Data assimilation of GLM observations in HWRF/GSI system

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1) ***This research is directly related to NOAA's development of a Weather Ready Nation and Data and Observation objectives by adding GOES-R GLM assimilation capability to operational environmental prediction.***
2) ***Assimilation of GOES-R GLM observations for NOAA operational hurricane model will enable improvement of operational hurricane forecasting, conducted in close collaboration with NCEP/EMC/HWRF and NHC.***

- Exploit the unique capabilities of the Geostationary Lightning Mapper (GLM) instrument through data assimilation with the NOAA Hurricane WRF operational system
- Examine and adjust our GLM lightning observation operators for use with HWRF
- Conduct detailed assessment of the impact of assimilating GLM lightning observations on HWRF analysis and forecasts
- Assist NHC in possible research to operation (R2O) transition
- Develop and evaluate the GLM lightning forecast for hurricanes in collaboration with the National Hurricane Center (NHC)
- Collaboration with EMC HWRF team will assure that our research is aligned with EMC/HWRF operational plans, with clear path to operations.

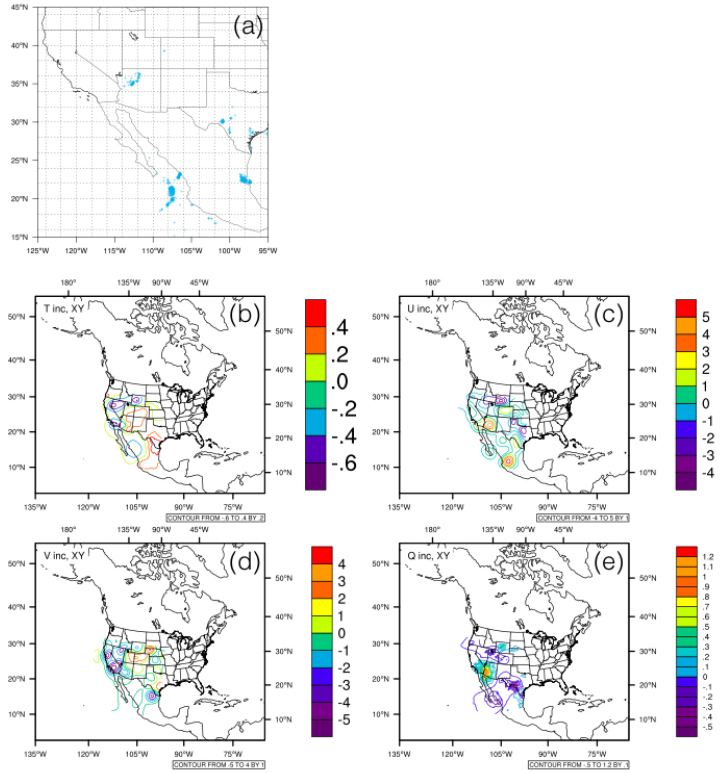

Figure 1. (a) Lightning observations from WWLLN valid at 12 UTC 27 August, 2013. Analysis increments at 700 hPa for (b) temperature (K), (c) u-component of wind (m/s), (d) v-component of wind (m/s), and (e) specific humidity (g/kg).