



## Solar Wind Speed Charged Dust

C. T. Russell (1), D. Weimer (2), L. K. Jian (1), J. G. Luhmann (3), and N. Omidi (4)

(1) University of California, Institute of Geophysics and Planetary Physics, Los Angeles, CA, United States (ctrussell@igpp.ucla.edu, 001 310 206-3051), (2) Virginia Polytechnic Institute and State University, Center for Space Science and Engineering Research, Blacksburg, VA, United States, (3) University of California, Berkeley, Space Science Laboratory, Berkeley, CA, United States, (4) Solano Scientific, Solana Beach, CA, United States

The correlation of the occurrence of magnetic disturbances, known as interplanetary field enhancements (IFE), with the asteroid 2201 Oljato can only be explained as the interaction with charged dust in the asteroid's orbit, because the events occurred both before and after alignment with the asteroid. These single spacecraft observations did not determine how fast the dust was accelerated, or if they were affected at all by the solar wind. Shortly after STEREO A and B were launched, an IFE crossed the two spacecraft as well as ACE and Wind. This four-spacecraft configuration allowed us to determine that the disturbance was moving radially outward at 700 km/s, the solar wind speed. The conventional wisdom is that only the smallest dust particles can be affected by the solar wind, but examination of periods on STEREO when the spacecraft is being sprayed with multiple beta-meteoroid strikes shows no obvious correlation. Further, the IFEs are much less frequent than the "beta-meteoroid" impacts. Hence, it is possible that IFEs are associated with much larger dust particles, perhaps 1 micron-sized dust. If true, then those particles may be very dangerous albeit rare, possessing about  $10^4$  ergs.