History of Adolf-Schmidt-Observatory

von Dr. Adolf Best

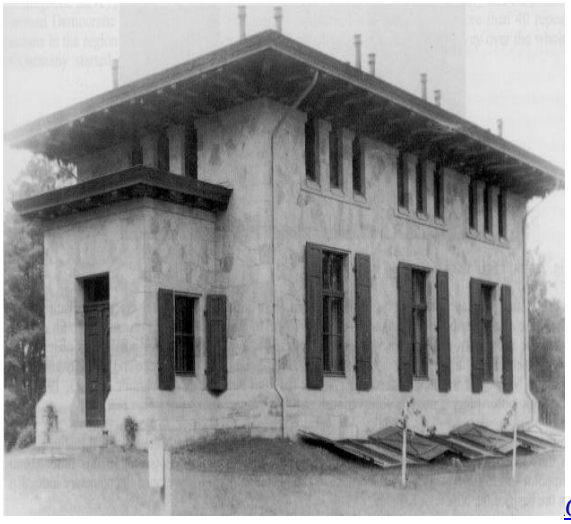

Observatory(1933)

Geomagnetic observation in Berlin and Potsdam

Archive documents show that Geomagnetic research in Germany goes back to Alexander von Humboldt. Geomagnetism was one of the three "most important and significant works of his life". After his final return to his hometown Berlin in 1827 he promoted Geomagnetic research, especially the establishment of a modern equipped observatory. On May 11, 1836 continuous observation began in Berlin at the Archenhold Observatory in Berlin-Treptow. Twice daily (at 08.00 and 14.00) declination values were determined, using a device constructed by Baumann. Inclination (using a magnetometer built of Mayerstein in Göttingen) and inclination (using a device built by Gambey) were also recorded. Humboldt's main aim was to study the global geomagnetic field. In a large part due to his efforts and encouragement, over the period 1836 - 1841 coordinated observations were established at approximatly 50 stations. The Berlin observations had to be discontinued at the end of 1872 owing to "the occurance of local disturbances" - meaning contamination from the increasing industrialization and develoment of electrified railways. However, the measurements to that date were not improved on for some time, and allow the extension of the continuous record of observation from the observatories in Potsdam, Seddin and Niemegk.

E. Ritter has found and edited the values from 1836 to 1865 in the archives of Berlin Archenhold Observatory. The location of the data from 1865 till 1872 is currently unknown. The discontinuation of the magnetic observations began a difficult time for Geomagnetism in Prussia, with the Prussian state having difficulties with the reestablishment of a magnetic station.

However, Wilhelm Julius Foerster was convinced of the importance of geomagnetism. After lengthy negotiations and the presentation of several memoranda, he achieved the building of a magnetic observatory on Telegrafenberg in Potsdam.



Geomagnetic Observatory Potsdam(1890)

Work was begun in spring 1887, and sample measurements made in autumn 1889.
Long-term observations began on January 1, 1890.
From 1902, Adolf Schmidt, was the director of the Geomagnetic Department of the Prussian Meteorological Institute in Potsdam. He was a pioneering scientist in geomagnetism whose work in theory and practice is still of great importance today.

From Potsdam to Seddin and Niemegk

As in many observatories the world over, measurements at the Potsdam magnetic observatory started to show the effects of disturbances. As early as 1907, because of disruption from the introduction of electrical tow traffic on the Teltow Canal and later the electrification of the tramway, the variation recordings had to be moved to Seddin, approximately 20km south-west of Potsdam near to federal route 2. The removal costs were paid by the city of Potsdam and the Teltow Canal Company. However, absolute measurements were still made in Potsdam.
In the middle of the twenties the plan was announced to electrify the Berlin City Railway as far as Potsdam. When in 1927 the first trial trains were run, their timtables could be observed in the magnetograms in Seddin. Full DC electrification of the Berlin city railway made further observation of the geomagnetic field in Potsdam and Seddin impossible.
In consultation with his deputy, A. Nippolt, who was to succeed him after his retirement in the year 1928,

Adolf Schmidt,

selected the site of a new observatory, 1.5 km away from Niemegk, 40km south-west of Potsdam. The site already had gas, water and electricity supplies. The existence of the gas

works in Niemegk was especially important for Schmidt and Nippolt. They hoped that by using the gas heating they could investigate and eliminate the influence of temperature on the measureing instruments. The executive of the German Railway had ensured in a contract of January 27, 1927 never to introduce DC electrification of the city railway line which runs past Niemegk. It was established that any new planned electrical systems of the town within a 500m radius of the observatory must be presented for permission of the directorate of the institute. Today, the observatory has various levels of protected zones, of radii 1 km, 5 km and 30 km. The cost of the removal of the observatory was borne by the railway: 150,00 RM for the removal of the observatory as one-off expenditure and 100,000 RM as compensation to the Prussian state.

Niemegk observatory was officially established on July 23, 1930, the 70th birthday of Adolf Schmidt. Following the recommendation of Prof H. v. Ficker, the director of the Prussian Meteorological Institute, the Minister for Science, Arts and Culture gave the observatory the title of "Adolf-Schmidt-Observatory for Geomagnetism" in acknowledgement of his scientific leadership in Potsdam. The guestbook of the observatory shows the high profile of the new observatory - the first official visit recorded after the opening ceremony in September 14, 1930 was of 26 scientists from the DGG, including Kohlschütter, Tams, Weikmann, Rössiger, Meißer, Jung and Haalck. Up until 1936, the observatory was a department of the Meteorological Magnetic Observatory in Potsdam which itself belonged to the Prussian Meteorological Institute of Berlin. From 1936 to 1945 the Niemegk observatory was incorporatd in the Geological Institute in Potsdam which belonged to the University of Berlin. At this time J. Bartels was the director, having taken over from A. Nippoldt. In April 1945, Niemegk became a combat area of the Second World War. As a result of direct fighting and war damage, the observation activity had to be suspended. The last magnetogram is dated April 19, 1945.

After 1945, the administrative affiliation of Niemegk observatory was continually changing. From 1945 untill 1949 it was part of the Potsdam Geophysical Institute Potsdam, part of the Meteorological Service. The director was G. Fanselau, who also went on to succeed of R. Bock as the director of the Geomagnetic Institute in Potsdam which had developed from the Geophysical Institute. When the academy was reformed in 1968/69, leading to the establishment of the GDR Academy and to Central Institutes, Niemegk was transferred to the Central Institute Physics of the Earth, Potsdam and from 1982 was established as a separate department of the Heinrich-Hertz-Institute in Berlin-Adlershof. The priorities of geomagnetic reasearch included instrumental development, the geomagnetic survey, electromagnetic depth sounding and physics of magnetosphere. In the International Geophysical Year several outstations were established - two examples, Warnkenhagen (Baltic Sea) and Sosa (Erz-Mountains), remained in use until 1991.

With German Unification the structure of science was reorganized in the newly-formed German states. Since January 1,1992 the Niemegk observatory has been a part of the GeoForschungsZentrum Potsdam, Division. The priority of the research remains the observation of the geomagnetic field. Therefore, modern magnetometers were installed by the GFZ at the Niemegk observatory (e.g. D-I-flux). A first important job for Niemegk after German unification was, in collaboration with the other two German magnetic observatories, Wingst and Fürstenfeldbruck, was the construction of new magnetic charts for the united Germany for the epoch 1992.5, on the basis of geomagnetic surveys carried out over the previous 20 years in the Federal Republic of Germany and the former German Democratic Republic. It was the first magnetic map of the whole German state since 1937.

Niemegk observatory and well-known geomagnetists

The history of Niemegk observatory and the now 106 year long series of measurements at Potsdam-Seddin-Niemegk is linked with the work of many famous scientists. A. Schmidt has already been mentioned. His theoretical and technical works are still referenced today in the technical literature - for more details see a memoir in the "Physikalischen Blättern", published in 1961 by Fanselau to commemorate the centenary his birth.
J. Bartels was an internationally renowned scientist with strong connections to the observatory. After his doctorate Bartels went to Potsdam as scientific assistant to Adolf Schmidt. With Sidney Chapman he cowrote the standard work "Geomagnetism", a monograph which remained the standard text in geomagnetism for over 40 years. His establishment of the planetary kp index which describes the global magnetic degree of disturbance for the earth is of particular importance.