

Report of fieldwork training and scientific expedition:

Training in field measurements of permafrost and its relation to glaciers with use of electrical resistivity tomography method in active periglacial zone in Hornsund area, Spitsbergen.

During the period of 5.08 – 25.09.2015 Michał Glazer M.Sc. and Damian Kula B.Sc. took part in the scientific expedition to Hornsund, Spitsbergen. The aim of the expedition was to fulfill the one of the tasks of NCN project “Glacier-permafrost interaction as an environmental continuum between glacial and periglacial domain in Tarfala (Scandinavia) and Hornsund area, Spitsbergen” and to conduct a training in contemporary geophysical methods used in periglacial environment. The training was possible due to the funding that was acquired from Centre for Polar Studies (KNOW). The project was performed under the leadership of Wojciech Dobiński PhD.

The expedition was not only planned to collect field measurements but also to test modern equipment and familiarize with most up to date methods of polar research. Thanks to funding from KNOW it was possible to extend the expedition by 10 days what made possible to broaden measurements conducted during expedition by training of methods application that are unique in field of electrical resistivity methods in periglacial area as well as by familiarizing with contemporary hardware and recent methods used for interpretation of electrical resistivity tomography results.

Members of the expedition was able to familiarize in detail with modern tool used for electrical resistivity tomography in active periglacial environment: Terrameter LS produced by ABEM company. The data acquisition was performed with use of different measuring protocols what made it possible to familiarize with pros and cons of each of them while applied in such a unique environment and geological medium present in the area of the Polish Polar Station. The topography of taken measurements was created with use of GPS RTK method which also was a great test for members' skills and abilities to conduct measurements in such rough environment.

During the field works there were taken more than 30 electroresistivity profiles of length varying from 20 up to 1500 meters. The longest profile consisted of 300 electrodes taking part in the measurements and took almost 3 workdays to conduct. Due to the variable parameters of different measurements it was possible to measure an apparent resistivity from a few meters up to almost 100 meters deep with different resolution of the taken data.

During the expedition, thanks to the funding from KNOW, team members was able to improve their skills and abilities that proven to be useful during the field works. The data acquired during the expedition after the preliminary interpretation proved to be of high scientific value.

Michał Glazer M.Sc.

Damian Kula B.Sc.



Figure 1 Photo taken during the travel to Polish Polar Station, Bellsund area.

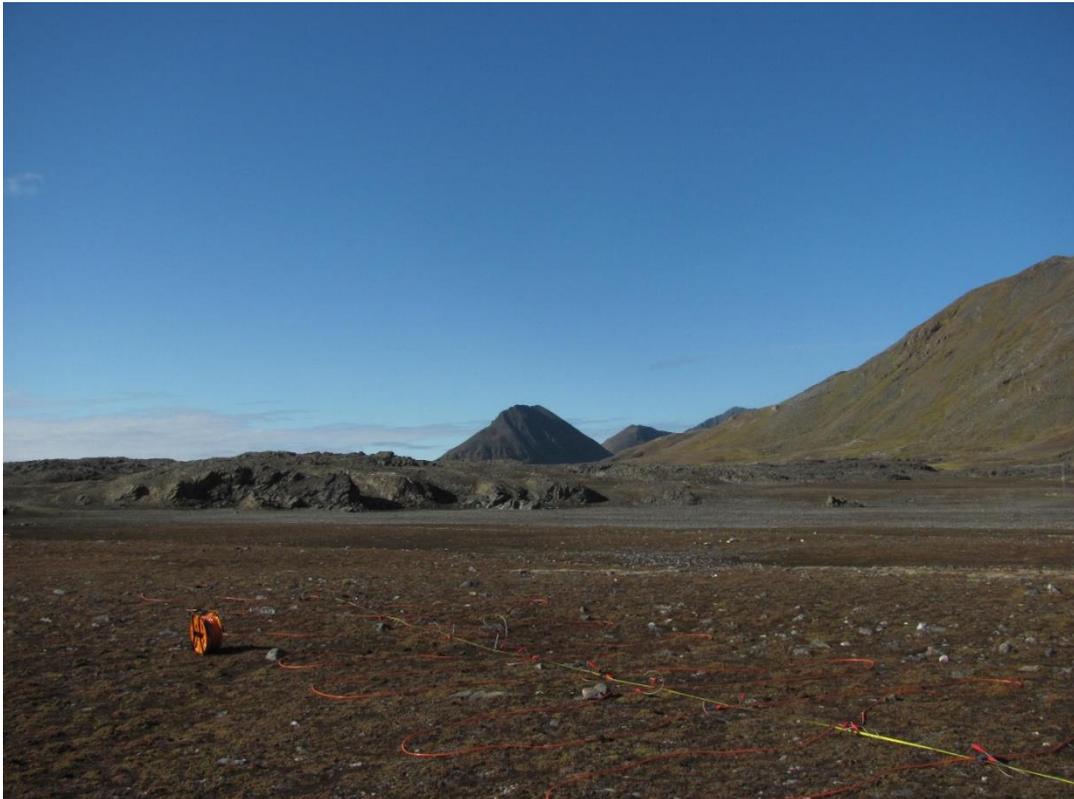


Figure 2 Fieldworks in the Fuglebergsletta area



Figure 3 Team members verifying apparent resistivity values in a real time



Figure 4 The team's most common guest in the field.



Figure 5 A landscape photo taken from the Fugleberget