



Magnetopause Surface Wave Frequencies at Different Solar Wind Conditions

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The static location of the magnetopause (MP) is given by the pressure equilibrium between the solar wind dynamic pressure and the magnetospheric magnetic pressure. Statistical analyses of its oscillations around this static location were recently performed facilitated by the unique configuration of the five THEMIS spacecraft during their first months of operation ("pearls on a string" configuration during coast phase). We found the MP to oscillate predominantly at some frequencies which coincide with the stable and recurring "magic" frequencies observed in ground and ionospheric measurements of ULF geomagnetic pulsations. We link these frequencies, which were previously attributed to magnetospheric cavity or waveguide modes, to the existence of standing Alfvén waves or Kruskal-Schwarzschild modes on the MP and present a statistical analysis relating the observed oscillation frequencies to different solar wind conditions. Our results support the idea that the magnetopause has to be regarded as a membrane under tension on which surface eigenmodes can be excited.