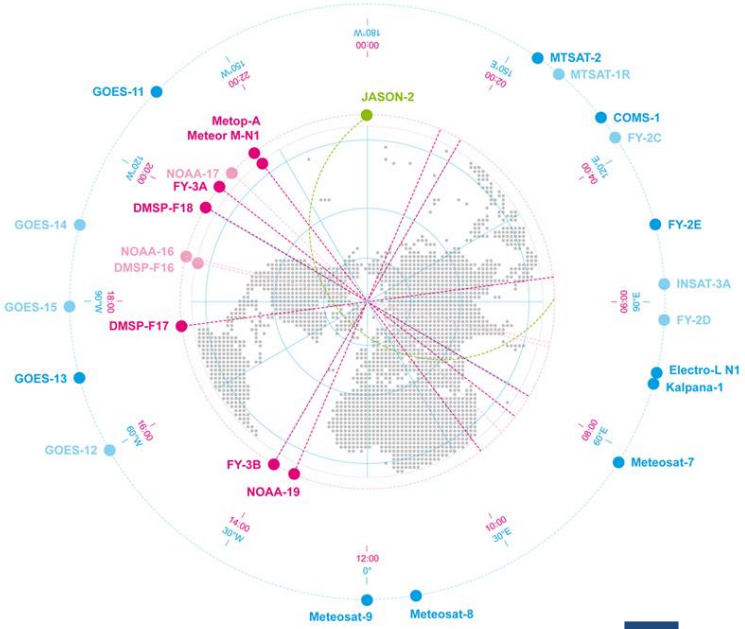


NOAA Report on the Status of Current and Future Satellite Systems

Presented to CGMS-46 Plenary session, agenda item D.05

Coordination Group for Meteorological Satellites

NESDIS Mission and Vision

OUR MISSION

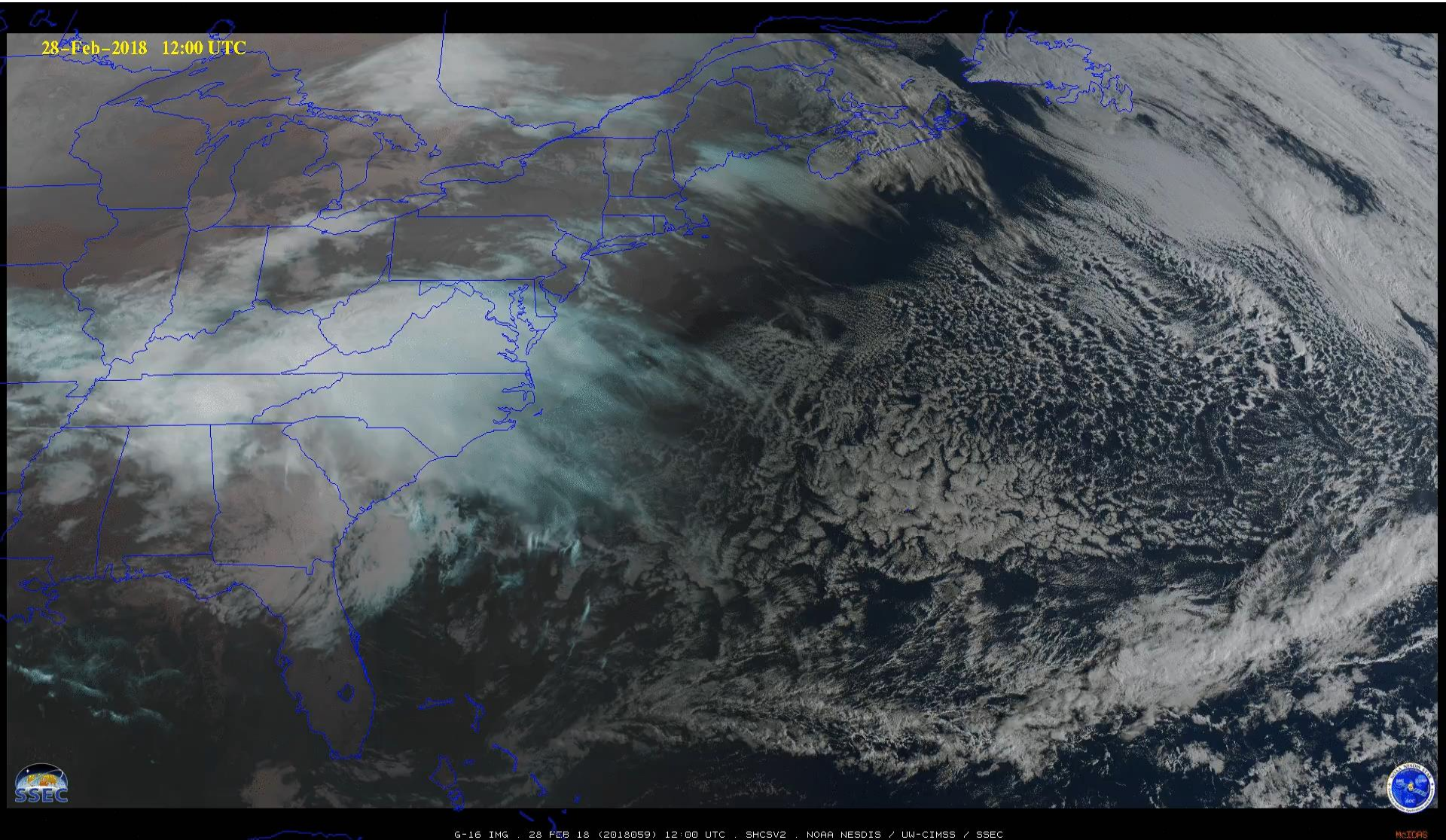
NESDIS' mission is provide secure and timely access to global environmental data and information from satellites and other sources to both promote and protect the Nation's environment, security, economy quality of life.

OUR VISION

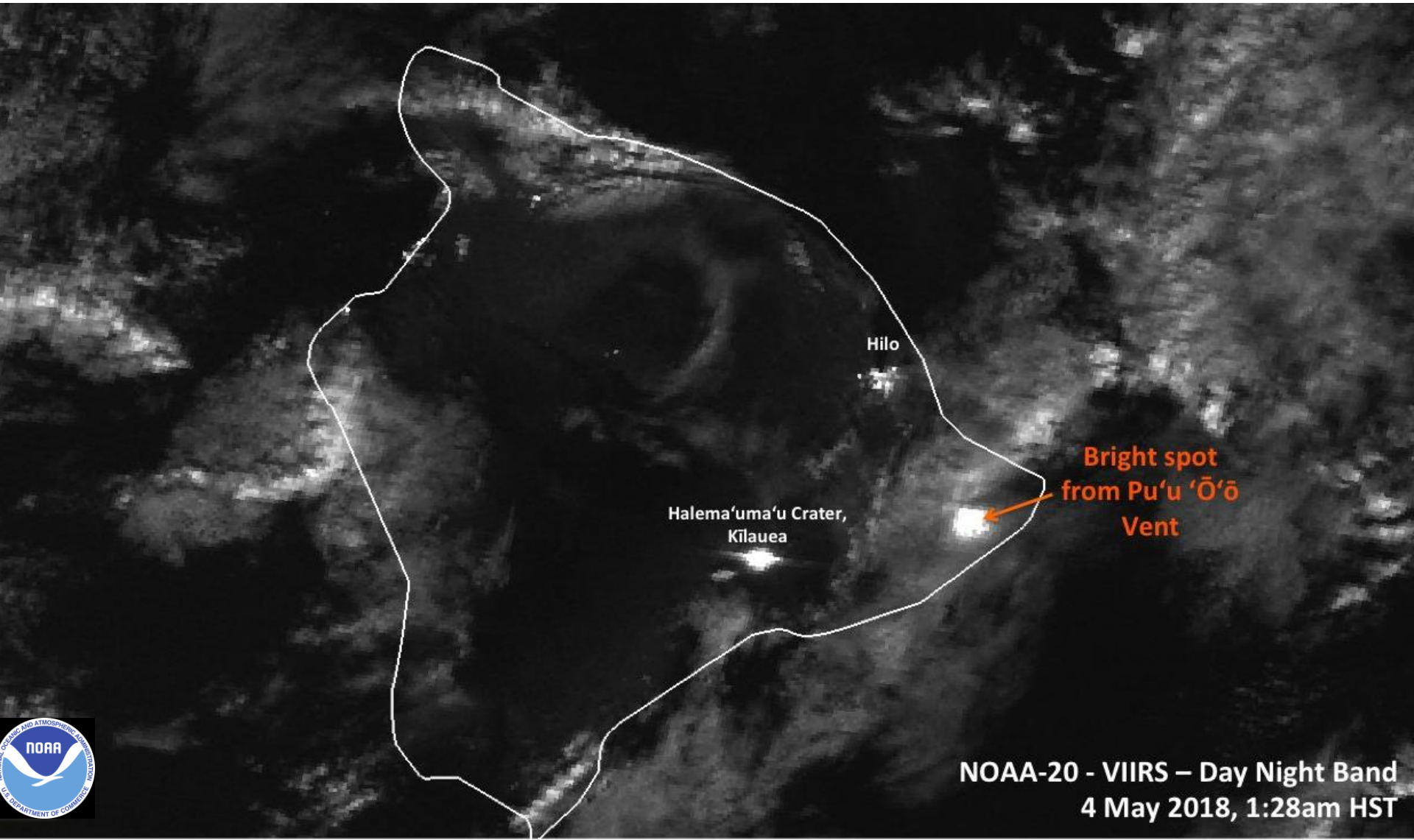
Our vision is to expand understanding of our dynamic planet as the **Trusted** source of **Environmental** data.

NOAA Recent and Upcoming Launches

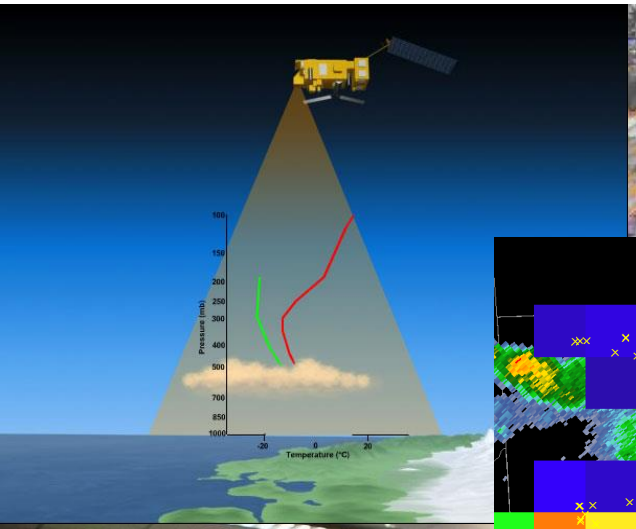
GOES-16 and ‘Foureaster’ March of Cyclones

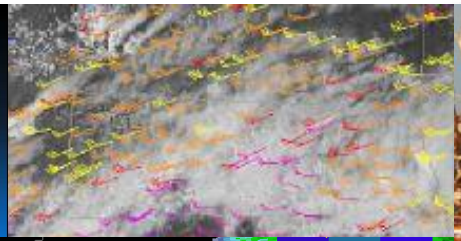


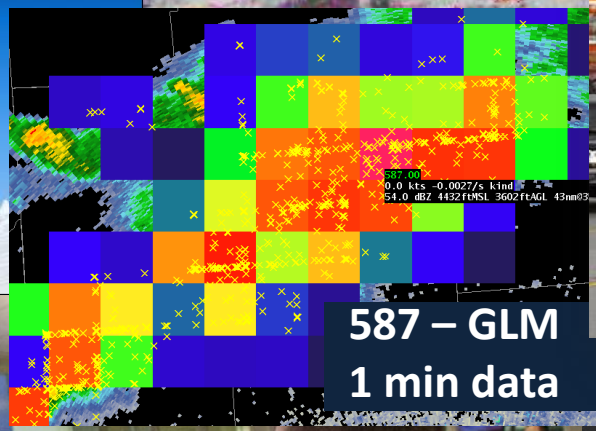
NOAA-20 Sees the Kilauea Volcano Eruption



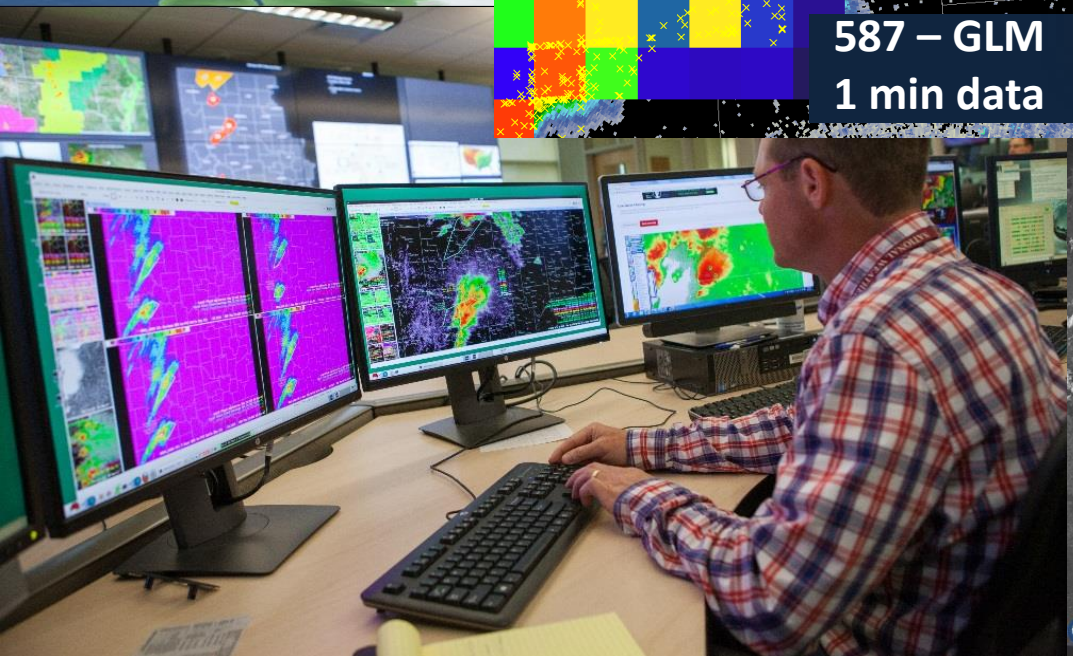
Future of Tornado Warnings from Satellite

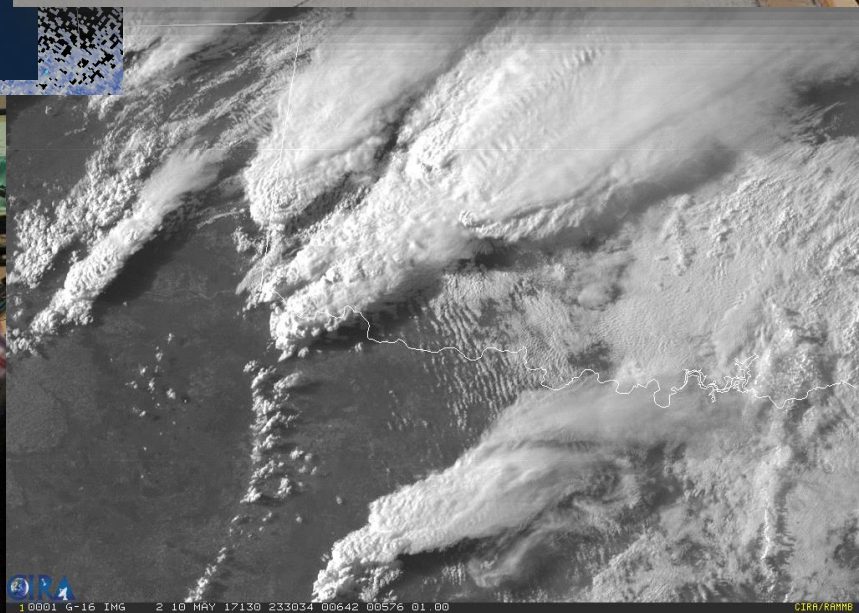






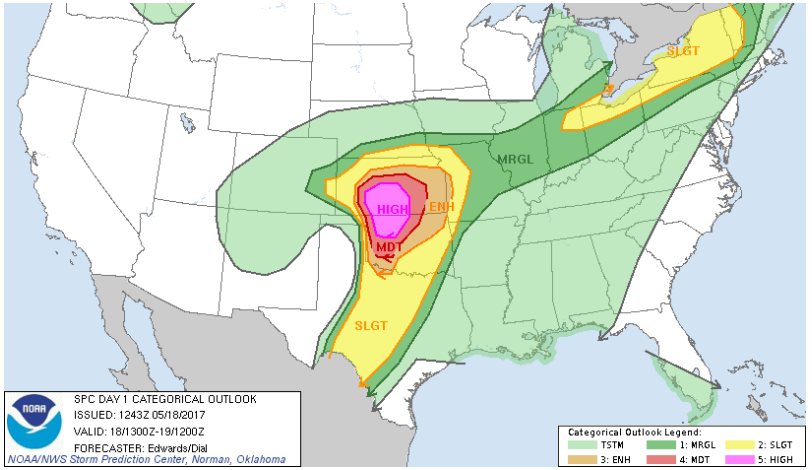
587 – GLM
1 min data

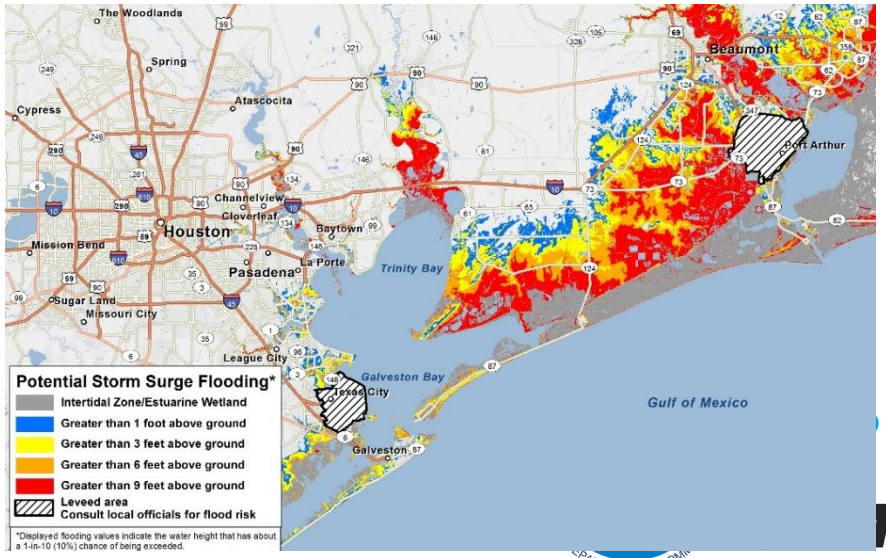




NOAA Satellite Observing Systems Architecture (NSOSA) Study

- Address NOAA's systems with a knowledge and inclusion of partner contributions and relationships
- Address NOAA Operational Needs
- Seeks which observation functions should be allocated to which orbit?
- Studies legacy architecture to keep legacy or seek change
- Studies observation functions to find needed improvements
- Examining the space segment architecture decisions for space systems post GOES-R/S/T/U and JPSS-1/2/3/4.





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NSOSA developed a large set of designed and costed alternatives

Alternatives fit within several architectures

- Legacy or expansion
- Radical alternatives
- Hybrids

Either Legacy Expansion or Hybrids were cost-benefit preferred, depending on the average annual expenditure available

- Legacy Expansion is preferred at narrow budget levels
- Hybrids are preferred over a wide range of budgets

Impacts of Hybrid architecture:

- New capabilities: Mission improvements or deficits
- NWS Operations: Type and number of data feeds, data variety, implied to
- forecaster tools and environments

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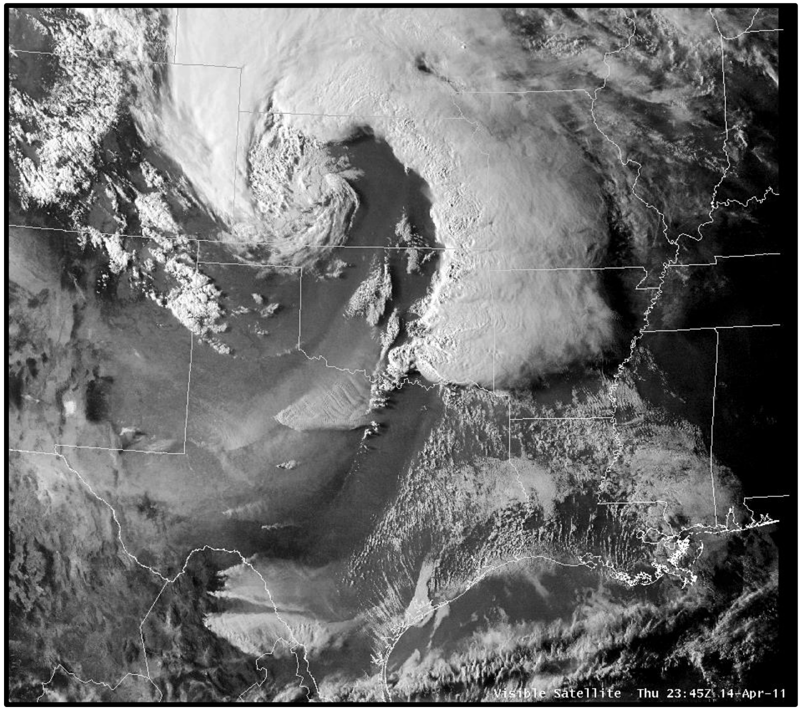
CGMS

New Capabilities Possible and Under Consideration



LEO

- Next generation & additional sounders
- Much higher density GNSS-RO
- Precipitation & wind measurements
- Mixed update/rate/data quality vertical sounding data set

GEO

- Diverse quality imaging from three locations (east, west, center)
- Includes mixture of qualities, taskable update rates, and spectrum content
- Higher quality lightning mapper in center

Tundra

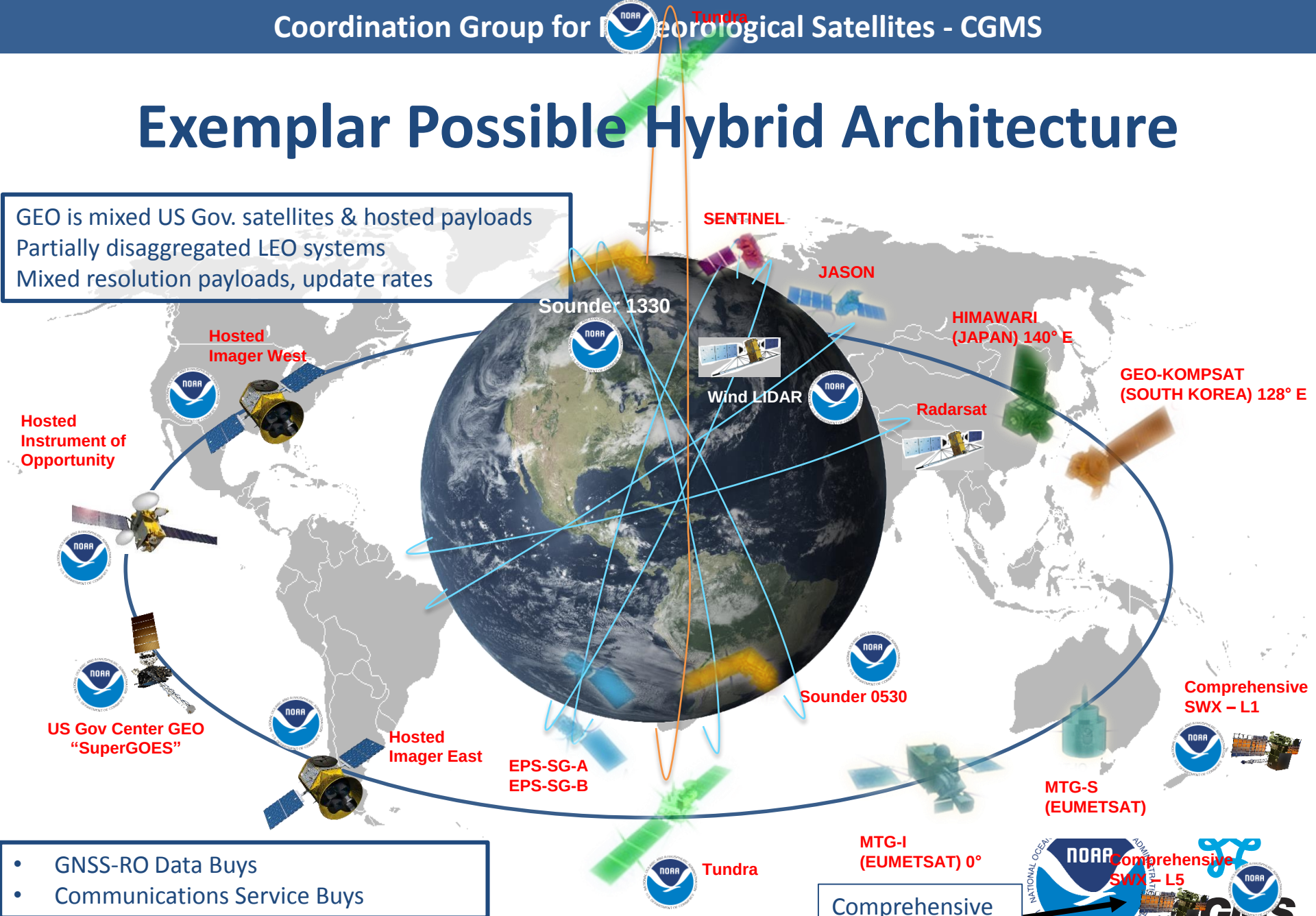
- Imaging over North Pole
- Auroral imaging

Space Weather

- Operational and improved on-Earth-Sun-Axis solar observation
- Off-axis solar observation and situ space weather

Exemplar Possible Hybrid Architecture

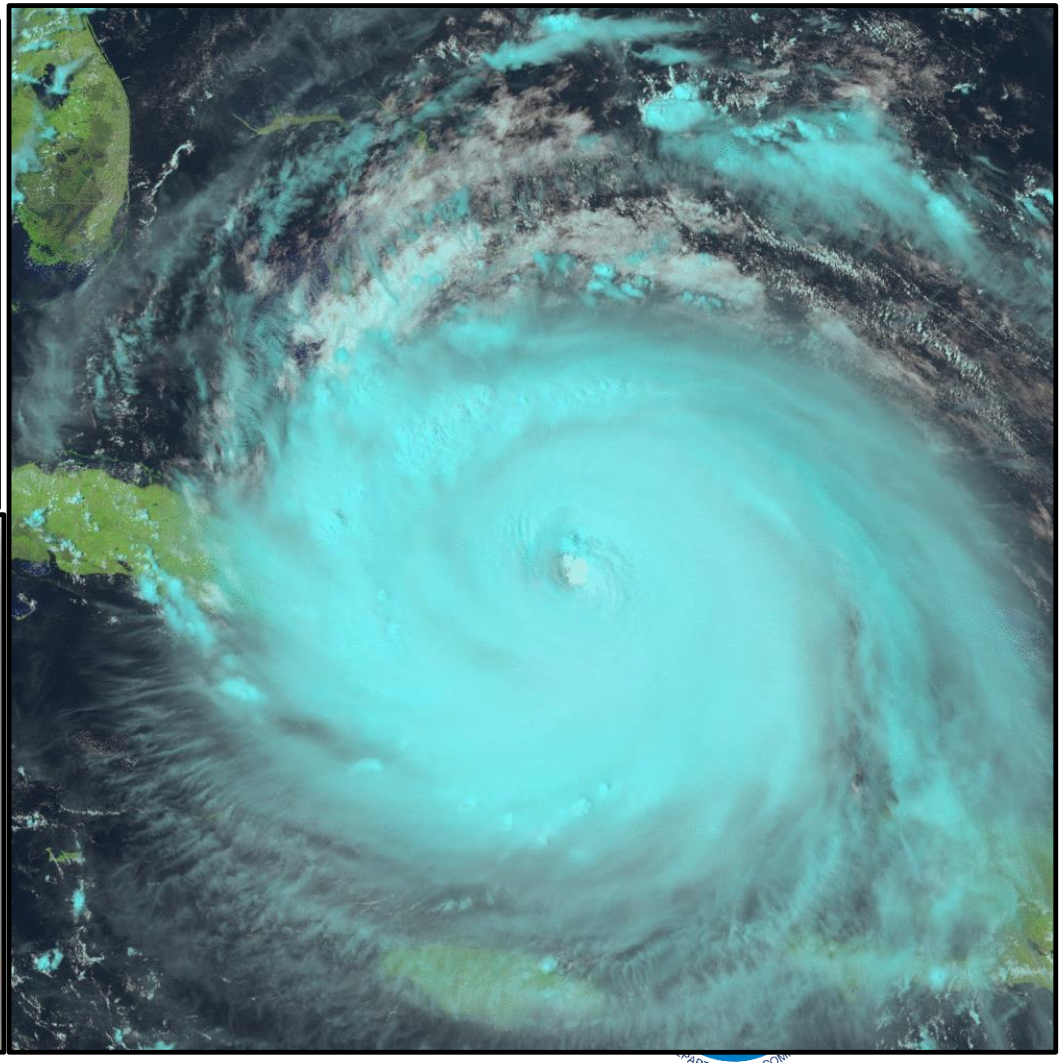
GEO is mixed US Gov. satellites & hosted payloads
Partially disaggregated LEO systems
Mixed resolution payloads, update rates



- GNSS-RO Data Buys
- Communications Service Buys

Meteorological Satellites

GOES-EAST Direct Impacts on Emergency Management



Hurricane Irma 9.7.2017