

Absolute measurements: comparative study of instrumentation

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Abstract: Absolute measurements are the most important operations of the observatory practice. Their precision highly determines the quality of the observatory standard and also allows to estimate the quality of the instrument used for Earth's magnetic field monitoring. It is known that the problem appeared due to the production suspension of non-magnetic theodolites at Zeiss factory. The Russian 3T2KP theodolites are an opportunity. MinGeo Co in Hungary and LCISR in Ukraine execute their demagnetisation at present. A set of absolute measurements were carried out at Chambon la Foret, Niemegek and Nurmijärvi observatories to test the 3T2KP-NM theodolites modified and equipped with one-component fluxgate magnetometers LEMI-203 or DMI D&I. The Zeiss-Jena 010B theodolites were used as the reference instruments for this comparison. The results were reduced to the three-component observatory magnetometers recording in the variation rooms. The test results are presented and their quality is discussed.

Key words: geomagnetic observatory, absolute measurement, DI-fluxgate

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