



Geophysical sounding and thermal monitoring in northern Norway – TSP-Norway

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The Norwegian funded IPY project ‘Permafrost Observatory Project: A Contribution to the Thermal State of Permafrost in Norway and Svalbard’ (TSP NORWAY) is a part of the international IPY full project ‘Permafrost Observatory Project: A Contribution to the Thermal State of Permafrost (TSP)’. TSP will obtain a “snapshot” of the permafrost environments as a benchmark against which to assess past and future changes by making standardized temperature measurements in existing and new boreholes throughout the World’s permafrost regions. The permafrost distribution in the North Atlantic area is to a large degree climatically controlled, mainly by the North Atlantic Drift, causing much less permafrost than in any other high latitude terrestrial region on the Northern Hemisphere. Nine 7-31 m deep boreholes were drilled in bedrock in northern Norway in August and September 2007. All boreholes were equipped with automatic temperature recording, either with thermistors connected to dataloggers or with miniature temperature dataloggers. In 2008 resistivity and seismic tomography were carried out over most of the boreholes, allowing the estimation of subsurface structures around the drilling locations. This presentation shows first results of profile inversions and combined seismic and electric analysis using the so-called 4-phase modell. The obtained results are compared and validated to the temperature monitoring at each site. The results will subsequently be used for subsurface material characterisations for application in heat flow modelling.