

Solar Wind Entry Sites and Processes under Northward IMF Conditions

Observations from Geotail, ISEE, and Wind (petal orbits) have indicated substantial solar wind entry during northward IMF with the encounters of cold-dense plasma sheet [Terasawa et al., 1997] and the presence of mixed magnetosheath-plasma sheet ions deep inside the magnetosphere [Fujimoto et al., 1996; Fuselier et al., 1999; Phan et al., 2000]. However, it has not been possible to determine the sites nor the processes of entry from these single-spacecraft observations. On the other hand, several theoretical models have been developed which describe large-scale solar wind entry during northward IMF [e.g., Song and Russell 1992; Raeder et al., 1997; White et al., 1998; Song et al., 2000]. This splinter session provides a forum to discuss and compare recent observations with theoretical predictions. Of particular interest are multi-point observations showing evidence for solar wind entry across various boundaries of the magnetosphere under northward IMF conditions. In the spirit of this ISTP workshop, a few multi-spacecraft conjunction events will be selected for discussion in this splinter session. Below are candidate events when at least two spacecraft simultaneously observed evidence for solar wind entry at two separate locations. Theoretical predictions are also solicited.

Please contact Tai Phan (phan@ssl.berkeley.edu) and Masaki Fujimoto (fujimoto@geo.titech.ac.jp) to suggest additional events or to express your interest in contributing to this session.

Confirmed speakers: Don Fairfield, Jimmy Raeder, Robert Winglee, Paul Song, Walter Lennartson, Robert Richard, Stephen Fuselier, Marit Øieroset, Masaki Fujimoto.

Events:

Begin Date/Time (UT)	End Date/Time (UT)	Spacecraft
97-01-10/2100	97-01-11/0700	Geotail, Polar, Interball, FAST, ground (?)
99-02-22/0900	99-02-22/1800	Geotail, Wind

See next page for session program

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Monday October 23, 2000

Time: 13:15-17:15

Location: Sierra Room

A. Observations

Don Fairfield.

“The Kelvin-Helmholtz instability at the tail magnetopause as a plasma entry mechanism during northward IMF conditions”

Stephen Fuselier.

“Dayside plasma entry for northward IMF”

Walter Lennartsson.

“Solar wind entry according to ISEE”

Marit Oieroset.

“The cold dense plasma sheet: Occurrence and IMF dependence”

Masaki Fujimoto.

“Surveys of mixed magnetosheath-plasma sheet ions and cold-dense plasma sheet”

Phil Anderson.

"Polar Cap x-rays and Electrons under Low Density Solar Wind Conditions: Coordinated PIXIE and DMSP Observations on 11 May 1999"

Break: 10 minutes

B. Theory/Modeling

Raeder.

“Plasma entry and convection for northward IMF”

Robert Richard.

"Particle dynamics of ion entry and acceleration under northward IMF conditions"

Robert Winglee/Mitch Brittner.

“Solar Wind/Ionospheric Contributions to the Magnetosphere during the Sept. 25/25 magnetic cloud event “

Paul Song.

“A global model for northward IMF”

Break: 10 minutes

C. Event Studies

97-01-10 event: Geotail, Polar, ...

Presenters: Masaki Fujimoto, Don Fairfield, Stephen Fuselier, ...