From shelf break to ice shelves: oceanographic observations in theBellingshausen Sea, Summer 2007

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The Bellingshausen Sea, West Antarctica, experiences a variable and warming climate, and as a result, the sea ice and land ice cover in the region are declining. One of the aims of the BAS core program, ACES-FOCAS, is to understand the processes causing these changes. This poster provides an overview of cruise JR165 on RRS James Clark Ross in February - April 2007. The cruise set out to investigate the oceanographic regime of the Bellingshausen continental shelf, in particular the processes that introduce warm Circumpolar Deep Water (CDW) to the shelf, drive its circulation on the shelf and regulate the amount of heat it gives up to the overlying ice cover and atmosphere. To this end, we occupied a number of CTD sections that cross two major troughs on the Bellingshausen continental shelf, as well as further sections across the shelf break at the mouths of the troughs. These will allow us to track the progress of CDW along the shelf edge, onto the shelf and up to the floating ice shelves. A CTD section spanning the Bellingshausen Sea from Fletcher Peninsula to Charcot Island shows the predominance of CDW across the shelf and enables us to determine circulation and transports for the entire region. In addition, sections across the fronts of the Wilkins and George VI Ice Shelves will allow us to quantify heat and meltwater transports, giving an estimate of the rate of basal melting, and thus determine the oceanographic impact on these ice shelves.