

INGV seismological activities in the Antarctic region

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In the last years, the efforts of INGV to monitor the weak seismicity in outlet glaciers, to enhance the knowledge of lithospheric and deeper structure and the interdependence of the geodynamic and evolution of the ice cap of the Antarctic region, had evolved in the development of two seismological projects funded by PNRA (Programma Nazionale Ricerche Antartide) and focussed at different scale length. Here we present the technical activities of these projects, and some details about the future scientific works for which the data were acquired.

Two seismic stations have been deployed during the years 2013-2014 at Mid Point and Talus Dome in order to study the litho-asthenospheric structure inside the stable continent. Both stations were located on the plateau, more than 500 Km apart from the Italian MZS base; both stations were supposed to record continuously during the Antarctic summer and part of the winter. The teleseismic data acquired and those available from other permanent stations located around, will be analysed with shear wave splitting and receiver functions techniques to obtain crustal and upper mantle structure to constrain the seismic deformation occurred during geodynamical episodes in the area.

The seismicity connected with the flowing on the bedrock, as found at the David glacier, the most imposing outlet glacier in the Victoria Land region (Danesi et al., 2007), will be studied using the data acquired by 5 seismic stations deployed during the 2015-2016 summer campaign. The seismic stations were installed on several outcrops located around the glacier and worked continuously for three months. At the same time, several RES images were acquired and a digital 3D model of the glacier will be provided allowing a more accurate location of the seismicity around it.

In any case, the data acquired by these temporary stations will be jointed with those of the permanent ones, help to fill the gap, even if partially, of global seismic instrumentation in remote and inaccessible polar region.