

Study of landfast ice over the Totten Ice-Shelf with a NEMO-LIM local configuration

VAN ACHTER G.¹, FICHEFET T.¹, PATTYN F.²

1 UCL – ELIC

2 ULB

The Totten ice shelf drains over 570 000 km² of East Antarctica. Most of the ice sheet that drains through the Totten ice-shelf is from Aurora Subglacial Basin and is marine based making the region potentially vulnerable to rapid ice sheet collapse.

Understanding how the changes in ocean circulation and properties are causing increased basal melt of Antarctic ice shelves is crucial for predicting future sea level rise. In the context of the PARAMOUR project, we built a NEMO-LIM local configuration over the Totten ice shelf area in East Antarctica, to study the variability and predictability of the ice-ocean-atmosphere system. In the future we wish to couple our model with an ice-sheet model and an atmospheric model.

Current sea ice models are unable to represent very crudely the formation, maintenance and decay of coastal landfast ice. Landfast ice is sea ice that is fastened to the coastline, to the sea floor along shoals or to grounded icebergs. We applied several parameterizations for modeling landfast ice over the Totten ice shelf area.

Poster preference