Abstract Submitted
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Local Heliospheric and Interstellar Radiation Environment of Planet X. JOHN COOPER, NASA/GSFC — The orbit and aphelion direction of the putative Planet X at mass ˜10 M_E has been inferred earlier from orbital modeling of Sedna and other distant Kuiper Belt Objects. The centroid of possible aphelion locations at 10^3 AU lies within the heliotail potentially extending thousands of AU downstream from the direction of interstellar neutral flow into the heliosphere. The only spacecraft now heading in that general direction is Pioneer 10, long silent since last contact in January 2003 at 82 AU from the Sun. The Interstellar Background Explorer (IBEX) has from Earth orbit, however, been mapping energetic neutral atom (ENA) emissions from the outer heliosphere, including in the heliotail direction. Angular resolutions of the IBEX ENA maps are too coarse to resolve Planet X itself but could inform on larger-scale particle flux environments of distant objects within the heliotail. Present Voyager 1 energetic particle measurements in the outer heliosheath will eventually be joined by Voyager 2 bulk plasma measurements at ion energies below 10 keV for more complete characterization of particle flux distributions. These distributions can then be used to model external radiation interactions with the more distant objects of our solar system, potentially including Planet X.

John Cooper
NASA/GSFC

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