Multisatellite Analysis of Plasma Pressure in the Inner Magnetosphere During the 1 June 2013 Geomagnetic Storm

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Using data from Defense Meteorological Satellite Program 16?18, National Oceanic and Atmospheric Administration 15?19, and METOP 1?2 satellites, we reconstructed for the first time a two-dimensional statistical distribution of plasma pressure in the inner magnetosphere during the 1 June 2013 geomagnetic storm with time resolution of 6 hr. Simultaneously, we used the data from Van Allen Probes and Time History of Events and Macroscale Interactions missions to obtain the in situ plasma pressure in the equatorial plane. This allowed us to corroborate that the dipole mapping works reasonably well during the storm time and that variations of plasma pressure are consistent at low and high altitudes; namely, we observed a drastic increase in plasma pressure a few hours before the storm onset that continued during the storm main phase. Plasma pressure remained elevated during the first 18 hr of the recovery phase and then started to decre