Geophysical Research Abstracts
Vol. 18, EGU2016-16247, 2016
EGU General Assembly 2016

Tidal controls on the flow of ice streams

Sebastian Rosier and G. Hilmar Gudmundsson
British Antarctic Survey, Cambridge, United Kingdom (ghg@bas.ac.uk)

The flow of many Antarctic ice streams is known to be significantly influenced by tides. In the past modelling studies have implemented the tidal forces acting on a coupled ice-stream/ice-shelf system in a number of different ways, but the consequences that this has on the modelled response of ice streams to tides have, until now, not been investigated. Here we investigate for the first time differences in model response that are only due to differences in the way tidal forcings are implemented. We find that attempts to simplify the problem by neglecting flexural stresses are generally not valid and forcing models with only changes in ocean back-pressure will not capture either the correct amplitudes or length scale.