

Joint IPRC/ Oceanography Seminar

Paul Spence

Senior Lecturer

Climate Change Research Center DECRA Fellow, Australian Research Council
Research Associate, Centre of Excellence for Climate System Science University
of New South Wales Sydney, Australia

"Subsurface Warming of West Antarctic coastal waters by remote winds"

Massive mass loss and accelerated Antarctic glacial flows in recent decades is generally linked with warmer ocean water at the base of the floating ice shelves. However, the physical mechanisms responsible for changing the subsurface ocean heat content on the Antarctic continental shelf remain largely unknown. This talk explores the magnitude and causes of subsurface Antarctic coastal ocean temperature variability on annual to decadal time scales. Ocean model simulations reveal that intense subsurface ocean warming ($> 2^{\circ}\text{C}$) can rapidly ($< 1\text{yr}$ time-scale) result from changes in both local and distant ($> 10,000\text{km}$ away) Antarctic coastal winds. The local wind driven response is driven by changes in near-shore Ekman pumping, while the distant wind response is driven by Antarctic coastal Kelvin waves. The Bellingshausen and Amundsen seas and the western side of the Antarctica Peninsula are particularly susceptible to Southern Annular Mode like wind changes in East Antarctic coastal winds.

Thursday March 23rd, 2017 3:00 p.m. MSB 100