

# Research & Research Training Office

## Faculty Seminar

April 8, 2008

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### **Amundsen Ice Shelf Collapse: Is it likely? Will it impact Australia?**

#### **Abstract:-**

Ice shelves in the Amundsen Sea are melting 10-100 times faster than ice shelves in the other Antarctic Seas. Presently there are fears that this rapid melting will lead to collapse of these ice shelves, like the disintegration of the Larsen B ice shelf in 2002. Although their collapse will not affect sea level since they are floating, ice shelves slow down the glacier flow off the continent. Removal of the ice shelves will speed the glacial flow, which will increase sea level, potentially by 1.5 m and quite quickly. This is more than the 1 m rise expected by the end of the century in the IPCC report. Besides the potential sea level impact, melting of the ice shelves is freshening the waters of the Amundsen and Ross Seas. This freshening along with the recent observed warming in the region will affect the deep water formation in the Antarctic. Since the Antarctic produces deep water for the global deep oceans and is a key factor in the global thermohaline circulation, changes induced by the melting of the Amundsen Sea ice shelves may affect its flow and in turn affect climate. At the moment, collapse of the ice shelves is believed to be a low-probability, but catastrophic scenario. My research is investigating the heat flux into the Antarctic ice shelves driven by the tides and how much melting that will induce, both weakening the ice shelves and freshening the Antarctic waters. This is crucial information for stability of the ice shelves, climate, and beach front property owners..