SãoPaulo Lightning Mapping Array (SP-LMA): Deployment, Operation and Initial Data Analysis


1NASA Marshall Space Flight Center, Huntsville, Alabama 35812, USA
2University of Alabama in Huntsville, Huntsville, Alabama 35899, USA
3NASA Marshall Space Flight Center, Huntsville, Alabama 35812, USA, e-mail rich.blakeslee@nasa.gov
4Instituto Nacional de Pesquisas Espaciais, Cachoeira Paulista, SP Brazil, e-mail rachel.albrecht@cptec.inpe.br
5Universidade de São Paulo, São Paulo, SP Brazil, e-mail morales@model.iag.usp.br
6Instituto Nacional de Pesquisas Espaciais, S. J. dos Campos, SP Brazil, e-mail osmar@dge.inpe.br

ABSTRACT: An 8-10 station Lightning Mapping Array (LMA) network is being deployed in the vicinity of São Paulo to create the SP-LMA for total lightning measurements in association with the international CHUVA [Cloud to Cloud resolution modeling and to the GPM (Global Precipitation Measurement)] field campaign. Besides supporting CHUVA science/mission objectives and the São Luiz do Paraítinga intensive operation period (IOP) in November-December 2011, the SP-LMA will support the generation of unique proxy data for the Geostationary Lightning Mapper (GLM) and Advanced Baseline Imager (ABI), both sensors on the NOAA Geostationary Operational Environmental Satellite-R (GOES-R), presently under development and scheduled for a 2015 launch. The proxy data will be used to develop and validate operational algorithms so that they will be ready for use on “day1” following the launch of GOES-R. A preliminary survey of potential sites in the vicinity of São Paulo was conducted in December 2009 and January 2010, followed up by a detailed survey in July 2010, with initial network deployment scheduled for October 2010. However, due to a delay in the São Luiz do Paraítinga IOP, the SP-LMA will now be installed in July 2011 and operated for one year. Spacing between stations is on the order of 15-30 km, with the network “diameter” being on the order of 30-40 km, which provides good 3-D lightning mapping 150 km from the network center. Optionally, 1-3 additional stations may be deployed in the vicinity of São José dos Campos.

* Correspondence to:
Jeff Bailey, University of Alabama in Huntsville, 320 Sparkman Drive, Huntsville, Alabama 35805, USA email: jeffrey.c.bailey@nasa.gov