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Discussions

Interactive comment on "Plasma transport into the duskside magnetopause caused by Kelvin–Helmholtz vortices in response to the northward turning of the interplanetary magnetic field observed by THEMIS" *by* Guang Qing Yan et al.

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Thank you very much for your spending your time evaluating our article. Your endorsement, as well as your suggestions, is encouraging us to go further to investigate more details of the transport mechanism in K-H vortices. We have made the minor modifications as you suggested, and would like to response as follows. Your original comments and questions are in blue and our responses are in aquare brackets.

In this research, the authors have investigated the transport of the solar wind plasmas into the magnetosphere from the flank side during the northern IMF period, and present a clear evidence for the K-H instability mechanism. The THEMIS data are used and MVA method is applied to determine the configuration of the distorted magnetopause. The periodic K-H vortices are observed and there exists the mixture of the cold magnetosheath plasmas and hot magnetospheric plasmas within the vortices. This paper will enhance the understanding on the mechanism how the K-H instability drives the transport of the magnetosheath plasmas into the magnetotail plasma sheet. So it can be accepted for publication after minor modifications. Some comments on the paper are as the following.

(1) Line 127-129: L and M are tangential to the magnetopause, so the word "parallel" can be replaced by "tangential". In line 129, the expression "the hangential and normal directions M-N" is proper. [Thank you for your valuable suggestion that helps us to describe the details more accurately. The text has been revised by replacing "parallel" by "tangential".] (2) Line 152-159: The values of the temperatures of the hot magnetospheric plasmas and cold magnetosheath ions and electrons can be given. [The typical temperatures have been given in the text.] (3) Line 347: The topic of the paper is not complete. [Sorry for the unexpected mistake. The topic of the paper has been complemented.]

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