



## **Calibration of historical geomagnetic observations from Prague-Klementinum**

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The long tradition of geomagnetic observations on the Czech territory dates back to 1839, when regular observations were started by Karl Kreil at the Astronomical Observatory Prague-Klementinum. Observations were carried out manually, at the beginning more than ten times per day and the frequency later decreased to 5 daily observations. Around the turn of century the observations became to be disturbed by the increasing urban magnetic noise and the observatory was closed down in 1926. The variation measurements were completed by absolute measurements carried out several times per year.

Thanks to the diligence and carefulness of Karl Kreil and his followers all results were printed in the yearbooks *Magnetische und meteorologische Beobachtungen zu Prag* and have thus been saved until presence. The entire collection is kept at the Central Library of the Czech Academy of Sciences. As the oldest geomagnetic data have been recently recognized as an important source of information for Space Weather studies, digitization and analysis of the data have been now started. Although all volumes have been scanned with the OCR option, the low quality of original books does not allow for an automatic transformation to digital form. The data were typed by hand to Excel files with a primary check and further processed.

Variation data from 1839 to 1871 were published in measured units (scales of divisions). Their reduction to physical units was not as straight forward as we are used in recent observatories. There were several reasons: (i) the large heavy magnetic rods were not as stable as recent systems, (ii) the absolute measurements of horizontal components were carried out by the genius but rather complicated Gauss method, (iii) the intervals between absolute measurements was on the scale of months and eventual errors were not recognized timely. The presentation will discuss several methods and give examples how to cope with the problem.