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Dayside Magnetopause Location Comparisons during Interplanetary Magnetic Field Oscillations[1] RICHARD BONDE, Univ of Texas, Arlington, JIANGYAN WANG, National Space Science Center, Chinese Academy of Sciences, RAMON LOPEZ, Univ of Texas, Arlington — Earth's magnetic field is shaped by the solar wind; a steady yet nonuniform stream of plasma emanating from the Sun. The shape of Earth's magnetic field is called the magnetosphere. The solar wind carries out into space the Sun's magnetic field, called the interplanetary magnetic field (IMF). When the IMF embedded in the solar wind encounters Earth's magnetic field, a boundary forms between Earth's magnetosphere and the IMF, called the magnetopause. The dayside magnetopause's location depends on upstream solar wind conditions, most significantly the direction of the IMF. When the IMF is directed southward, the dayside magnetopause moves inward and this is generally referred to as magnetopause erosion. Several studies have examined the effects of steady state IMF conditions on the magnetopause location. This study examined the effects of IMF oscillations as are more realistic in the solar wind. We used a magnetohydrodynamic (MHD) model to determine the magnetopause movement under fluctuating IMF conditions. We present the MHD results of the predicted dayside magnetopause location and compare them with satellite data.

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