



**“DETECTING TIDAL VARIATIONS IN SEA ICE CONCENTRATION
IN THE ROSS SEA FROM SATELLITE OBSERVATIONS”**

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CCPO

Monday, February 18, 2013
3:30 PM

Room 1202, Engineering and Computational Sciences Building

Abstract

Since the time of early polar explorers, scientists on board ships in ice-covered waters have observed the sea ice to open and close on a tidal time scale. These small variations allow a significant heat flux between the ocean and atmosphere. A newly developed analysis method using AMSR-E satellite swath observations of sea ice concentration allows us to remotely extract the diurnal (~24h period) tidal variations in concentration. The focus of this presentation is the northwest corner of the Ross Sea, Antarctica, where strong diurnal tides occur. Satellite observations are used to estimate the magnitude of the tidal effect on sea ice concentration. Analysis is presented to show that this new method correctly extracts the variations from measurements distributed irregularly in time. These estimates are compared to a tidal model and a regional ocean model in order to further explore the processes by which these changes occur.

Biography

Stefanie Mack is a Ph.D. student at CCPO (Dr. John Klinck, advisor). Her current research is focused on numerical simulations of circulation, water properties, glacial basal melt, and sea ice in the Ross Sea driven by surface fluxes and tides. The ultimate goal of her research is to have a mesoscale resolving Ross Sea model to analyze processes responsible for conditions observed during the PRISM cruise last year. She received her B.S. in Physics from Westminster College, PA (2010).

Reception before seminar at 3:00 PM