



## **Constraining past behavior of The Antarctic Peninsula Ice Sheet: An important source of meltwater during deglaciation?**

R.N Rixon (1), C.J. Fogwill (1), and M.A. Hunter (2)

(1) University of Exeter, Geography, Exeter, United Kingdom (c.j.fogwill@exeter.ac.uk), (2) British Antarctic Survey, High Cross, Madingley Road, Cambridge

Although smaller than its neighbors The Antarctic Peninsula Ice Sheet (APIS) is poorly constrained in terms of its behavior during the Last Glacial Maximum (LGM). To the west of the APIS geophysical and oceanographic studies have demonstrated clear evidence of APIS expansion at the LGM, but to the east there are few constraints due to the presence of the fringing Larson Ice Shelf. Recent modeling studies have suggested that this region could be an important source of melt water during deglaciation, possibly contributing to meltwater pulse 1A (mwp-1A). This event is responsible for 20–25% of the eustatic sea-level rise observed from the LGM to present. Such a rapid, large-magnitude event would have had a significant effect on global climate and could have produced dramatically different influences on the climate system depending on the distribution of melt water sources for this event. Recent research suggests that a significant southern hemisphere source for mwp-1A may explain the onset of the Bølling-Allerød warm interval. However, this result remains controversial given the current debate on whether the mwp-1A event was sourced primarily from the northern or southern hemispheres.

Here we report the results of field investigations during 2008/9, from a transect from the central Eternity Range down to Frances Island a small island out on the Larson Ice Shelf off the Foyen Bowman Coast. Through detailed geomorphological mapping and cosmogenic isotope sampling this work aims to constrain past thickening inland and resultant grounding of the APIS in the Weddell Sea.