



Basal conditions at Pine Island Glacier imaged using deep-looking radar

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Satellite observations since the 1990s have identified glaciers draining into the Amundsen Sea Embayment as some of the most rapidly changing in Antarctica. The complex system of tributaries feeding a ~ 100 km long ice stream that is Pine Island Glacier (PIG) exemplifies these changes: during the 1990s it (i) thinned by up to 1.6 km year-1; (ii) retreated by up to 1.2 km year-1 at the grounding line; and (iii) accelerated by around 10 %. Yet it remains unclear whether these changes represent the onset of major deglaciation in West Antarctica, or are simply a relatively short-term ice-dynamic perturbation with few consequences for the long-term future of the ice sheet. Characterising the basal conditions beneath the ice stream, in particular whether the base is wet or dry, or composed of hard bedrock or deforming sediments, is critical to determining the potential controls on ice dynamics. During the austral summer of 2007/08 we imaged the bed of PIG in several locations using a 1 MHz oversnow radar system (DELORES; DEEp-LOok Radio Echo Sounder). The results supplement findings from seismic investigations conducted in parallel with the radar surveys.