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Measurements

30 min. invited talk

Voyager Observations of Cosmic Rays in the Heliosheath

Stone, Edward¹, Cummings, Alan¹, McDonald, Frank², Heikkila, Bryant³, Lal, Nand³ and Webber, William⁴

¹Caltech

²University of Maryland

³Goddard Space Flight Center

⁴New Mexico State University

Voyager 1 and 2, now at 118 and 96 astronomical respectively, are observing the intensities of galactic and anomalous cosmic rays in the heliosheath. The continuing increase in anomalous cosmic ray intensity following the crossing on the termination shock led to new models that place their source on the flanks of the termination shock or deeper in the heliosheath. Recently, the intensities of higher energy anomalous cosmic rays at Voyager 2 have exceeded those at Voyager 1, suggestive of a source on the flanks rather than deeper in the heliosheath, or possibly a north-south asymmetry. A decrease in the anomalous cosmic ray intensities at Voyager 1 over the last year suggests that Voyager 1 may be near the heliopause where anomalous cosmic rays can escape into interstellar space. In contrast, the intensities of galactic cosmic ray He and C have steadily increased, although some level of modulation remains even at 118 AU. The galactic cosmic ray electron intensities continue to increase at the two spacecraft, with a gradient between them corresponding to 8 percent per astronomical unit. These and other recent observations will be discussed.