Geophysical Research Abstracts
Vol. 13, EGU2011-6776, 2011
EGU General Assembly 2011

Spatial and temporal accumulation variability on Fimbulisen, East Antarctica

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We show first results from the 2009-2010 summer season glaciology field campaign on Fimbulisen, East Antarctica. In order to determine recent surface mass balance (SMB), shallow firn cores (10-18 m deep) are measured using dielectric profiling (DEP) and the records are used to date the cores. In addition we use stable isotopes for some of the cores to verify the DEP-based dating. Radar data are utilized to assess the thickness of the ice shelf and follow layers between the core sites.
The identification of the volcanic eruption of Mount Pinatubo (1991) in our cores allows for calculation of SMB over the period 1992-2009. Values are found to range between 236-363 mm/yr w.e. in five of our cores. Preliminary annual dating and SMB is obtained from DEP and oxygen isotope data and shows a rather smooth temporal SMB pattern with a continuous decrease over the period 1985-2000 for three of the cores. After 2004, SMB seems to have increased again.
Radar layers indicate a variability of some 6 % over 14 km.