The global context for the November 14, 2012 storm event

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From 2 to 5 UT on November 14, 2012, the Van Allen Probes observed repeated particle flux dropouts during the main phase of a geomagnetic storm as they traversed the post midnight to dawnside inner magnetosphere. Each flux dropout corresponded to an abrupt change in the magnetic topology to a configuration with magnetic field lines stretched in the dawnward direction. Geosynchronous GOES and LANL spacecraft observed repeated flux dropouts and stretched field lines in the dusk magnetosphere at or near the times of the Van Allen Probe events. THEMIS and Geotail recorded repeated abrupt expansions of the evening and morning magnetopause, respectively. Ground based magnetometers and all sky imager detected repeatable features in conjunction with the events. We combine the various measurements to define and understand the global spatiotemporal features associated with the dropouts observed by the Van Allen Probes. We compare the in situ and ground based observations with the predictions of global MHD simulations to determine the mechanisms driving the spatial and temporal variations.