

***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.***

**Anonymous Referee #2**

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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

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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 tangential and normal directions M-N” is proper. (2) Line 152-159: The values of the temperatures of the hot magnetospheric plasmas and cold magnetosheath ions and electrons can be given. (3) Line 347: The topic of the paper is not complete.

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