

## The Sodankylä Meteorological Observatory

(  $\varphi = 67^{\circ} 22'N$ ,  $\lambda = 26^{\circ} 39'E$  )

by

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The Finnish or Väisälä radiosonde, which in the early part of 1936 developed into a useful aerological observation instrument after experimental work of years' duration, provided improved means for use in the establishment of a network of aerological observations in Finland. In 1937, in conjunction with the international observation network project the Meteorological Office proposed Sodankylä for the site of the new radiosonde station to be founded alongside the then already active Ilmala observatory. This proposal was included in the project and approved by the Strassburg meeting in 1937.

Sodankylä is located about 100 kilometers north of the Arctic Circle and about 500 kilometers east of the Atlantic Ocean. Its climate is continental for the Norwegian mountain range to a great extent prevents oceanic effects from making their way to the eastern side of the mountains.

Since the middle of the nineteenth century meteorological observations have been made at Sodankylä. A climatic observation station was active during the years 1852—1864 and 1873—1879 in the Sodankylä church village. During the first international polar year from 1882 to 1883 and even for a year thereafter geophysical and meteorological observation work was extensively carried on there. It was in the program of this polar year observatory to make, at one hour intervals, observations of meteorological and magnetic elements as well as observations of

atmospheric electricity and northern lights, e.g. their heights. The results of these observations have been presented in special publications.<sup>1)</sup>

The polar year observatory having finished its work several years elapsed before the making of meteorological observations was resumed in Sodankylä. In 1891 the rainfall measurements began continuing with short interruptions. In 1907 the making of meteorological observations started again and has continued since then except for the short interruption in 1944 caused by World War II.

Without doubt the favourable experiences obtained during the first polar year played some rôle in developing Sodankylä into a center of geophysical observation activities in our days. The geophysical observatory of the Academy of Finland was founded in Sodankylä and began its activities in 1914. Meteorological observations have been made there ever since its foundation. Observation practises developed in the observatory circle and before long it became a first class observation station where alongside meteorological observations wind observations in the upper strata of the atmosphere with pilot balloons have been taken since 1921, and the Sun's radiation has been registered since 1932.

During the so-called Lapland War in 1944 the Germans demolished the geophysical observatory of Sodankylä and its activities were suspended. The making of weather observation began after an interruption of about a month's duration. Thanks to the partial reconstruction of the geophysical observatory in 1945 the meteorological practises of the observatory could be carried on almost as extensively during 1946 as before the demolition.

Only after World War II the establishment of a radiosonde station in Sodankylä came up again. Since this tremendously increased the work of the meteorological observatory the Meteorological Office decided to build a special meteorological observatory. Funds for the purpose described were provided at the end of 1948 and 1949 saw the realization of a plan of many years.

The observatory was built in the immediate vicinity of the geophysical observatory. In addition to the observatory proper there is an office

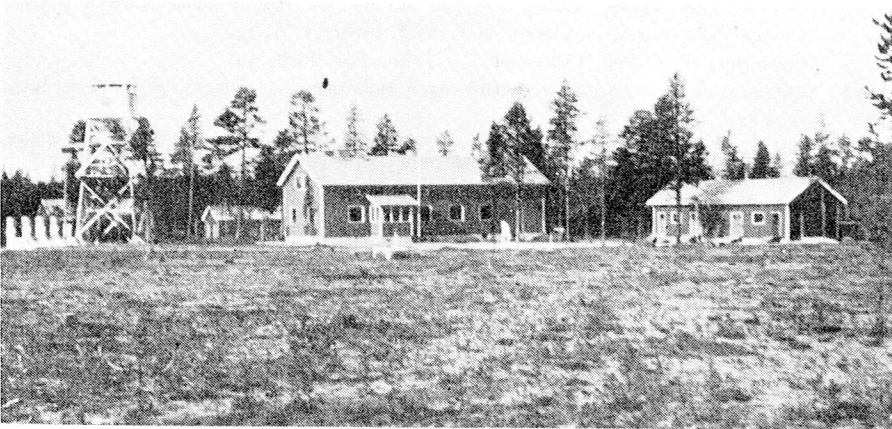
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1) LEMSTRÖM S. and BIESE E. 1887. Exploration Internationale des Regions Polaires 1882—1883 et. 1883—1884. Expedition Polaire Finlandaise.  
 Observation faites aux Stations de Sodankylä et de Kultala.  
 I Meteorologie.  
 II Magnetisme terrestre.  
 III Electricite atmospherique.

building with lodgings in the attic and on end of the ground floor Northeast of the observatory there is an outbuilding for hydrogen stores and locations for filling balloons. On the eastern side there is a circular field about 100 metres in diameter for radiosounding observations. On the southwestern side of the building there is a tower 18 metres high for wind etc. gauges. West of the tower there are two houses for accomodating the observatory staff.

Since 1949 radiosounding has been carried out in the observatory once daily and visual wind measurements from radiosoundings. The observatory naturally serves as a perfect weather observation station. In addition to this global radiation registration onto a horizontal surface is being effected since the beginning of 1951. It is also very probable that during next year radiosoundings will be carried out twice daily, in which case the observatory can, more perfectly than heretofore, serve as an observation station of synoptic aerology.

There are plans for further expanding the observation program of the observatory. Thus, light will be thrown on meteorological problems north of the Arctic Circle from still more angles than heretofore by means of the observations made at Sodankylä.



Eastern view of the Meteorological Observatory at Sodankylä.