

## ***Interactive comment on “Undulating wave front of mesospheric bore; Space-borne observations by ISS-IMAP/VISI” by Yuta Hozumi et al.***

### **Anonymous Referee #1**

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This paper reports two mesospheric bores in the southern hemisphere observed by ISS-IMAP/VISI observations. So far, only a few events have been reported about bore events in the southern hemisphere due to limitation of the ground-based airglow measurements. The present work provides insight into the bore structure from large field-of-view space-borne observations.

The following minor revisions are suggested before publication in ACP.

P2 L25: remove “where few observations of bore reported” because you said the same thing in the next sentence.

P2 L29: I cannot follow the meaning “After the variation”. Do you mean “validation”?

P3 Event #1: The authors indicate rotation of the bore front. Could you argue that the

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round shape front did not expand concentrically from the source?

P7: The authors discussed the undulated wave front in the event #2 from inhomogeneity of propagating speed depending on the duct layer depth. The SABER temperature measurements may suggested the ducting depth. The measurements point of SABER located in a large U area, where larger duct depth is expected. Figure 4b shows a stable layer near the emission height with  $\sim 10$  km depth or more, which is slightly larger than typical stable layer depth and at least event #1. Also please comment on the cause/mechanism of the horizontal inhomogeneity of temperature gradient with a 1000 km wavelength you suggested, if possible.

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Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2018-383>, 2018.

C2