THE AMISOR PROJECT: ICE SHELF DYNAMICS AND ICE-OCEAN INTERACTION OF THE AMERY ICE SHELF

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Most of the mass loss from the Antarctic ice sheet takes place at the floating ice shelves and glacier tongues, via iceberg calving from their outer margins or by basal melting in the ocean cavities beneath. The presence of ice shelves affects the continual advance of the massive inland ice sheet toward the coast via the ice streams. Increased basal melting may lead to increased strain rates near the grounding zone allowing the ice streams to thin and flow more rapidly. Increased meltwater production may also affect the freshwater flux to the Southern Ocean and contribute to Antarctic Bottom Water formation. A multidisciplinary project of "Amery Ice Shelf Ocean Research (AMISOR)" has overall aims of quantifying the interaction between the ocean and the Amery Ice Shelf (AIS) and determining the implications of this interaction for the overall mass budget of the Antarctic ice sheet and global ocean circulation. The project includes components of hot-water drilling through the AIS to make measurements in the underlying cavity; glaciological measurements of the ice shelf velocity, strain and thickness; oceanographic measurements in Prydz Bay; investigation of sub ice shelf sediments and sediment dynamics; remote sensing; and numerical modelling of ice shelf-ocean interaction and ice shelf dynamics.