

Interactive
Comment

Interactive comment on “In-flight Calibration of the Cluster/CODIF sensor” by L. M. Kistler et al.

L. M. Kistler et al.

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Response to Referee 1

Thank you very much for your careful reading of the manuscript. The following addresses each of your comments.

Comment: Section 2.2, How exactly was done the adjustment technique during sharp transitions: for the event to event by hand or using automatic routine?

Response: The adjustment was done by hand. I have added that statement.

Comment: What is definition of "smoothest possible"? In Figure 2, one could see quite sharp change in the total pressure at about 10:40?

Response: The constraint is that only one adjustment is made for the whole time pe-

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riod. In this case, an adjustment that would smooth out the sharp change at 10:40 would make other transitions worse.

Comment: line 14, "the product of efficiencies shown in Figure 1", I do not see any product of efficiencies in this Figure.

Response: No, there are three efficiencies shown in Figure 1, and the red circles show the product of those efficiencies (normalized to 1.0 at the beginning of the mission, as I have now made more clear based on the other referee's comments). I have rephrased this to make it clearer.

Comment: Figure 4, what is FM7?

Response: FM7 identifies the CODIF instrument that is mounted on SC4. I have removed that label to avoid discussing this unnecessary information.

Comment: Section 2.3, Are WHISPER data considered to be a standard without errors?

Response: Yes, in the sense that there is no statistical error, and no calibration error. There are times when the plasma frequency is not clear, and then no density can be determined. But if there is a clear line, an absolute density can be determined.

Comment: line 6, Whisper → WHISPER, to be consistent with other Response: Fixed.

Comment: Figure 7, what is the purpose of the horizontal line at 0.1?

Response: No point at all. I'll get rid of it.

Comment: Section 2.4, "Each anode contributes from 4 to 8 individual points on the pitch angle plot.", Why to 8 points, and not to 16, as for anodes 3 to 6, in Figure 8a

Response: Good catch. You are right. It should be 4 to 16 individual points.

Comment: Figures 9-11, which magnetospheric region was used for this example? How systematically this was done, for each data record? Once per month?

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Response: This is a plasmasheet example. This was done about once per month. If large changes were observed (unusual) then more examples were found. I added this information to the text.

Comment: Why doesn't the black fit always correspond to the data, as e.g. for 27665.7 eV/e? I would say the 0 and 180 PAs go rather down than up in data.

Response: The fit is actually done only to the points in the region of 90 +/- 45 degrees. So in some cases the edges may not look like the best fit. The text has been updated to clarify this.

Comment: Section 3.2, "The calibrations for S/C 3 and S/C 4 were then done by comparison with S/C 1." How? Are they adjusted to be on the same level? At what time intervals? As one cannot do it for each time record.

Response: This is done by selecting steady time periods when the three spacecraft would be expected to observe the same flux, and adjusting the SC/3 and SC/4 efficiencies to make the flux agree with SC/1. Time periods approximately once a month are used. Text has been updated to clarify this.

Interactive comment on Geosci. Instrum. Method. Data Syst. Discuss., 3, 221, 2013.

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