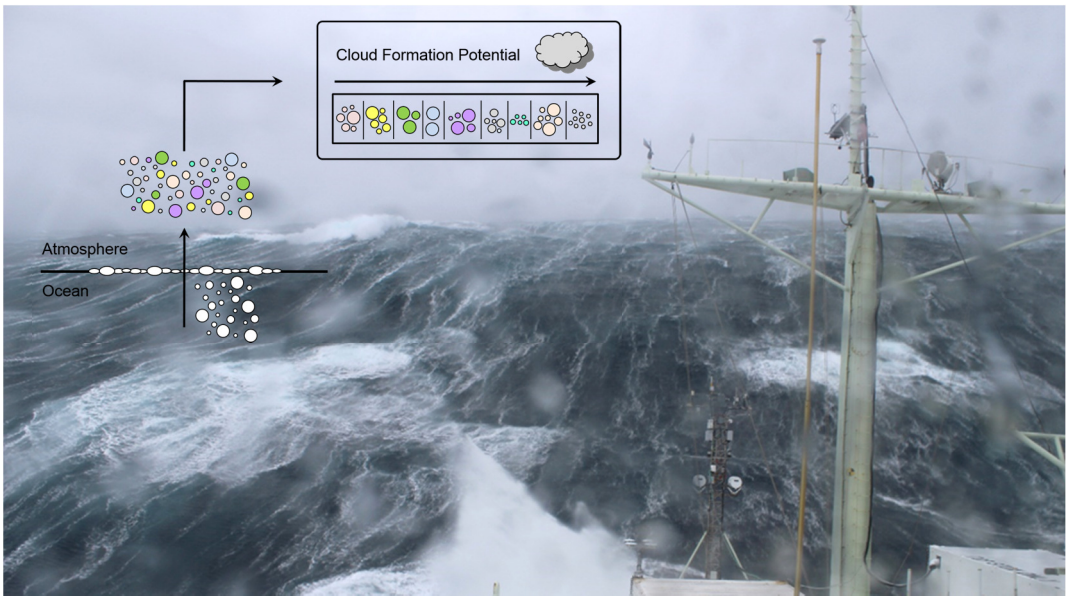
"Atmospheric Chemistry at the Air-Sea Interface"

The ocean covers over 70 percent of Earth's surface area, has accommodated nearly one-third of human-induced CO_2 emissions, and accounts for nearly one-half of global photosynthetic activity. Over the past decade, satellite observations have revealed a strong positive correlation between ocean chlorophyll and the number concentration of cloud droplets, highlighting a critical link between ocean biogeochemistry and climate. Early work in this field suggested that either oceanic emission of dimethyl sulfide or changes in the production rate of sea-spray aerosol particles during wave breaking may provide this connection. In this talk I will use a combination of observations from a series of oceanic research cruises and laboratory experiments conducted in a wave channel to explore two emerging hypotheses that may serve to connect ocean chemistry with cloud formation: 1) reaction products formed from the gas-phase oxidation of marine-derived terpenes play a controlling role in altering the size distribution of aerosol particles in marine environments, and 2) the chemical composition of nascent sea-spray aerosol, and the resulting ability for the particle to serve as a cloud condensation nuclei, is a strong function of chemical and biological processes occurring at the ocean surface.



Thursday

Jan. 21

12:15 pm

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Chemistry

Special Seminar