Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Hall Reconnection in MST[1] T.D. THARP, A.F. ALMAGRI, D. CRAIG, V. MIRNOV, S.C. PRAGER, J.S. SARFF, University of Wisconsin-Madison — Previous measurements in MST have established that two-fluid Hall effects produce a dynamo effect (the radial transport of parallel current), and are thereby important in evaluating the macroscopic effects of reconnection. This was established by measuring the *nonlinear* Hall term in Ohms law ($< \delta j \times \delta B >$, where $<>$ denotes a magnetic surface average). We report here measurements of the *linear* Hall term ($\delta j \times B$) as a more direct indicator of the role of Hall effects in reconnection dynamics. The linear Hall term is compared with the other measured terms in Ohms law to assess its influence on the structure of the reconnected field and the reconnection current. Probes are inserted to the reversal surface to measure the radial structure of reconnection associated with modes with poloidal mode number $m = 0$.

[1]Work supported by US DOE and NSF

Timothy Tharp
University of Wisconsin-Madison

Date submitted: 21 Jul 2006 Electronic form version 1.4