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GAUSS - A Geomagnetic AUtomated SyStem for measuring the Earth's magnetic field

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In geomagnetic observatories, magnetic field measurements are divided into continuous recordings of field variations and weekly determination of the so called baseline by absolute measurements, a procedure which includes the determination of all systematic errors. Thus, the quality of the measurement results depends strongly on the experience and accuracy of the observer, and regular measurements lack in remote areas. Therefore, several attempts have been made to operate this kind of instruments automatically, but until now they have not been successful.

In a cooperation between TU Braunschweig an GFZ Potsdam, a new measurement method was developed and automated, based on rotating of a three component fluxgate magnetometer about well-known axes. Only low mechanical requirements are necessary, but all demands on an absolute measurement are satisfied.

The Geomagnetic AUtomated SyStem (GAUSS) performs measurements since fall 2006 at the geomagnetic observatory in Niemegk. We present the setup of the new device and discuss first results obtained during the measurement campaign.