



Geophysical surveying for permafrost research in the Maritime Antarctic. First results from Livingston and Deception Islands.

G. Vieira (1), C. Hauck (2), S. Gruber (3,4), J. J. Blanco (5) and M. Ramos (5)

1) Centre for Geographical Studies, University of Lisbon, Portugal, 2) Glaciology and Geomorphodynamics Group, Department of Geography, University of Zurich, Switzerland, 3) Institute for Meteorology and Climate Research, Forschungszentrum Karlsruhe/University of Karlsruhe, Germany, 4) Laboratoire EDYTEM, Université de Savoie, Le Bourget-du-Lac Cedex, France, 5) Department of Physics, University of Alcalá, Spain

The Maritime Antarctic and especially the Antarctic Peninsula sector is one of the regions in the World with a stronger climate warming trend, with values of ca. +2.5°C of warming in mean annual air temperatures since 1950. While glaciers and ice-shelves are being monitored to evaluate the climate change effect, permafrost, which is another important component of the Antarctic cryosphere has been neglected. In order to develop permafrost research in the Antarctic, two core-projects of the International Polar Year 2007-08 have been recently approved: Antarctic and Sub-Antarctic Permafrost, Soils and Periglacial Environments (ANTPAS - SCAR/IPA) and Permafrost Observatory Project - A Contribution to the Thermal State of Permafrost (TSP - IPA). Important objectives of these projects are to install a network of boreholes for permafrost temperature monitoring in the Antarctic, and also a network of sites for monitoring the active layer characteristics. These networks will become part of GTN-P and CALM-S. The project PERMAMODEL - Permafrost and active layer monitoring and modelling in Livingston and Deception Islands is part of ANTPAS and TSP and will contribute to the monitoring strategy with the installation of new 20-25m boreholes in Livingston and Deception Islands and also of CALM-S sites. In order to choose the best locations for the boreholes a geophysical survey campaign took place in early 2006 in both islands, using a combination of georadar, geoelectrics and seismics. The first results, which allow a first characterization of the ground conditions will be presented.