



Superposed epoch analysis of the geosynchronous magnetic field dipolarization associated with substorms

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We perform a superposed epoch analysis of the response of the magnetic field at geosynchronous orbit, measured by the GOES-8 and -10 spacecraft, to substorms identified in Imager for Magnetopause-to-Aurora Global Exploration (IMAGE) auroral images by Frey et al. (2004). The analysis includes 4000 substorms observed over the 5-year lifetime of the IMAGE mission. The analysis allows us to study the stretching and dipolarization of the magnetic field at all local times, providing an indication of the width of the dipolarizing region and timing of the dipolarization at different local times relative to substorm onset. In particular we study the stretching and dipolarization for substorms with differing onset latitudes: low latitude onsets display more stretching prior to onset, a more significant dipolarization, and a wider dipolarization region.