

Large Scale, High Latitude Properties of Ulysses Ion Parameters

B E Goldstein (Jet Propulsion laboratory, Pasadena, CA, 91 109; ph. 818-354-7366; e-mail: bgoldstein@jplsp2.jpl.nasa.gov); M Neugebauer (Jet Propulsion Laboratory, Pasadena, CA, 91 109;; J L Phillips, J T Gosling, and D J McComas (Los Alamos National laboratory, Los Alamos, NM, 87545;

Observations by the Ulysses plasma experiment at high latitudes of the solar wind indicate a steady, high speed wind (about 750 km/sec, with variations typically less than 50 km/sec), Above 35 degrees latitude, over a range of radial distances from about 4.6 AU to 2.6 AU, the entropy per proton on the average has remained roughly constant, indicating the approximately adiabatic behavior of the proton distribution at high latitudes. The variation in entropy (and similarly, proton temperature) seen at high latitudes is positively correlated with the solar wind velocity. There is a modest positive correlation of the alpha/proton density ratio with the solar wind velocity. Velocity is anticorrelated with density, mass flux is approximately independent of velocity, and momentum flux is positively correlated with velocity. The velocity difference between alpha particles and protons does not vary greatly, and in units of the Alfvén speed is typically from 0.5 to 0.6 at high latitudes. No significant latitudinal or radial gradient in the proton temperature anisotropy is found. However, present estimates of temperature anisotropies are obtained using a moment summing technique for data reduction that does not include the effects of the instrument response. An improved analysis using a model fitting technique to remove the instrument response is in progress, and improved results concerning temperature anisotropies will be presented at the meeting. The ratio of alpha particle temperature to proton temperature at high latitudes is about 5; improved results for this parameter based upon removal of instrument response will also be presented at the meeting.

American Geophysical Union Abstract Form

Reference # 0000

Session 0.00

1. 1994 Fall Meeting
2. 001297525
3. (a) Bruce E Goldstein
Jet Propulsion laboratory
169-506
4800 Oak Grove Drive
Pasadena, CA 91 109
bgoldstein@jplsp2.jpl.nasa.gov
(b) 818-354-7366
(c) 818-354-8895
4. SH
5. (a) SH01
(b) 2164, ,
(c)
6. N/A
7. 0% published elsewhere
8. Charge \$50 to BRUCE E GOLDSTEIN VISA card
8888111199992222, expires 09/96
9. C
10. No special instructions
11. Regular author

Date received: 11 Aug 94

Date formatted: September 8, 1994

Form version: 1.1