



A FIRST LOOK AT THE NEW GENERATION OF LIGHTNING MAPPING WITH GOES-16

Michael J. Peterson

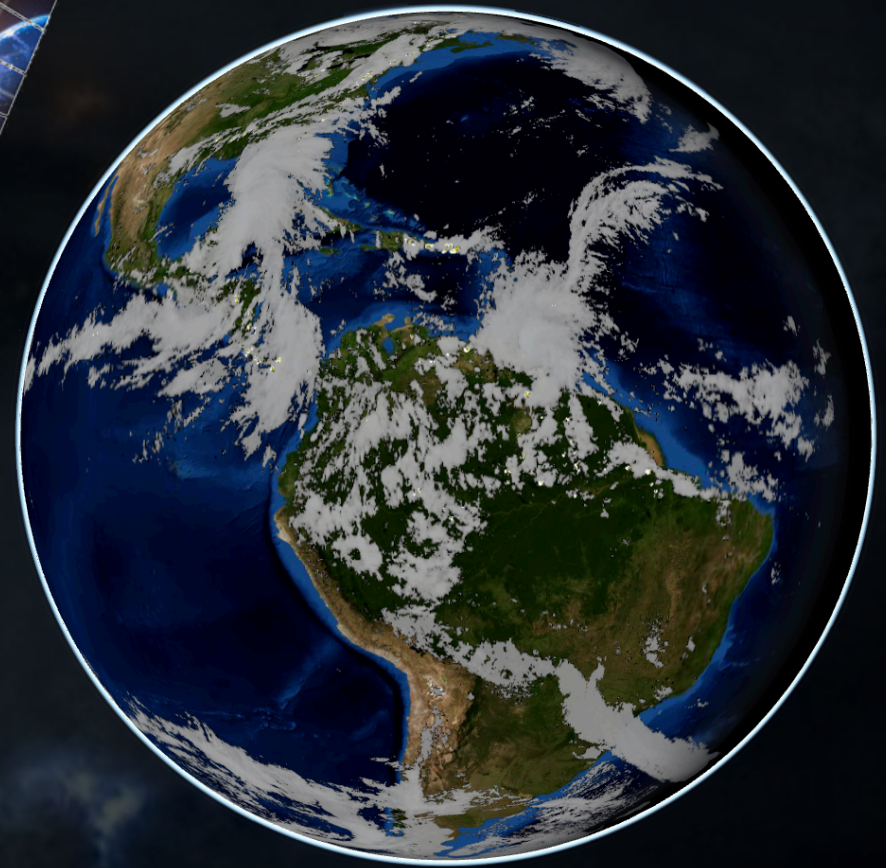
CICS-MD

Scott Rudlosky

NESDIS/STAR/SCSB

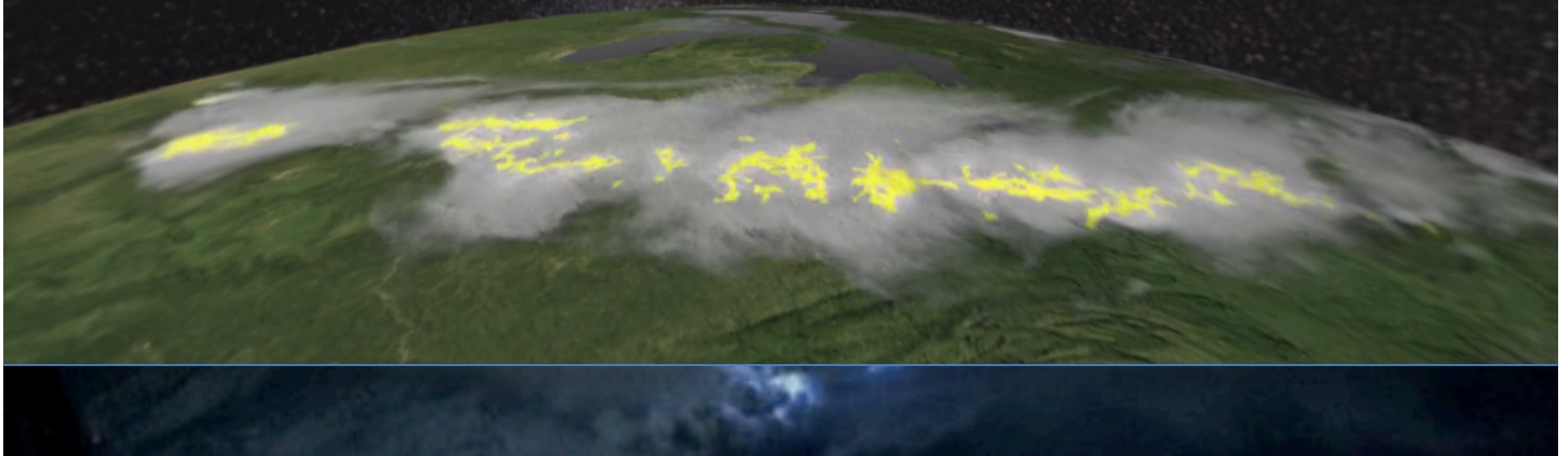
The GOES-16 Satellite

- ▣ First of 4-satellite block (R, S, T, U) operational through 2036
- ▣ First geostationary satellite with a lightning sensor
- ▣ Enhanced visible/infrared, space weather monitoring, solar imaging

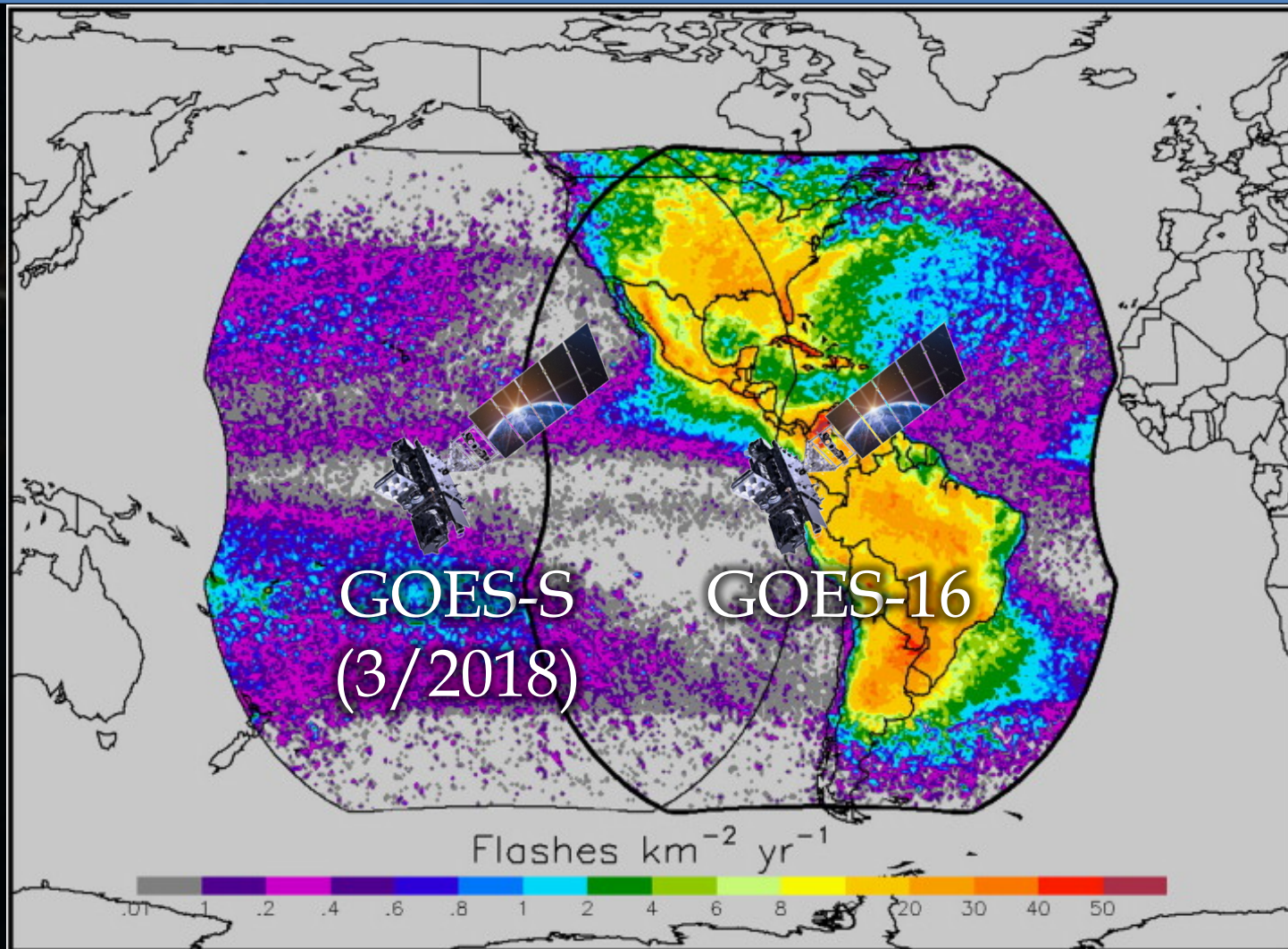


The Geostationary Lightning Mapper

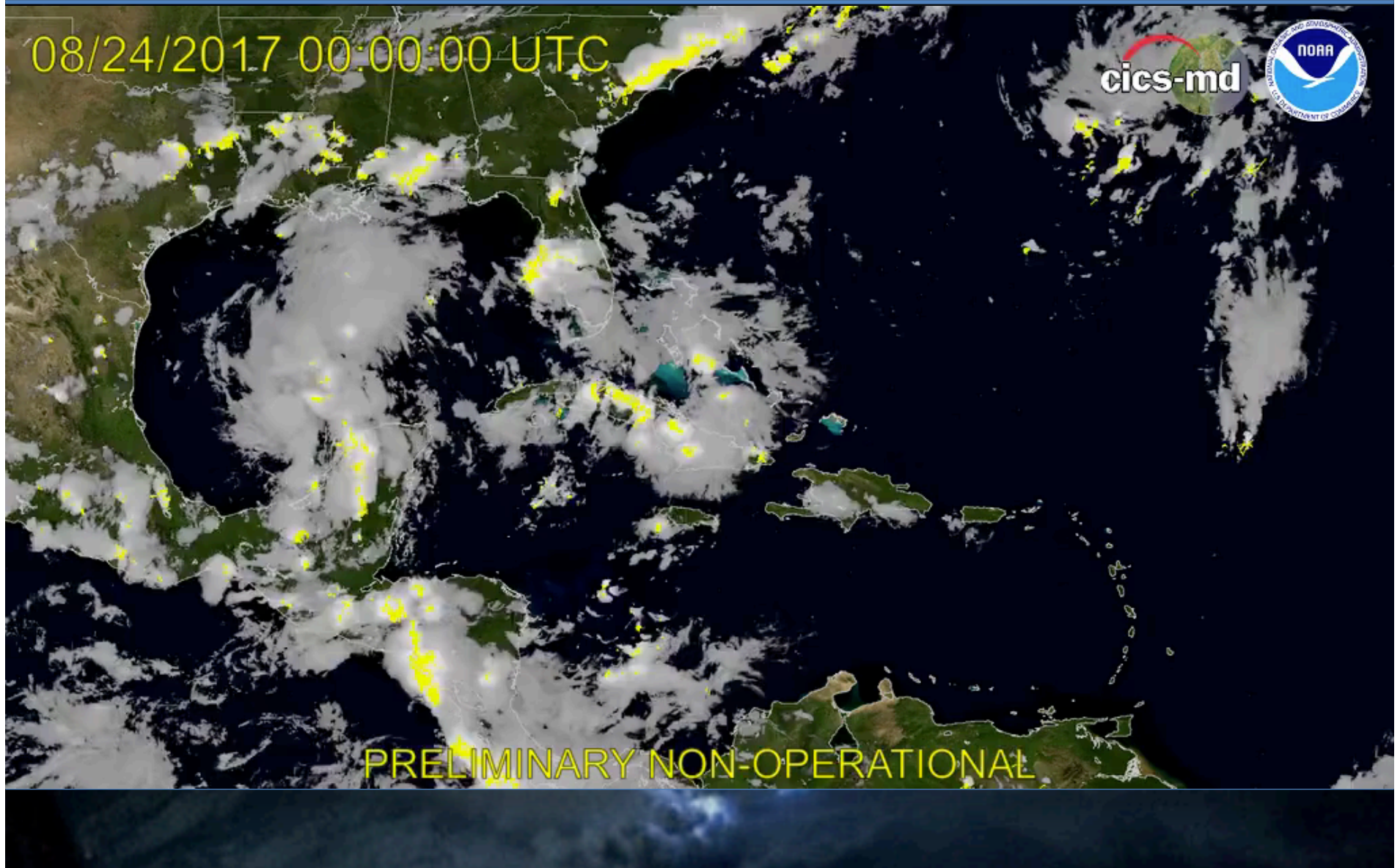
- ▣ Lightning imager that measures the radiant energy of the flash that escapes the cloud top
- ▣ Detects Cloud-to-Ground and Intracloud lightning with a high detection efficiency
- ▣ Continuous measurements across the hemisphere



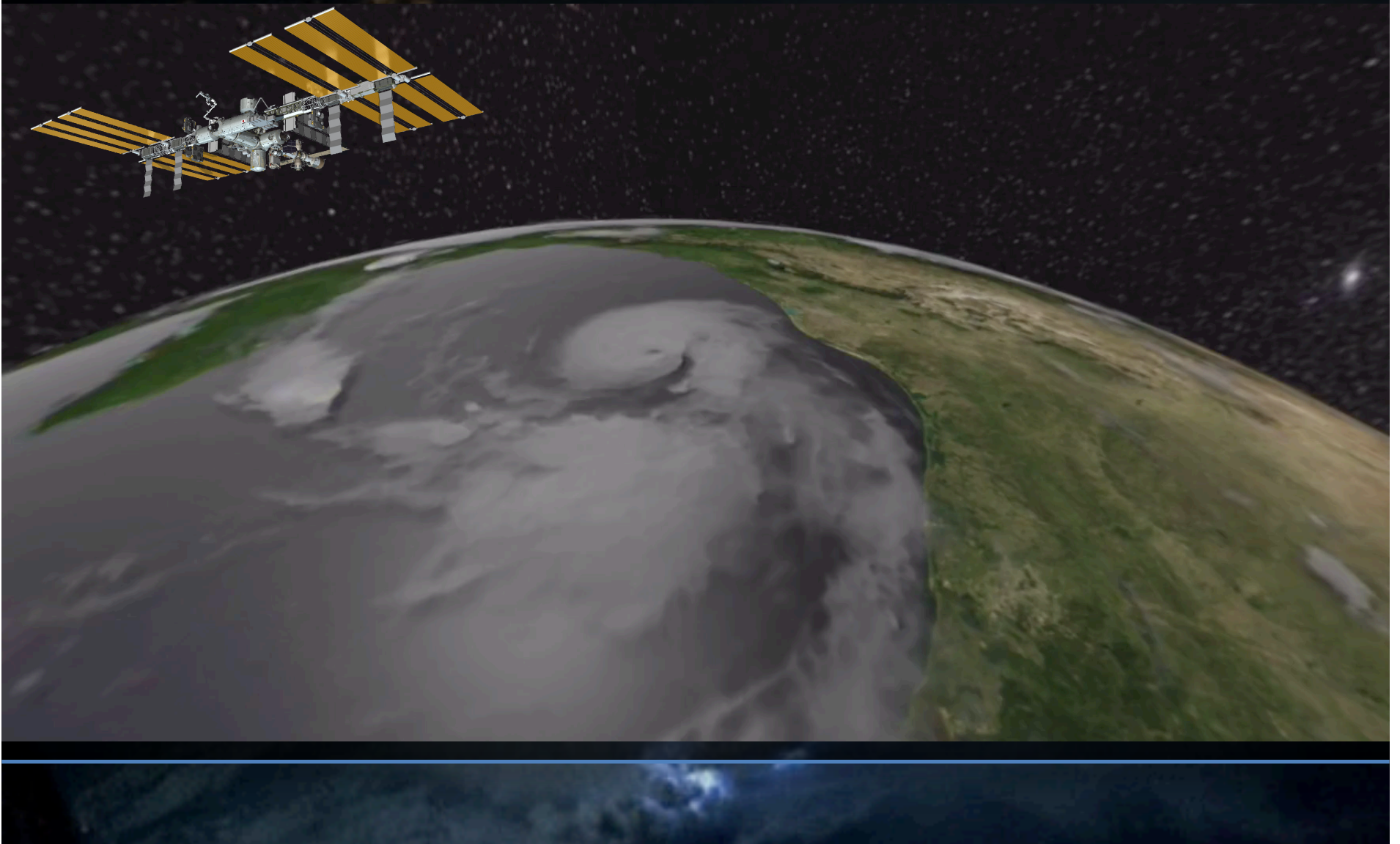
Americas Lightning Hotspots



Storm Tracking with GLM

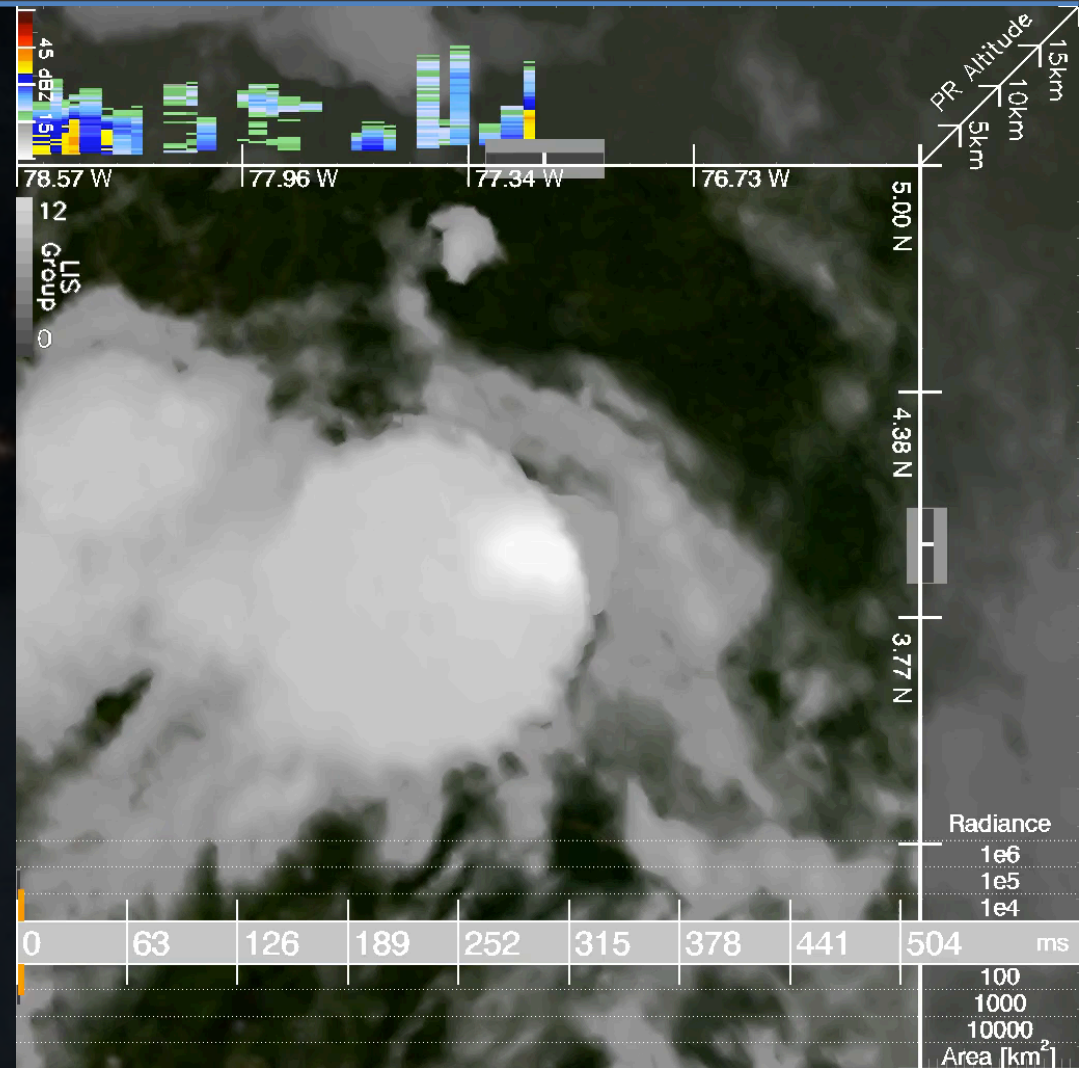


New Applications of Lightning Data



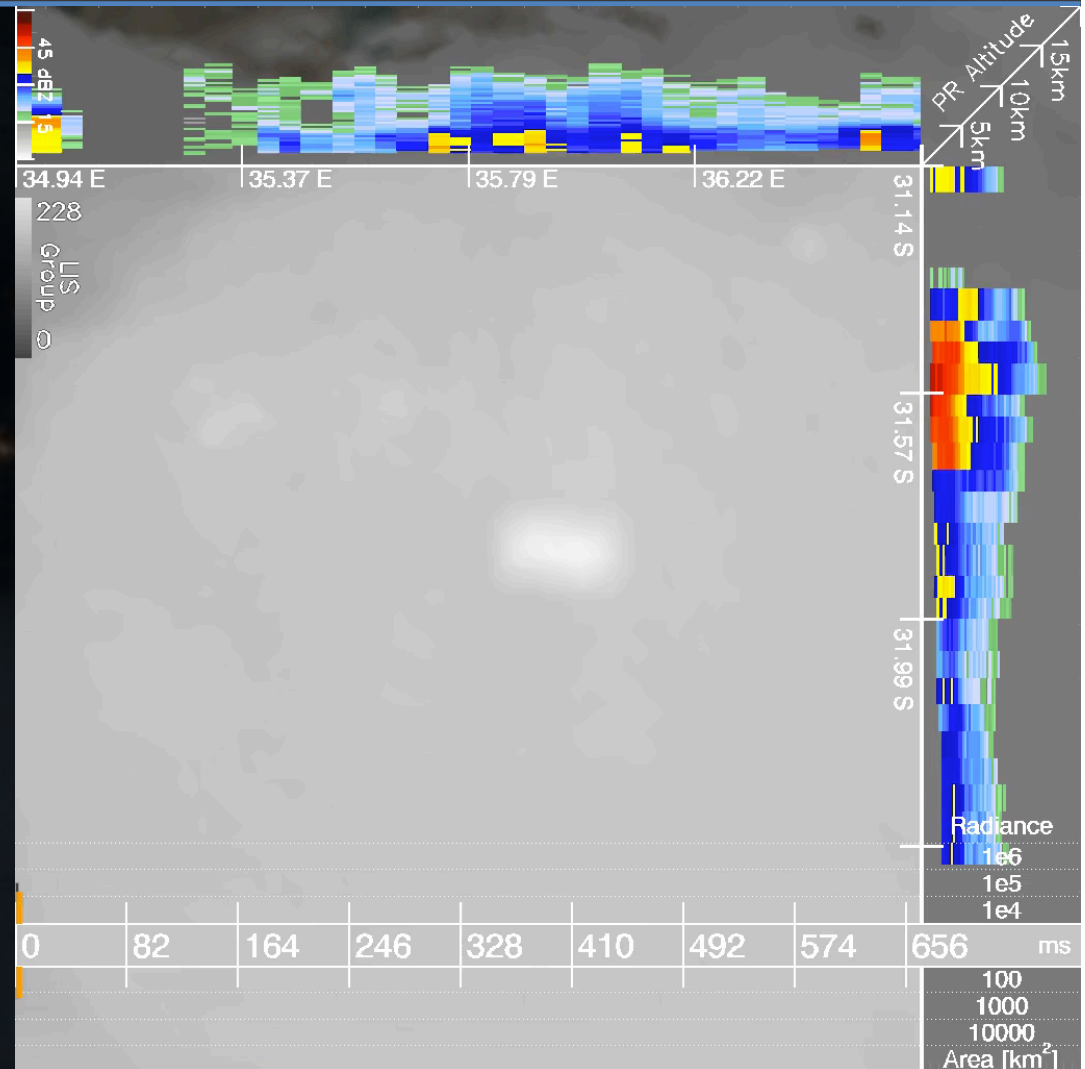
Mapping GLM Flashes

- GLM records videos of individual flashes at 500 frames/second
- Lightning videos reveal the evolution of the flash
- GLM can identify spider lightning, superbolts, etc.



Mapping GLM Flashes

- GLM records videos of individual flashes at 500 frames/second
- Lightning videos reveal the evolution of the flash
- GLM can identify spider lightning, superbolts, etc.



Summary

- ▣ GLM is the first lightning sensor in geostationary orbit
 - Observations until 2036 with GOES-R,S,T,U
- ▣ Measurements are being used to develop applications that add context to meteorological measurements:
 - Identifying hazardous weather
 - Storm tracking and trending
 - Characterizing flashes to identify storm type and document lightning physics
- ▣ GLM products will aid forecasters issuing guidance for severe weather
 - New information on developing weather
 - Hemispheric scope including data sparse regions

A cosmic background image featuring a dark, textured space. On the left side, there is a dense, branching pattern of bright orange and yellow light, resembling a nebula or a star-forming region. On the right side, there are several bright, blue-white light sources, possibly representing distant galaxies or active galactic nuclei. The overall image has a grainy, high-contrast appearance typical of astronomical photography.

Questions?