

SUMMARY OF GEOTAIL FUNDING ACTIVITIES (NAG5-9626)
PERIOD OF PERFORMANCE: 03/1999 - 02/2002
Final Report

1999-2000

- ❖ Compared statistics on transport measured by Geotail versus ISEE and IRM.
- ❖ Extended previous results (ISEE,IRM) to both smaller and larger distances.
- ❖ Shown a clear relationship between current disruption, reconnection flows and substorm onset.
- ❖ Shown that current disruption events are subset of high speed flow events.
- ❖ Revealed large scale evolution of plasma sheet flow and pressure gradients.

Publications:

1. Angelopoulos V, Mozer FS, Lin RP, et al. "Comment on "Geotail survey of ion flow in the plasma sheet: Observations between 10 and 50 R-E" by W. R. Paterson et al.", J GEOPHYS RES-SPACE 104 (A8): 17521-17525 AUG 1 1999a.
2. Angelopoulos V, Mozer FS, Mukai T, et al. "On the relationship between bursty flows, current disruption and substorms", GEOPHYS RES LETT **26** (18): 2841-2844 SEP 15 1999b.
3. Angelopoulos, V. et al., EOS trans. **46**, F848, 1999c.

2000-2001

- ❖ Shown self-organized criticality of plasma sheet flows and power law spectra of electric field fluctuations.
- ❖ Shown spectral break of electric field fluctuations in accordance with plasma theory.
- ❖ Shown correlation of electric field spectral density and fast flows.
- ❖ Obtained averages of electric field and plasma quantities, and shown self-consistency of EXB and flow pattern in equatorial magnetotail.

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