

The Return of Asteroid 2201 Oljato to Venus Conjunction: New IFEs?

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Abstract

Asteroid 2201 Oljato passed near its conjunction point with Venus in 1980, 1983, and 1986, producing Interplanetary Field Enhancements (IFEs) each time. Our current understanding of IFEs is that they are produced when small bodies of possibly quite different sizes collide at high speed, producing a cloud of fine-scale, possibly highly charged dust. The mass of such clouds of dust that are picked up and accelerated to the solar wind speed by the plasma can exceed 10^8 kg.

When Venus Express arrived at Venus, the asteroid at apparition was not close to conjunction with Venus when Venus was in the proper location to be sensitive to any collisions. However, in 2012, Oljato did approach conjunction in a similar geometry to 1980. We report on new analyses of the 1980, 1983, and 1986 events as well as the events seen in 2012.