

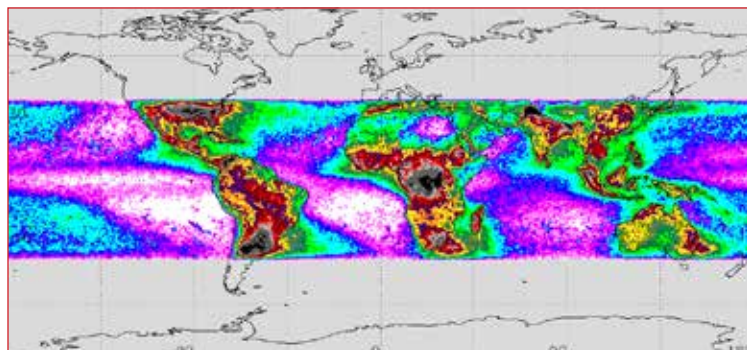


DATA & APPLICATIONS ONLINE

Lightning Imaging Sensor (LIS)

Overview

The Lightning Imaging Sensor (LIS) is an instrument on the Tropical Rainfall Measuring Mission satellite (TRMM) used to detect the distribution and variability of total lightning occurring in the Earth's tropical and subtropical regions. This information can be used for severe storm detection and analysis, and also for lightning-atmosphere interaction studies. The LIS instrument makes measurements during both day and night with high detection efficiency.



The LIS sensor contains a staring imager which is optimized to locate and detect lightning with storm-scale spatial resolution of 3-6 km (3 at nadir, 6 at limb) over a large region (500-550 km) of Earth's surface. The field of view (FOV) is large enough to observe a point on Earth or a cloud for 80 seconds, a sufficient time to estimate the flashing rate of many storms. The instrument records the time of occurrence of a lightning event, estimates the location, and measures the radiant energy.

About the Data

- LIS science and background products from January 1998 to the present are available in HDF format. Daily and monthly/seasonal browse images also are available.
- For detailed information on the LIS/OTD Science Data Products: Cecil, D.J., D. E. Buechler, and R. J. Blakeslee, Gridded lightning climatology from TRMM-LIS and OTD: Dataset description, Atmos.Res., <http://dx.doi.org/10.1016/j.atmosres.2012.06.028>, 2012.

Data Access

- LIS data products, browse imagery, and data set documentation is available at thunder.nsstc.nasa.gov/data/data_lis.html
- For the LIS space time domain search: <http://thunder.nsstc.nasa.gov/cgi-bin/LISSearch.pl?type=HTML?>

References

- Koshak, W. J. et al., Laboratory calibration of the Optical Transient Detector and the Lightning Imaging Sensor, *J. Atmos Ocean Tech*, 17, 905-915, 2000.
- Boccippio, D. J. et al., Performance assessment of the Optical Transient Detector and Lightning Imaging Sensor: 1. Predicted diurnal variability, *J. Atmos Ocean Tech*, 19, 1318-1332, 2002.
- Mach, D.M. et al., Performance Assessment of the Optical Transient Detector and Lightning Imaging Sensor. Part II, *J. Geophys. Res.*, 112, D09210, doi:10.1029/2006JD007787, 2007.
- Sensing Our Planet, 2010, Cosmic charges, <http://earthdata.nasa.gov/featured-stories/featured-research/cosmic-charges>
- Sensing Our Planet, 2006, Cloud to cloud: Forecasting storm severity with lightning, <http://earthdata.nasa.gov/featured-stories/featured-research/cloud-cloud-forecasting-storm-severity-lightning>



Global Hydrology Resource Center
NASA Marshall Space Flight Center
Huntsville, Alabama
<http://ghrc.nsstc.nasa.gov>



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