TITLE: The CHUVA Lightning Mapping Campaign
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ABSTRACT BODY: The primary science objective for the CHUVA lightning mapping campaign is to combine measurements of total lightning activity, lightning channel mapping, and detailed information on the locations of cloud charge regions of thunderstorms with the planned observations of the CHUVA (Cloud processes of tHe main precipitation systems in Brazil: A contribUtion to cloud resolVing modeling and to the GPM (GlobAl Precipitation Measurement) field campaign. The lightning campaign takes place during the CHUVA intensive observation period October-December 2011 in the vicinity of São Luiz do Paraitinga with Brazilian, US, and European government, university and industry participants. Total lightning measurements that can be provided by ground-based regional 2-D and 3-D total lightning mapping networks coincident with overpasses of the Tropical Rainfall Measuring Mission Lightning Imaging Sensor (LIS) and the SEVIRI (Spinning Enhanced Visible and Infrared Imager) on the Meteosat Second Generation satellite in geostationary earth orbit will be used to generate proxy data sets for the next generation US and European geostationary satellites. Proxy data, which play an important role in the pre-launch mission development and in user readiness preparation, are used to develop and validate algorithms so that they will be ready for operational use quickly following the planned launch of the GOES-R Geostationary Lightning Mapper (GLM) in 2015 and the Meteosat Third Generation Lightning Imager (LI) in 2017. To date there is no well-characterized total lightning data set coincident with the imagers. Therefore, to take the greatest advantage of this opportunity to collect detailed and comprehensive total lightning data sets, test and validate multi-sensor nowcasting applications for the monitoring, tracking, warning, and prediction of severe and high impact weather, and to advance our knowledge of thunderstorm physics, extensive measurements from lightning mapping networks will be collected in conjunction with electric field mills, field change sensors, high speed cameras and other lightning sensors, dual-polarimetric radars, and aircraft in-situ microphysics which will allow for excellent cross-network inter-comparisons, assessments, and physical understanding.

INDEX TERMS: [3304] ATMOSPHERIC PROCESSES / Atmospheric electricity, [3324] ATMOSPHERIC PROCESSES / Lightning, [3360] ATMOSPHERIC PROCESSES / Remote sensing.