

PARTICLE CHANNELS IN THE SOLAR WIND: MAGNETIC FIELD FLUCTUATIONS, WAVE REFRACTION AND DISSIPATION

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Buttighofer has reported on the existence of channels in the solar wind through which solar energetic particles can propagate almost scatter-free. We draw attention to an event observed by ACE on May 11 1999 that has many of the same characteristics as Buttighofer's channels. The ACE event is known as *The Day the Solar Wind Disappeared*. Little if any change was seen in the large scale interplanetary magnetic field during this time, but the magnetic field fluctuations were depressed and significantly more transverse to the mean field. The high Alfvén speed resulting from the constant field intensity and low ion density enhanced wave refraction and we examine this as a possible explanation for the fluctuation properties. The solar wind possesses a very low proton β , thereby separating the cyclotron and ion inertial length scales and permitting a test of possible dissipation dynamics. We find that the test favors the ion inertial scale theories.