



Using shallow ground temperature measurements for the detection and monitoring of climatic trends and signals in the maritime Antarctic - examples from Livingston Island.

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

1) Department of Physics, University of Alcalá, Spain, 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) Centre for Geographical Studies, University of Lisbon, Portugal.

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. In the high latitudes of the southern Hemisphere, climatic stations and time series of climate parameters or proxies are rare and expensive to maintain or retrieve. Ground temperature measurements provide a reliable and comparably inexpensive mean to detect climatic changes. Using ground temperature time series recorded at different locations and depths on Livingston Island we discuss the suitability of these measurements for the monitoring of climate trends and changes in the periodicity of weather patterns. This is done in view of several new boreholes that are likely to be installed in the near future in the context of permafrost and active-layer research as two core-projects of the International Polar Year 2007-08 that 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.