

Interactive comment on “In-flight calibration of double-probe DC electric field measurements on Cluster” by Y. V. Khotyaintsev et al.

Anonymous Referee #2

Received and published: 15 April 2014

1. Add in fig captions what is used as a reference measurement
2. The most natural dependence in Ex offset is s/c potential that is related to Debye length which again affects the photoelectron distribution.
3. Page 3, Line 20: it is not clear for which time interval of data the fitting is done, is several spins taken, one spin, or possibly ± 2 sec
4. Page 5, line 7: the approach to the determination of the correction factor is good. However how it is known that there is no dependence on any parameter, e.g. on s/c potential?
5. Page 5, line 24. This is a good approach but it would be good to know a bit more of

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how the authors decided to select such a set of numbers. Do the result change much if other numbers are used and more or less than 7 spins are used?

6. Page 6, line 4. The splitting of the orbit is not clear. Do you change the offsets when the magnetopause is crossed according to Shue model?

7. Page 6, line 22: the third panel shows only C1 and C3 where HIA is available. If an average is calculated for both C1 and C3 and this is used in the data, then EFW will not agree with HIA in all locations because average is likely for ~ 0.5 mV/m while during the first four hours the difference is ~ 1 mV/m. Explain in the fig caption that lines are for EFW and “+” marker is for HIA, or is it?

8. Figure 6: indicate the data points with a larger marker, e.g. with “+”.

9. Page 7, line 10-12: the condition for the offset assumes implicitly that there is no Vsc dependence. Once the Debye length is large, this may be quite well correct. However, one should consider to remove part of the transient data before averaging. How much data are included in the averaging, all that with the tail requirement on line 11 and the whole tail season? Or is this done orbit by orbit? One should not average too much because photoelectron characteristics can change.

10. Page 7, line 13-14. One should show some examples of CIS data but also EDI. Is CIS CODIF or HIA. It should be CODIF.

11. Fig 9. It is not clear why the Delta offset is divided into Ex and Ey. This offset is related to offset of raw signal and one expects it to be related to the front electronics, sensors etc. To me this should be non-directional quantity. The authors should at least present in one panel the total Delta offset.

Interactive comment on Geosci. Instrum. Method. Data Syst. Discuss., 4, 85, 2014.

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