

STT071-12

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## Broadband seismic array deployments in Antarctic continent frontier in the International Polar Year (IPY2007-2008)

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Deployment of broadband seismic stations on the Antarctica continent is an ambitious project to improve the spatial resolution of seismic data in the polar frontier. The project has several components, including 1) process-oriented experiments such as 3D-arrays; 2) evolving regional arrays; and 3) a permanent backbone network. Temporary broadband stations deployed on outcrops and continental ice sheet around East Antarctica ? African continents will contribute strongly to IPY related major programs such as the LEGENDS, IGCP-559, 'POLer observation NETWORK (POLENET) (IPY project #185)' and 'Antarctica's Gamburtsev Province (AGAP)/ GAMSEIS (IPY Project #147)'.

The AGAP/GAMSEIS is an internationally coordinated deployment of more than 35 broadband seismographs over the crest of the Gamburtsev Mountains (Dome-A) ? Dome-F area. The seismological investigations provide detail information on crustal thickness and mantle structure and make key constraints on the origin of the Gamburtsev Mountains, and more broadly on the structure and evolution of the East Antarctic craton and subglacial environment.

From GAMSEIS data obtained in 2008-09, local and regional seismic signals associated with ice sheet movement and meteorological variations were recorded; together with significant number of teleseismic events. The detection of seismic signals from phenomenon at the base of the ice sheet, such as outburst floods from subglacial lakes could be expected from detailed analyses. In this presentation, in addition to the study of the Earth's deep interior, super-continent, several remarkable detected signals are demonstrated involving global warming.

Keywords: Antarctic continent, broadband seismometer, polar frontier, array deployment, International Polar Year