

"The new measurements confirm that this part of East Antarctica is exposed to warm ocean waters that can drive rapid melt, with the potential to make a large contribution to future sea level rise.

"The floats also provided new measurements of ocean depth in the region, revealing a deep trough that allows warm water to approach the glacier year-round," Mr Silvano said.

CSIRO co-author Dr Steve Rintoul from CSHOR said the new measurements of ocean depth, temperature and salinity will help improve models used to predict the Antarctic's contribution to sea level rise.

"Crashing sensitive oceanographic instruments into the sea floor isn't generally recommended," he said.

"But these results show that profiling floats can be used in novel ways to measure the ocean near Antarctica, a critical blind-spot in the global ocean observing system.

"Much work remains to be done and more measurements are needed to assess the vulnerability of the ice shelf to changes in the ocean, including in the ocean beneath the floating Totten Glacier.

"New technologies, like the autonomous underwater vehicle (AUV) recently acquired by the Unive (ib