

Ann. Geophys. Discuss., author comment AC1  
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## Reply on RC1

Geng Wang et al.

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Author comment on "Reflection of low-frequency fast magnetosonic waves at the local two-ion cutoff frequency: observation in the plasmasphere" by Geng Wang et al., Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2021-17-AC1>, 2021

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We thank the referee for the comments and suggestions.

1. Comment: My only substantial concern with the work in the paper is that the satellites have significant  $L^*$  separation during the event on the 20th July 2015, it is unclear how the authors determined that the observations are of the same magnetosonic waves. The analysis of this event is also fairly limited in comparison to the rest of the paper and potentially does not add to the paper.

Reply: I agree with this concern. In the second case, two probes observed the waves with the same frequencies at the same time, which indicate the same L-shell of the wave source. It is possible that the different waves emitted from the adjacent source areas and were received by the two probes.

The most useful information here is the reflected signals recorded by Probe B, which are more consistent and obvious than the first case. However, as no cooperative observations here for the same waves or the waves with similar paths, we are considering remove this case from the manuscript in the revised version.

2. Comment: In line 108, the authors say that the waves in Region III observed by Probe A are westward, however it is difficult to see that directly in Figure 2f as there appears to be similar amounts of blue and red. Is this determined by a power weighed average? If so, this could be included in the text.

Reply: Thanks for the comment. In this case, some waves in Region III observed by Probe A have both westward and outward orientations (11:50–11:52 UT, 11:53–11:58 UT). These waves have prominently outward wave power, as shown in Figure 3a. We have now revised the text accordingly.

3. Comment: Figure 4 panels (e)-(h), Figure 4 panels (k)-(p) and Figure 4 panels (s)-(x) are very small when printed and hard to read. I would suggest having these are a separate figure.

Reply: Thanks for the suggestions. The previous Figure 4 has now been separated into two figures.

We thank the referee again for the comments.

