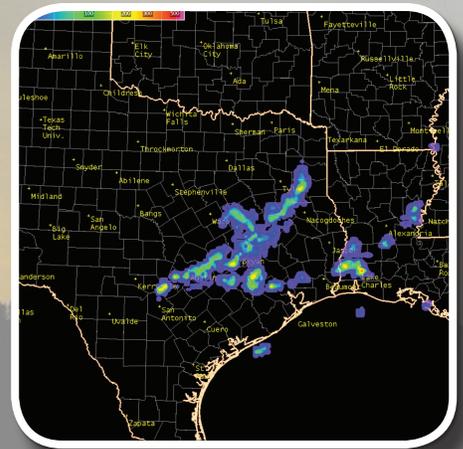




Geostationary Lightning Mapper (GLM) GOES-R Series



Increased severe storm warning lead time
Earlier indication of impending lightning strikes to the ground
Total lightning detection



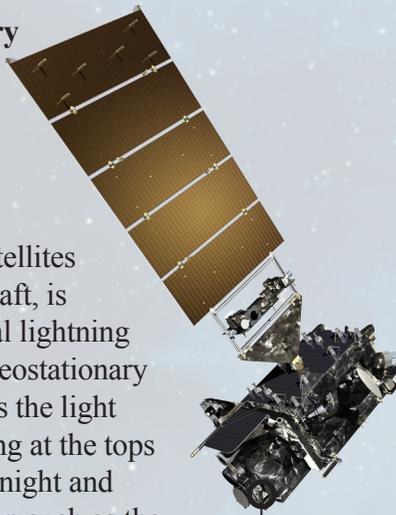
The Geostationary Lightning Mapper, or GLM, on board

Geostationary Operational

Environmental Satellites

– R Series spacecraft, is

the first operational lightning mapper flown in geostationary orbit. GLM detects the light emitted by lightning at the tops of clouds day and night and collects information such as the frequency, location and extent of lightning discharges. The instrument measures total lightning, both in-cloud and cloud-to-ground, to aid in forecasting developing severe storms and a wide range of high-impact environmental phenomena including hailstorms, microburst winds, tornadoes, hurricanes, flash floods, snowstorms, and fires.



Geostationary Lightning Mapper (GLM)

Benefits

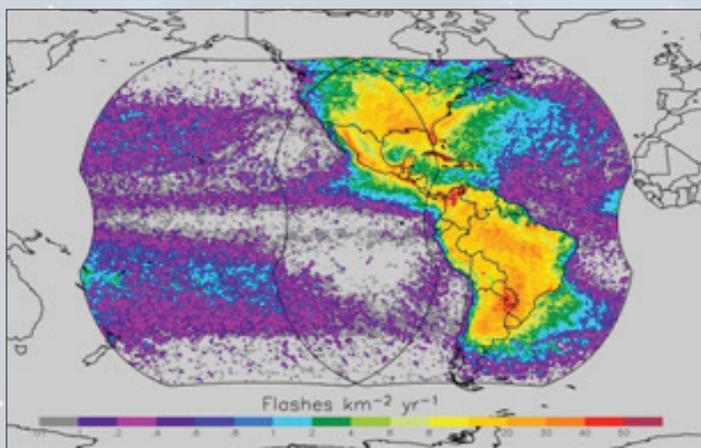
Trends in total lightning available from GLM provide critical information to forecasters, allowing them to focus on initial thunderstorm development and intensifying severe storms before these storms produce damaging winds, hail or even tornadoes. Such storms often exhibit a significant increase in total lightning activity,

particularly in-cloud lightning. GLM data, used in combination with radar, data from the GOES-R Series Advanced Baseline Imager, and surface observations, has great potential to increase lead time for severe thunderstorm and tornado warnings.

In large long-lived storm systems, lightning may travel hundreds of miles before striking the ground. GLM can show forecasters areas far from the main line of storms where the risk of lightning strikes to ground presents a public safety hazard. Data from the instrument is also used to produce a long-term database to track decadal changes in lightning activity. This is important due to lightning's role in maintaining the electrical balance between Earth and its atmosphere and potential changes in extreme weather and severe storms under a changing climate.



The damage done to a tree that was struck by lightning.



Combined GLM field-of-view from GOES East and GOES West.

- ✓ Increased tornado and other severe storm warning lead time
- ✓ Better detection of heavy rainfall and flash flooding
- ✓ Improved aviation route planning
- ✓ Early warning of ground strike hazards
- ✓ Data for long-term climate variability studies

Instrument Contractor

LOCKHEED MARTIN

Palo Alto, California



Learn more

<http://www.goes-r.gov/spacesegment/glm.html>

