

Magnetotellurics in Northern Finland

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Magnetotellurics (MT) is an electromagnetic geophysical method where temporal variations of the natural electromagnetic field of the Earth are measured on its surface. The measurements contain information about the electrical conductivity structure of the subsurface. We analyse MT data collected within the Magnetotellurics in Scandes (MaSca) -project. In 2014 we measured total of 79 MT sites in Northern Finland. The site array covers parts from the Peräpohja Belt, the Central Lapland Granitoid Complex and the Central Lapland Area. This is the first time extensive MT studies are being conducted in the area. With an average site spacing of 15–30 km and a period range of 0.001–10000 s, the data set contains information about the large scale conductivity structure of the crust and upper mantle below the site array. The complex geological setting requires three-dimensional (3-D) inversion to infer the conductivity variations in the most realistic manner. With some success so far, the 3-D inversion of the data set is an ongoing challenge. Preliminary results will be presented.