YORK UNIVERSITY
DEPARTMENT OF EARTH & SPACE SCIENCE & ENGINEERING
AND
THE CENTRE FOR RESEARCH IN EARTH AND SPACE SCIENCE

FRIDAY SEMINAR

Dr. Andy Mahoney
University of Alaska Fairbanks
Geophysical Institute

Sea ice thickness in the Chukchi and Beaufort Seas: tracking changes to a new seasonal ice regime

DATE: **Friday, November 13, 2015**
TIME: **2:00 p.m.**
LOCATION: **Room 317, Petrie Sciences Building**

Seasonally-grown, first-year (FY) sea ice is rapidly becoming the dominant ice type in the Arctic Ocean. Since early 2000, the UAF sea ice mass balance station (MBS) has recorded changes in the growth and melt of landfast FY ice near Barrow, Alaska, during this critical transition phase. Despite considerable interannual variability, these data suggest FY ice thickness near Barrow is decreasing. While the trend is not significant, the mean annual maximum ice thickness of 1.5 m from 2000-2015 is significantly thinner than the thicknesses of around 1.8 m commonly reported during the 1970s. Additionally, since 2007, the Seasonal Ice Zone Observing Network has conducted airborne electromagnetic ice thickness surveys in the Chukchi and Beaufort Seas near Barrow around the time of maximum thickness. Modal thicknesses, taken to represent level FY ice, exhibit interannual variability similar to that observed in the landfast ice, demonstrating that the MBS data are representative of the regional thermodynamic regime and underscoring the value of long term monitoring at Barrow. However, there are still areas of recurring grounded ice, such as Hanna Shoal, where ridges in excess of 30 m thick are found. In a seasonally-dominated ice pack, such locations may become increasingly important as refugia for marine mammals and sources of hazardous ice for maritime activities. We discuss strategies for coordinating observations to track changes across the Arctic and shed light on the linkages between ice mass balance and dynamics.