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The flapping of planetary magnetotail current sheet

Zhaojin Rong
Institute of Geology and Geophysics,Chinese Academy of Sciences

In past decades, numerous studies noticed that the Earth's magnetotail current sheet (CS) often flaps up and down, which result in the multiple crossings of the local CS by spacecraft. The tail flapping motions are observed not only in the Earth's magnetotail but also widely in the magnetotails of other planets, such as Mercury, Venus, Mars, Saturn, and Jupiter. As an important dynamic process for releasing the magnetospheric energy, flapping motion has drawn attention increasingly.
In this presentation, based on the observations of Cluster, Venus Express, Maven and MESSENGER on the magnetotail of Earth, Venus, Mars and Mercury respectively, I summarize the recent studies on the flapping motion of terrestrial planets' magnetotail, particularly the flapping mechanism of Earth's magnetotail, and make the comparison of flapping motion of the planetary magnetotail plasma sheet.