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Adolf Schmidt-Observatory
for Geomagnetism Niemegek

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The Adolf-Schmidt-Observatory for Geomagnetism in Niemegek - History and Present

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The Niemegek Observatory is the follower station of the Potsdam Geomagnetic Observatory. The history of the Potsdam station, which started on January 1, 1890 making regular observations of the geomagnetic field on the Telegrafenberg in Potsdam, goes back to A. von Humboldt, C.F.Gauss and W.Weber. First magnetic registration begun at the Berliner Sternwarte on May 11, 1836 and lasted till 1872, when local disturbances terminated any further geomagnetic observations in the region of Berlin.

It was a long time to 1890, when magnetic observations started again now in Potsdam. The first director was M. Eschenhagen. It should be noted, that Eschenhagen rediscovered the geomagnetic pulsations, which were at first described by the Scottish scientist Stewart some years earlier.

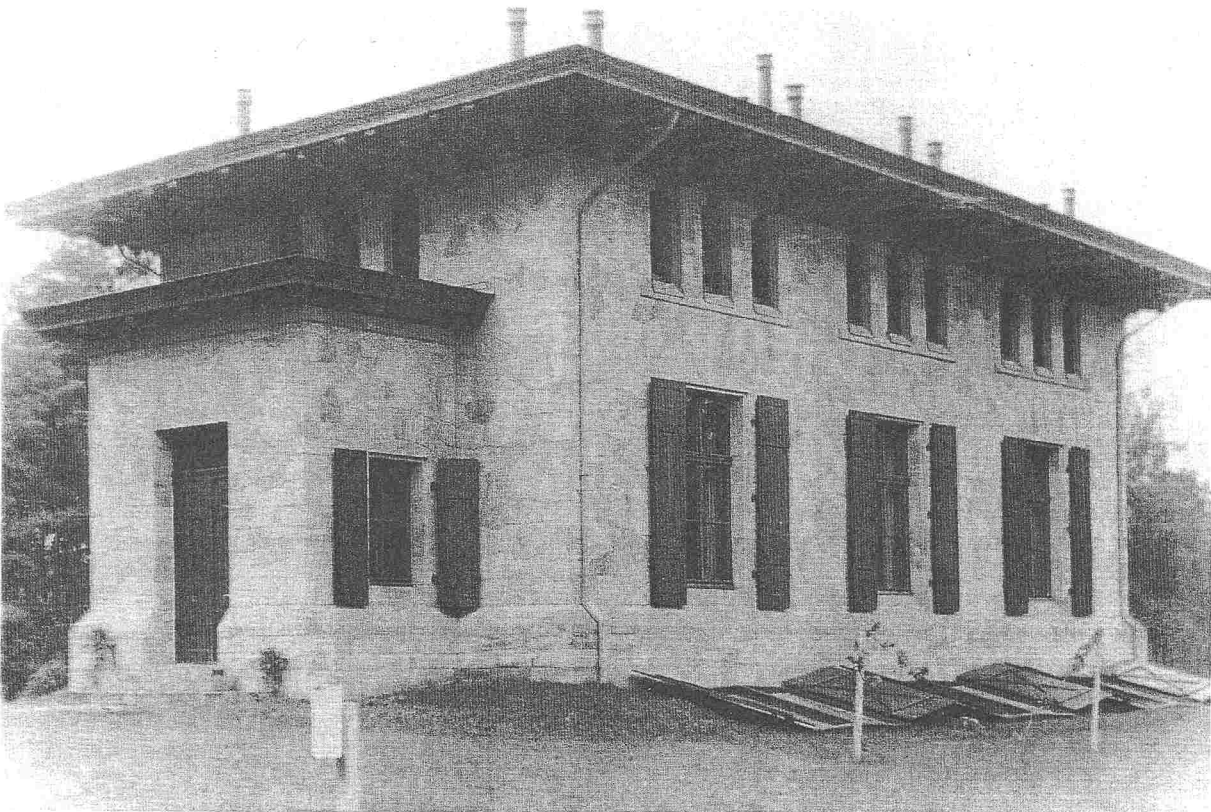


Fig. 1: The Geomagnetic Observatory Potsdam 1890.

At the beginning of the 20th century Adolf Schmidt was the director of the geomagnetic institute in Potsdam. A.Schmidt was a famous scientist in geomagnetism. His work in theory and practice has a great importance until now. In determination of the absolute geomagnetic level of the Niemegek observatory the theodolite by Schmidt plays a great role, now together with the DI-Flux-magnetometer.



Fig. 2: Adolf Schmidt 1860 - 1944

In 1907 the geomagnetic observation in Potsdam were influenced by local electrical disturbances. Therefore a new station in Seddin, approximately 20 km in the south-west of Potsdam was built up. But when the railway from Berlin to Potsdam was electrified by DC, it was not possible to observe the geomagnetic field further in Potsdam and Seddin. Adolf Schmidt selected in the end of the twenties the place in Niemegek for a new observatory. And at the 70th birthday of A. Schmidt, July 23, 1930, the Niemegek observatory started its observations.

Before the Second World War the Niemegek observatory belonged to the Meteorological Institute, later to the Geophysical Institute of the Berlin University, both located in Potsdam. In this time Alfred Nippoldt and Julius Bartels worked in Potsdam and Niemegek. Bartels developed the planetary index K_p on the basis of the Niemegek K-index.

After 1945 the institution was gradually extended so its work went over and above that of an observatory. A great spectrum of geomagnetic research was carried out in Niemegek. Gerhard Fanselau developed in Niemegek the geomagnetic field balance with ribbon suspension, a important instrument in applied geophysics. Horst Wiese was a pioneer in the field of geomagnetic induction and deep sounding. Herbert Schmidt used at first the proton magnetometer at the Niemegek observatory for standard observations in the total intensity and introduced the data processing.

Since January 1, 1992 the Niemegek observatory belongs to the GeoForschungsZentrum Potsdam, Division 2 "Physics of the Earth" Project "Electromagnetic Deep Sounding/Geomagnetic Fields and Disaster Research". In the middle of the fifties the experiment with flux-gate-magnetometers in Niemegek started. Further technical development led to their employments in Antarctica and in Space Research. Together with the Institute of Cosmos Research in Berlin a magnetometer was developed and built with ring-core sensors and applied in the PHOBOS-experiment.

Later the proton magnetometer became of great importance for the observatory. After some tests this principle was used for measurements of the total intensity since March 1959 by H. Schmidt. V. Auster developed the vector proton magnetometer, the proton principle combined with a special cylinder coil which is able to generate horizontal auxiliary fields and steelless ZEISS theodolite. The whole equipment is applied to measure absolute F, H and D.

In the last years modern instruments were installed at the Niemeck observatory, i.e. the Danish flux-gate magnetometer, the MAGSON magnetometer, the D-I-flux and the GEOMAG equipment to take part in INTERMAGNET.

An important question for the work of observatories is the availability of the magnetic data. Traditionally the Niemeck results are published in the Monthly Report and in the Yearbook. Together with the other German observatories Fürstfeldbruck and Wingst now a great part of data are published on a floppy disc, distributed together with the printed book. Recently there exist also the possibility, to receive Niemeck values by means of INTERNET. About the experience with the new magnetometer, incl. the experience with the INTERNET distribution of data as well as the test of the principle of optical pumped magnetometers for magnetic observations we refer to the papers of Linthe and Pulz in this volume.

Observatories are always basis points for geomagnetic survey in the country. The last magnetic survey for whole of Germany was undertaken for the epoch 1935.5. Fürstfeldbruck, Wingst and Niemeck have now constructed new magnetic charts for Germany for the epoch 1992.5 on the basis of geomagnetic surveys carried out in the last 20 years in the Federal Republic of Germany and the former German Democratic Republic with the inclusion at. additional measurements at more than 40 repeat stations in the region of the former border of the two countries. A complete new survey over the whole of Germany started in 1996/1997.

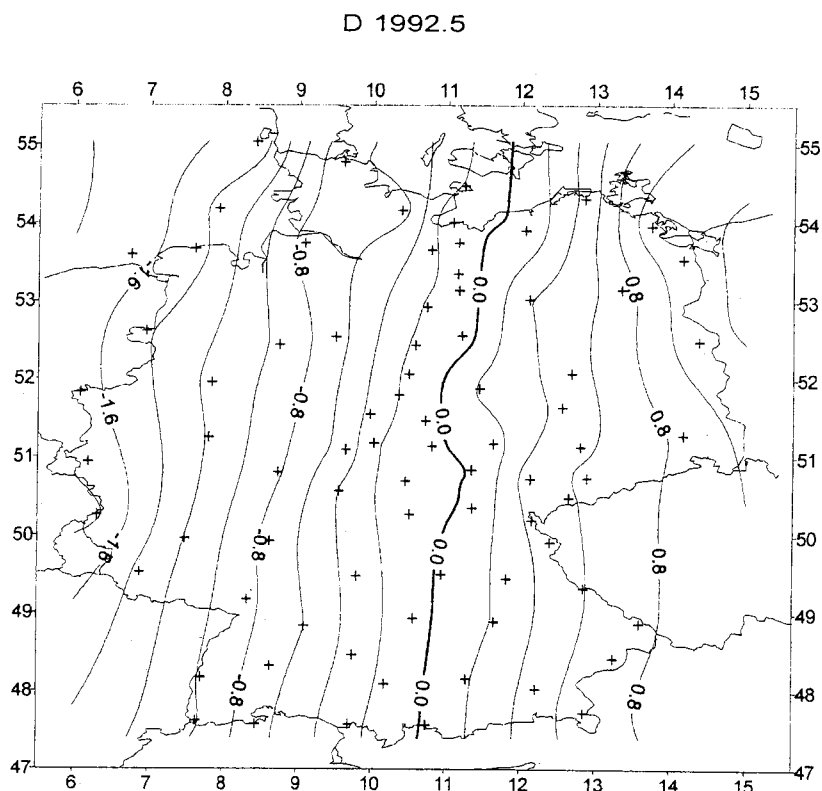


Fig. 3: Declination for the epoch 1992.5 for Germany

The scientists of the GeoForschungsZentrum Potsdam-Adolf-Schmidt-Observatory Niemeck are fully aware of the responsibility linked with the continuation of the more than hundred years old tradition of taking geomagnetic measurements.

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