Ann. Geophys. Discuss.,
https://doi.org/10.5194/angeo-2019-68-SC1, 2019

Annales Geophysicae Discussions

Interactive comment on "Multi-point galactic cosmic rays measurements between 1 and 4.5 AU over a full Solar cycle" *by* Thomas Honig et al.

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Received and published: 14 May 2019

This is a quite interesting study which I enjoyed reading. Some brief comments are below:

1) Equation 1 is used to estimate radial gradients. However, N1 & N2 are count-rates, which are proportional to integral fluxes. Therefore, the estimated parameter is an "integral gradient". "Differential gradients" require to have differential flux measurements. For instance, it is my understanding that Gieseler & Heber (2016) estimate differential gradients, so comparison with the values obtained in this study should be reconsidered, even if values are similar.

2) Both differential and integral gradients have an energy dependence. For the latter,

which are more relevant to the present study, it matters above which energy fluxes are integrated. The used channel captures protons >49 MeV, however, from other SREM papers it seems that the geometry factor <100 MeV is rather low. So, I assume the estimated gradients have are for protons much above 100 MeV. Maybe folding the response function of the TS2 channel with a standard GCR spectrum can show which energies dominate.

3) I am not sure how the HEND data are used in the study. In order for them to be compared with those from SREM, they have to be normalized to the INTEGRAL count-rates, since SREM data are normalized to the INTEGRAL measurements. This means that in the y-axis of Fig. 3, one should used the INTEGRAL-normalized rates of SREM, not the raw SREM rates. I.e. this has to be a 2-step normalization. If that was actually done, its has to be clarified in the text.

4) After HEND data are normalized to SREM, they were not used in any part of the analysis. E.g. they may also be used to estimate radial gradients, which should be similar to those coming from the SREM/INTEGRAL ratios, otherwise they may be indicative of uncertainties in the gradient estimation, or, even better, of a radial dependence of the ratios. Instead, HEND are only mentioned briefly in lines 5-15 in p.11.

5) In addition to the comment above, it is clear that in the comet phase, where SREM sees a negative radial GCR gradient, the gradient between INTEGRAL/HEND is clearly positive, even if normalization may require an update (see comment 3). That further supports the possibility of a reduction of GCR fluxes around the comet. My suggestion is the following: a)Estimate the radial gradient between INTEGRAL/HEND for times during Rosetta's comet phase b)From this radial gradient, estimate what should have been the count rate of SREM c)Estimate the difference between the expected and the measured count-rate d)This difference may be estimated also by using in step (b) the average positive radial gradient as found from the data shown in Fig. 5 e) Then, the difference (estimated by any of the methods) could be organized as a function of heliocentric distance (essentially activity) or any other relevant parameter. It appears

intriguing that in Fig. 6, the count-rate difference appears to maximize around mid-2015, close to perihelion, and tends to become zero again towards the end of the mission.

I hope the authors find these comments helpful.

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