Page 593, Line 14: What is the field of view of each PEACE sensor perpendicular to the spacecraft spin axis? Does this have any effect on calibration?

The field of view of each PEACE sensor perpendicular to the spacecraft frame is 3.8^{o} (HEEA) and 2.9^{o} (LEEA). We will add this to the text. These are taken into account in G_i in equation (1). They do not change with time so have no effect in this calibration study.

Page 593, Line 23: Polar and azimuth should be defined properly here and marked on Figure 2.

The azimuthal angle is measured in the spacecraft spin plane while the polar angle is measured in the plane orthogonal to the spin plane. We will define these in the text together with the field of view description in the last paragraph of section 1. We will also add arrows indicating this to Fig. 2

Section 2.3: Does the density depend more strongly on $G\alpha\epsilon0$ than $\beta ik\epsilon(vk2)i$,

Yes. In our experience so far the required correction α is usually much greater than βik. The effect of the β correction on the density has been checked after β is applied by repeating the α work. The change was found to be marginal.

and does the independence of velocity from $G\alpha\epsilon0$ mean that $\beta ik\epsilon(vk2)i$ can be determined independently from $G\alpha\epsilon0$? This is important if density comparisons are being used to find α.

Yes. The β values can be determined by an independent method which is described in the paper by Fazakerley et al 2010b (which we refer to in our text at the end of section 2.2) and their validity can be confirmed by comparing PEACE velocity measurements with CIS moments. We shall state this more clearly in the text.

Figure 3 and associated discussion: Why does the PHD spread increase with voltage?

This is characteristic MCP behaviour. The spread of values about the median occurs because the charge amplification of individual electrons varies case by case. The ratio of the PHD FWHM to the PHD peak is typically observed to be roughly constant. So as the voltage increases so does the spread.

Is the spread at higher voltage levels small enough that 10 spins are sufficient to fully sample the PHD and hence accurately determine the inflexion point in the cumulative distribution function?

Figure 3 is a sketch of the results for a given instant for an un-degraded MCP. As the MCP ages, a higher voltage is needed to get the same gain. The spread in PHD is larger for higher gains, but the high gains can no longer be reached later in the mission. Earlier in the mission it was always possible to get complete S curves and to measure the CDF, even at higher gains (e.g. Fig 11 top row).

Page 598, Line 3: Was it possible to measure the pulse height distributions during ground tests? If so, were they symmetric?

Yes, they were measured. They varied slightly from sensor to sensor, and as a function of gain. They were not exactly symmetric however we argue that in a nominal operating regime, the assumption they are symmetric is a good first approximation.

Page 600, line 23 and elsewhere: S-curve hasn't been defined, suggest to define or replace with "identify the inflexion point of the CDF" or similar.

Agreed. We will fix the text.

Section 4.1: WHISPER soundings can show up as spikes in the PEACE moments. How was this taken into account?

'Spikes' are observations of photoelectrons that are briefly energised by a few eV during WHISPER soundings. PEACE moments data were not filtered for WHISPER soundings in this study because the contribution from 'spikes' is not significant in the magnetosheath regions, compared to the very high plasma electron fluxes observed there. In contrast, the additional flux associated with spikes in regions with lower plasma electron fluxes, such as the magnetotail plasmasheet, does significantly add to the plasma electron fluxes. However, data from such regions was not used in this study.

Also the EFW and WHISPER instrument papers should be cited.

Agreed.

Page 603, line 22: What was the result of this validation with WIDEBAND densities?

There are very few intervals available for these studies which is why we mentioned the comparisons only in passing, but we will make this clearer. For the most part agreement was found. Disagreement for Spacecraft 4 in the 2007 tail season allowed us to fine tune alpha factors which were inaccurate due to thruster firings at the end of the tail season.

Also the WIDEBAND instrument paper should be cited

Agreed

Figure 6, upper panel: Y axis label should be 'normalised count rate', as per the caption.

Agreed. We will change this.

Figure 8: 'ops gain' should be defined in the caption.

Agreed. We will replace 'ops gain' with "gain at V_{op}" and define in the caption.