

Global Perspective on the Storm-Substorm Relationship

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The study of the storm-substorm relationship is dominated by the question of the role of the substorm in building up the storm-time ring current. Six years of Energetic Neutral Atom (ENA) imaging of the terrestrial ring current have allowed us to address this question on a global scale. The High Energy Neutral Atom (HENA) imager on board the IMAGE spacecraft covers most of the ring current plasma pressure by detecting and resolving H and O (and heavier) atoms in the \sim 10-200 keV and \sim 50-300 keV ranges. While it appears that protons are only energized mildly, the O+ displays an outstanding intensification during storm-time substorms. We discuss the recent attempts to infer the increase of the ring current plasma pressure due to substorms using the global ENA data and in-situ data.