IMAGE, Geotail, and TIGER observations of a magnetospheric substorm

M. Lester^{1,2}, <u>M.L. Parkinson¹</u>, K. McWilliams³, P. L. Dyson², S. E. Milan¹, J. A. Wild¹, H. Frey⁴ and T. Nagai⁵

¹Department of Physics, La Trobe University, Melbourne ²Department of Physics and Astronomy, University of Leicester, Leicester ³Department of Physics, University of Saskatchewan, Saskatoon ⁴Space Sciences Laboratory, University of California, Berkeley ⁵ISAS, Tokyo

e-mail of corresponding author: mle@ion.le.ac.uk

We present observations during a magnetospheric substorm of ionospheric flows by the TIGER radar in conjunction with global auroral images from IMAGE and in situ measurements of the magnetic field, plasma density, and velocity in the plasmasheet by Geotail. The estimated ionospheric footprint of Geotail is within the TIGER radar field of view. We observe enhancements of flow associated with each auroral brightening throughout the substorm and Geotail observes clear rapid changes of the magnetic field configuration and plasma velocity at the time of substorm onset. We discuss the results in terms of the current models for magnetospheric substorms.