

Propagation of interplanetary shocks into the Earth's magnetosphere

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The study of the propagation and interaction of interplanetary shocks of various origin through the Earth's magnetosphere is important to improve our understanding of the Sun-Earth system. The interplanetary shocks interact with the bow shock and cause pressure pulses on the magnetopause and its movement, launching different waves into the magnetosphere. Therefore geosynchronous satellites (GOES, LANL) and satellites in the outer magnetosphere, as well as ground-based stations register arrivals of the interplanetary shocks. In this study, we try to compare the observed interplanetary shock signatures and order them according to the solar wind and interplanetary shock properties, magnetospheric state and location. The analysis utilize data from simultaneous observations of interplanetary shocks from different satellites in the solar wind and the Earth's magnetosphere such as ACE, Wind, IMP-8, SOHO, Interball-1, Geotail, Polar and Cluster.