

Interactive comment on “Van Allen Probes observation of plasmaspheric hiss modulated by injected energetic electrons” by Run Shi et al.

Anonymous Referee #1

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Evaluation:

The authors present an interesting and compelling study showing the modulation of hiss wave intensity and injected electron flux by ULF waves observed by Van Allen probe B near the dayside. The results provide important evidence that the hiss intensities observed were likely generated by local amplification in the outer plasmasphere. In contrast, the hiss emissions observed by Van Allen probe A, at lower L shells, were not associated with electron injections and were primarily modulated by plasma density. The Van Allen probe A measurements suggest that the hiss observed deep inside the plasmasphere may have propagated from higher L shells. This is a very good and comprehensive study and I have no hesitation in recommending it for publication in Annales Geophysicae. I have a small number of minor comments that the authors may

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wish to take into account when preparing the next draft of their paper.

Minor Comments:

Line 49. The authors should consider including references to Meredith et al. [2007, 2009] who also demonstrated the importance of plasmaspheric hiss in the loss of energetic electrons in the plasmasphere

References:

Meredith, N.P., Horne, R. B., Glauert, S. A., & Anderson, R. R. (2007), Slot region electron loss timescales due to plasmaspheric hiss and lightning generated whistlers, *Journal of Geophysical Research*, 112, A08214, doi:10.1029/2006JA012413

Meredith, N. P., Horne, R. B., Glauert, S. A., Baker, D. N., Kanekal, S. G., & Albert, J.M. (2009), Relativistic electron loss timescales in the slot region, *Journal of Geophysical Research*, 114, A03222, doi:10.1029/2008JA013889

Line 200. Please explain in a little more detail why the modulation of the low energy electrons is highly relevant to the presence of ULF waves.

Interactive comment on Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2018-2>, 2018.