

## How to control a temporary DIDD based observatory in the field?

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### Abstract

One of the main challenges on the course of the repeat station surveys is to determine the spatial differences of the geomagnetic elements between the repeat stations and the reference observatory. The difficulty arises from the fact, that the directly obtained differences are affected not only by spatial but also by temporal effects of external origin. The error deriving from the external effects can be efficiently diminished by the installation of an on-site vector variometer. In this case the spatial difference can be computed for night-time period, when the external field is less varying (both spatially and temporally) than during daytime. Installation of the on-site variometer in the field requires the fulfillment of nearly the same conditions as in the observatories, i.e. the control of the reference frame, the scale factors, the offsets, and the temperature effects of the magnetometer. The principle of the fluxgate and DIDD magnetometers is quite different from each other, therefore the two devices provide different possibilities to obtain accurate result. The paper discusses some of the possible instrumental errors and offers a method based on the DIDD technology for the determination of the reference frame of a portable recording station. We analyse real records measured during the joint Hungarian-Croatian repeat station survey.

### Keywords

Instruments and techniques; Main geomagnetic field; Geomagnetic field variations and reversals; Magnetic anomalies; Magnetic storms; Main geomagnetic field

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### References

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