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Comparison of alternative electrode types for improvement of electrode-ground coupling in highly-resistive environment. Experience from the time lapse geoelectrical station for high-latitude permafrost monitoring, Ilulissat, West Greenland

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The contribution is concerning the experiments carried out in the spring 2013, having as purpose the improvement of grounding of the electrodes placed in fine-grained permafrost after we discovered that standard electrode types are surprisingly performing not well enough during the winter time (comparing to other, geologically less favorable sites in Greenland), when the ground resistance is extremely high.

The field experience revealed unexpected facts (unexpected based on previous experience) about problems with reliable ERT measurements that can be encountered in highly resistive environments (such as permafrost sites). We carried out a series of field test (and we still have ongoing laboratory test) in order to design the best electrode type for the challenging, highly resistive environments when reliable operation is required due to the remoteness of the sites.