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Geoscientific Instrumentation Methods and Data Systems Discussions

Interactive comment on "In-situ Calibration of Offsetting Magnetometer Feedback Transients on the Cassiope Spacecraft" *by* David M. Miles et al.

Anonymous Referee #1

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General comments The paper concerns an on-orbit calibration process of the offsetting fluxgate magnetometer on the Cassiope spacecraft. The developed characterisation process for fluxgate magnetometer feedback dynamics allows a significant magnetic interference reduction from the reaction wheels and improvement of the instrument's magnetic field resolution for short time intervals (∼100 ms). The paper is useful for on-orbit refinement of the calibrating process of an offsetting fluxgate magnetometer. Specific comments P. 2, Fig. 1 should be better explained: 1. Whether all broadband noise in Fig. 1a (vertical lines in STFT spectrum for time interval 7:00 . . . 7:50) was eliminated (cf. Fig. 1b) in the same way as for time interval 7:31:22 . . . 7: 31:23 (Figs. 1c-1d)? 2. Whether the signals near frequencies 17, 34, 51 Hz for time interval 7:00 . . . 7:50 are the 1st, 2nd and 3rd harmonics of magnetic interference from the reaction

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Discussion paper

wheels? 3. In which way the strong interference signal ≈40 Hz in time intervals ≈7:00 . . . 7:10 and ≈7:47 . . . 7:50 (Fig. 1a) was eliminated (cf. Fig. 1b)? P. 7, Fig. 6: The curves in temperature range -10 . . . +10 oC are almost indistinguishable for the usual page format. So, it is desirable to show these curves in two subfigures, for example in different time scales (or in log time scale). Technical corrections P. 4, Fig. 3: The a), b), c) symbols should be added to appropriate subfigures.

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