GOES-R Program Update

GLM Science Meeting
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NOAA
National Environmental Satellite, Data, and Information Service

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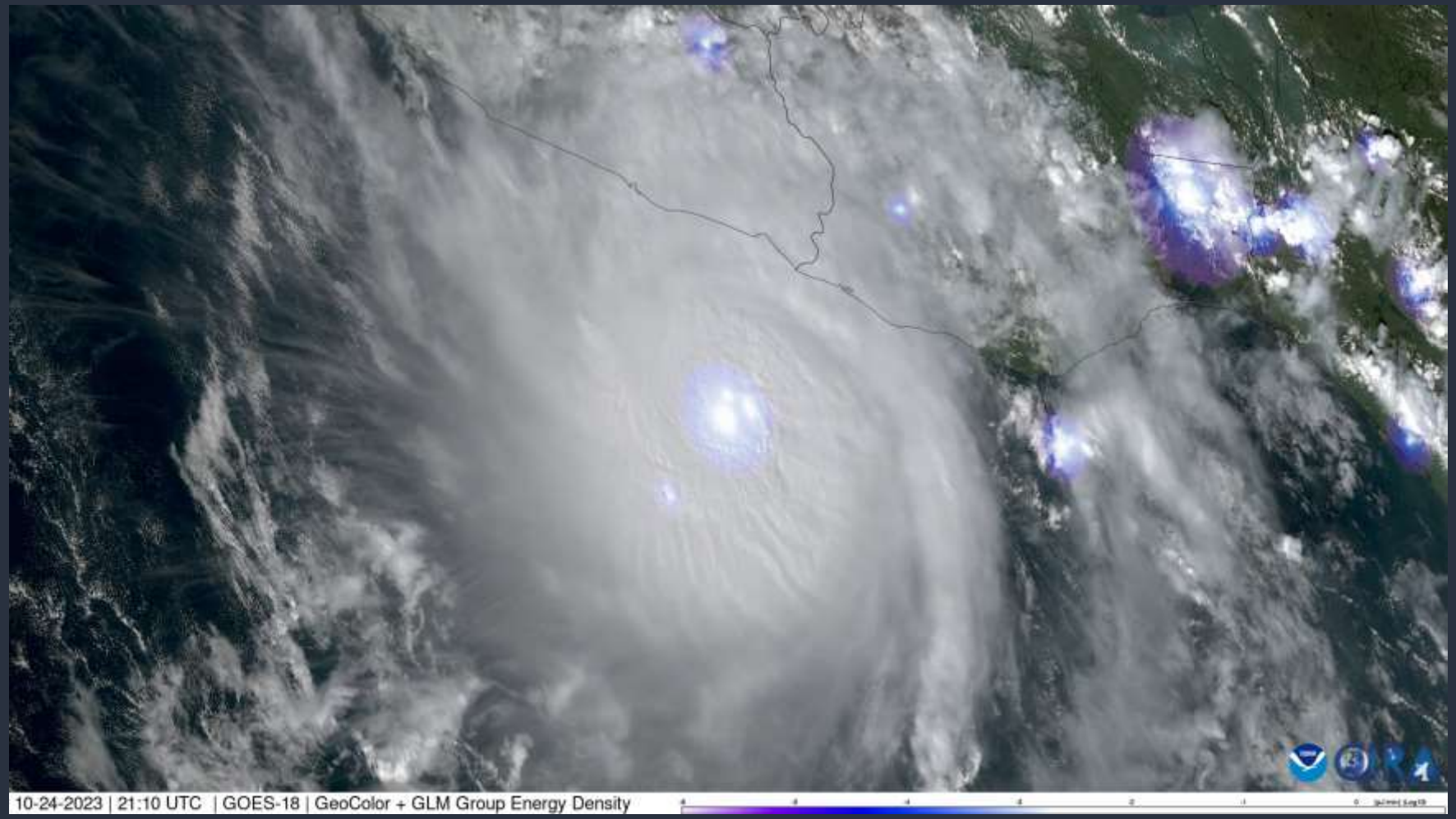
Rapid Intensification of Hurricane Otis

GOES-18 ABI GeoColor + GLM Group Energy Density – 24-25 Oct. 2023

- Otis intensified from a 60 kt Tropical Storm at 12Z on 24 Oct. to a 145 kt Category 5 Hurricane at 06 Z on 25 Oct…..only 18 hours!
- The models largely missed this intensification in their forecast, up until it was already underway
- GLM captured persistent lightning activity in the western eyewall before and during the rapid intensification phase



Rapid Intensification of Hurricane Otis

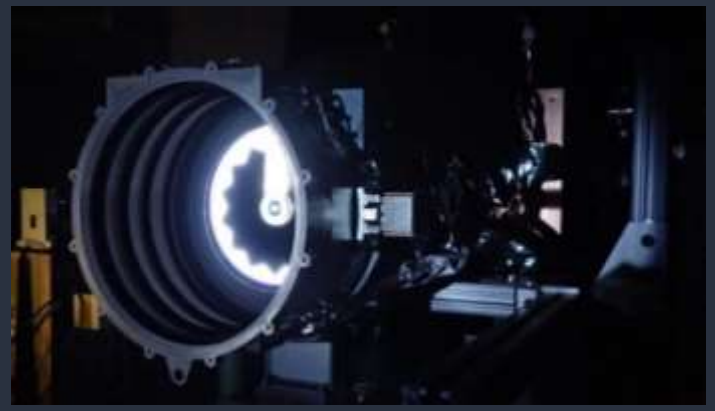
- NBC Story: https://www.youtube.com/watch?v=hyfnVIAqPDc&ab_channel=NBCNews
- New York Times Story: https://www.nytimes.com/2023/10/25/world/americas/hurricane-otis-mexico-intensity-surprise.html

GOES-16 and GOES-18

- GOES-16 continues as the operational GOES-East from 75.2 W
- GOES-18 is the operational GOES-West as of 4 January 2023 from 137.0 W
- GOES-17 is the on-orbit spare being stored at 105 W

GOES-U – Coming Soon!

- GOES-U scheduled for launch on 30 April 2024 (late afternoon) from Kennedy Space Center
- Will become GOES-19 upon reaching GEO orbit
- Carries a new instrument: the Compact Coronagraph:



- Following the Post Launch Test, GOES-19 will be moved to 75 W and replace GOES-16 as the operational GOES-East, in ~February 2025

GLM Reprocessing

There are 2 reprocessing efforts I'm aware of:

1) Lockheed Martin reprocessed the Level-0 GLM archive for both GOES-16 and GOES-17 from the beginning of the record through mid-December 2022

- Events and Background images are available in an easily-readable .nc format
- Currently working on making these datasets available via both NCEI and the NASA DAAC
- Let me know if anyone is interested in getting some or all of this data

2) Doug Mach and Steve Goodman are working on a L0 → L2 reprocessing project

- Goal is to mitigate known artifacts in the archived operational data to produce improved L1 and L2 GLM science products
- Will include a geolocation shortcut, refinement of the coherency filter, reintroduction of the single group flash, and improved filters for consistency across the whole GLM dataset
- The reprocessed dataset and source code will be publicly available at NCEI
- The data will be used to produce a 0.1 x 0.1 deg G16/G17/G18 gridded dataset as one of the lightning components of the WMO GCOS Lightning Essential Climate Variable (ECV) project – see Steve Goodman's talk in Session 3