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Plasma Distributions and Anisotropies at Rotational
Discontinuities in the Solar Wind From Ulysses Observations

ulysses plasma and magnetic field data are used to
investigate the properties of rotational discontinuities
(RDs) in the solar wind, specifically, the jump conditions
across the RDs, speed of propagation, and the plasma
distribution function on either side of the RDs. Previous
workers have found that Alfvén waves in the solar wind
appear to propagate at anomalously slow velocity (e.g. ,
Goldstein et. al., Geophys. Res. Letts., 22, 3389,
1995). Their conclusions are based on comparison of the
ratio between velocity and magnetic field fluctuations for
periods that are Alfvénic with the estimated Alfvén
propagator] speed adjusted for plasma pressure anisotropy.
However, statistical studies of wave properties might give
misleading results because of the presence of solar wind
turbulence . In the present study we shall present results on
the propagation speed determined from jump condit. i ons at
clearly identifiable rotational discontinuities.
Additionally, rotational discontinuities may, in principle,
scatter particles crossing the disconinuity. We shall
investigate the plasma pressure anisotropy change across the
discontinuities, det.ermine to what extent it is consistent
with the double adiabatic hypothesis, and also present
detailed distribution functions upstream and downstream of
the RDs .