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Stormtime Modeling of the ITM System with SAMI3/GITM/RCM

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We present simulation results from the coupled SAMI3/GITM/RCM code on the impact of geomagnetic storms on the ionosphere/plasmasphere system. In this model, SAMI3 and RCM are self-consistently coupled electrodynamically through the potential equation, and GITM provides the thermospheric conditions (e.g., neutral densities, temperature, and winds). We consider two storm events: March 17, 2013 and March 17, 2015 We compare and contrast the development of stormtime effects on the IT system: mid-latitude stormtime enhanced densities (SEDs), polar cap 'tongues of ionization,' sub-auroral polarization streams, plasmasphere erosion, and plasmasphere plumes. We compare our model results to available data (e.g., Millstone Hill radar, GPS TEC).