

Calibration techniques for magnetometers implementing on-board de-spinning algorithms.

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The Fluxgate Magnetometer experiments on-board ESA's four spacecraft Cluster Mission have the capability to store sampled magnetic field vectors on-board the spacecraft, either as an extra-high resolution event capture or as low resolution de-spun vectors. This capability has ensured a dataset is available during the significant periods of non-coverage in the first years of operation. De-spinning is achieved using a Walsh function with Haar coefficients and allows for up to 27 hours additional data per non-coverage interval. A number of commissioning orbits were used to verify the accuracy of the de-spin mode whereby individual spacecraft were operated separately in standard nominal sampling modes and de-spin mode combinations. Up to the present time this data has not been available to the Cluster community. We present results comparing performance of the de-spin versus the nominal sampling modes over a number of boundary layer crossings, describe techniques for calibration and timeline recovery and outline the context in which the data may be usable for future science studies.