

Flash Detection Efficiencies of Long Range Lightning Detection Networks During GRIP

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We flew our Lightning Instrument Package (LIP) on the NASA Global Hawk as a part of the Genesis and Rapid Intensification Processes (GRIP) field program. The GRIP program was a NASA Earth science field experiment during the months of August and September, 2010. During the program, the LIP detected lightning from 48 of the 213 of the storms overflowed by the Global Hawk. The time and location of tagged LIP flashes can be used as a “ground truth” dataset for checking the detection efficiency of the various long or extended range ground-based lightning detection systems available during the GRIP program. The systems analyzed included Vaisala Long Range (LR), Vaisala GLD360, the World Wide Lightning Location Network (WWLLN), and the Earth Networks Total Lightning Network (ENTLN). The long term goal of our research is to help understand the advantages and limitations of these systems so that we can utilize them for both proxy data applications and cross sensor validation of the GOES-R Geostationary Lightning Mapper (GLM) sensor when it is launched in the 2015 timeframe.