Abstract Submitted
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Exploring the variability of ion heating at reconnection events in MST M.S. CARTOLANO, D. CRAIG, Wheaton College, Wheaton IL USA, D.J. DEN HARTOG, S.T.A. KUMAR, M.D. NORNBERG, University of Wisconsin-Madison, Madison WI USA — The variability of ion heating for individual reconnection events in MST is correlated with key plasma parameters to give insight into the process of ion heating. Global reconnection events in MST convert stored magnetic energy into ion thermal energy. The change in impurity ion temperature during several thousand reconnection events was analyzed for standard plasmas. As expected, the change in ion temperature correlates strongly with the change in magnetic energy. Magnetic fluctuations in MST are thought to be responsible for driving reconnection, and larger heating does correlate with larger increases in mode amplitudes during the event. The strongest correlation is with the rate of change in the m=0 magnetic fluctuation amplitude. Other anomalous behavior appears during reconnection, such as dynamo activity and electron thermal transport. When these activities are stronger, the amount of ion heating is also stronger. Finally, a possible toroidal asymmetry to the ion heating is being investigated. Work supported by U.S.D.O.E.

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