Sodankylä Geophysical Observatory - 85 years for Geophysics

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Preface

Sodankylä Geophysical Observatory in Sodankylä was founded in 1913 by the Finnish Academy of Science and Letters. It is one of the permanent auroral zone observatories which have collected most invaluable data for the studies of polar atmosphere and near-Earth space. These observatories have been the key stations during many extended international programs, such as the Second Polar Year (1932-33), International Geophysical Year (1957-59) and International Magnetospheric Study (1978-79).

In the early days Sodankylä Geophysical Observatory was a magnetic observatory and weather station. Later auroral observations were started and as a result of the IGY ionospheric soundings became a permanent part of the observatory programme. Riometer measurements of cosmic noise absorption were initiated in 1963. Thus several long-term records of geophysical quantities are available from Sodankylä which are now particularly important e.g. in analysing the trends associated with global changes.

A new era in the history of Sodankylä Geophysical Observatory began in 1975 when Finland became a founder member of the EISCAT Scientific Association and one of the three radar sites was built in Sodankylä. The EISCAT radar, a most powerful instrument to investigate the upper atmosphere gave a strong motivation to intensify the ionospheric research in Finland. Many new findings and innovations both in ionospheric physics and measurement technique as well as in data analysis methods are results of this activity.

In 1997 Sodankylä Geophysical Observatory was associated with the University of Oulu and in 1998 the Geophysical Observatory in Oulu became a division of Sodankylä Geophysical Observatory. As a result, Sodankylä Geophysical Observatory now runs all seismic stations in Northern Finland and the cosmic ray station in Oulu. Thus the Observatory is one of the most versatile geophysical observatories in the world.

In order to celebrate the 85th anniversary of Sodankylä Geophysical Observatory and in order to illustrate its research activities and the multiple use of the observatory data this special issue of Geophysica has been published. The papers cover most of the spectrum of the research interests of the Observatory including magnetospheric, ionospheric, cosmic ray and solid earth physics as well as applications of data analysis methods. I hope that they will provide a modern view of geophysical observatory activities and will inspire the scientists to use observatory data as well as to collaborate with the scientific personnel of Sodankylä Geophysical Observatory.

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