



Short-term Tests of Potassium dIdD Vector Magnetometer

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Abstract

In this paper the results of short-term tests of a suspended Potassium dIdD vector magnetometer are presented. The instrument was installed on a stable pillar during May 2012 near Milton (Ontario, Canada). The aim was to investigate primarily the bias current stability and the noise level of the instrument (for measured components less than 10 pT in a root-mean-square sense). A brief description of the measurement principles and a review of formulae used for field component calculations are given. The errors of components, which arise from assumptions on dIdD orientation as well as from the total field time variations during a measurement cycle, are estimated and discussed, both for real and simulated data. Finally, the accuracy of the instrument was estimated, and the maximal theoretical accuracies of components were better than 60 pT at mid-latitudes.

Key words: Potassium dIdD vector magnetometer, magnetometer calibration, error calculation.