



Seismic activity triggered by the interaction of ice sheet flow with the Sør Rondane Mountains, East-Antarctica

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The interactions of the Antarctic ice sheet with the various marginal orogenic belts is poorly understood. To make up for this lack of knowledge we installed in early 2014 in the Sør Rondane Mountains of eastern Queen Maud Land, five new broadband seismic stations, in addition to an existing permanent station setting up a 90 x 30 km wide seismic network. All stations are set up to be year-round autonomously powered, all but one being on rock outcrops. Despite technical problems encountered during winter, several months of data were collected and so far about 1 month of this dataset has been processed. The background seismic noise is found to be low to extremely low with seasonal variations suggesting influence from meteorological conditions. In addition to teleseismic events, a lot of local seismicity is observed and so far 155 local quakes were detected and localized using manual picking and 2 localization methods (Hypo and NonLinLoc). The inferred locations indicate 2 major source regions for these quakes: at the border between the ice sheet and outcropping mountains and within the fastest moving ice flow suggesting that the detected seismicity is correlated with the ice flow dynamics. Further information regarding the quake focal depths and the inferred crustal model will be discussed.