



## NOAA updates since CGMS-49 and report on the medium to long-term future plans

Presented to CGMS-50 Plenary Session, agenda item 2

# Coordination Group for Meteorological Satellites - CGMS

## DSCOVR

OPERATIONAL - JULY 27, 2016

## SWFO

SWFO L1 - FY 2025

## COSMIC-2

COSMIC-2 - OPERATIONAL FEB 25, 2020

## SWNext

## JASON-3

OPERATIONAL - JULY 1, 2016

## GOES-R SERIES

GOES-16 - OPERATIONAL DEC 18, 2017  
GOES-17 - OPERATIONAL FEB 12, 2019  
GOES-T - LAUNCHED MARCH 1, 2022  
GOES-U - FY 2024

## GeoXO

## SENTINEL-6 Michael Freilich

Sentinel-6 Michael Freilich - OPERATIONAL NOV 22, 2021

## JPSS SERIES

NOAA-20 - OPERATIONAL MAY 30, 2018  
JPSS-2 - FY 2023  
JPSS-3 - FY 2026  
JPSS-4 - FY 2031

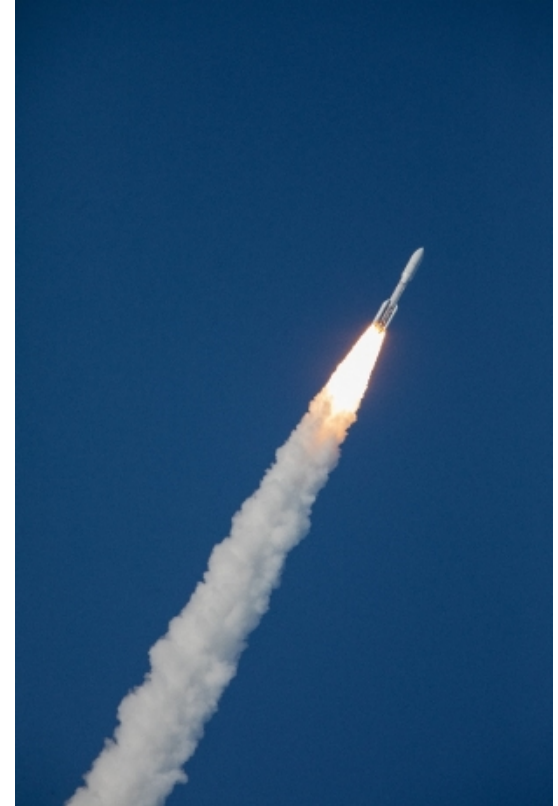
## LEO Satellites

**Coordination Group for  
Meteorological Satellites**



**CGMS**

# GOES-T Launch

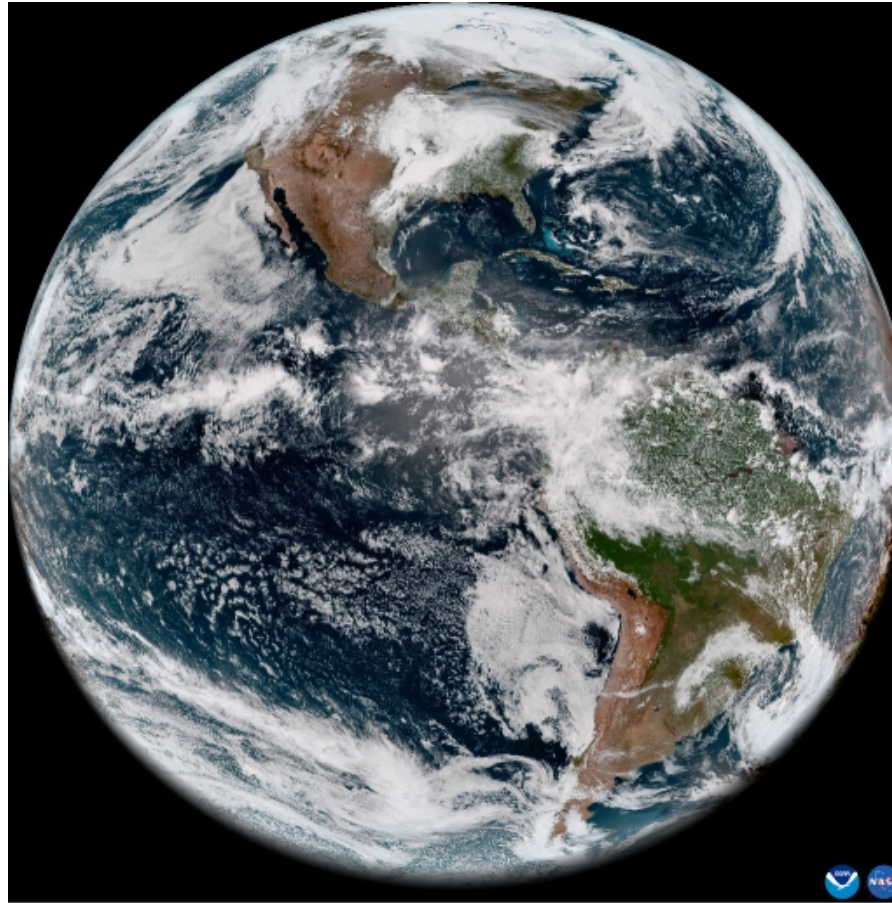


**Coordination Group for  
Meteorological Satellites**



**CGMS**

# First Imagery from GOES-18



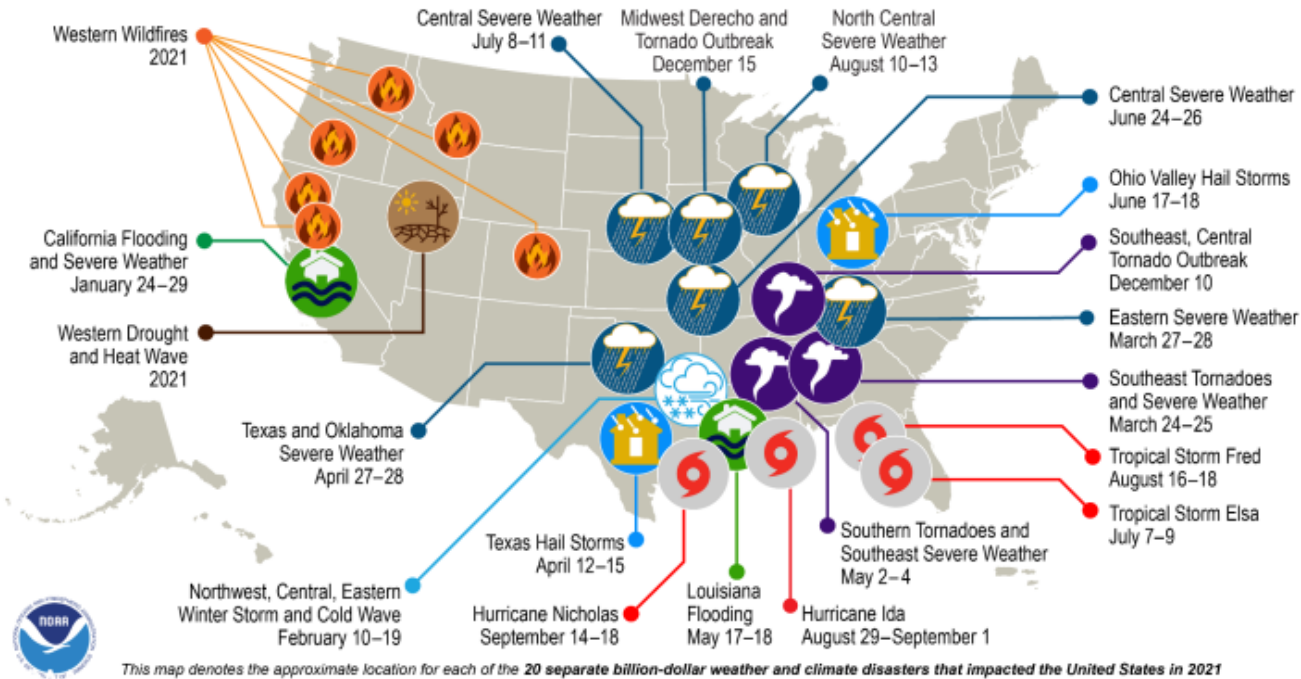
**Coordination Group for  
Meteorological Satellites**



**CGMS**

# 2021 Billion-Dollar Disasters

U.S. 2021 Billion-Dollar Weather and Climate Disasters



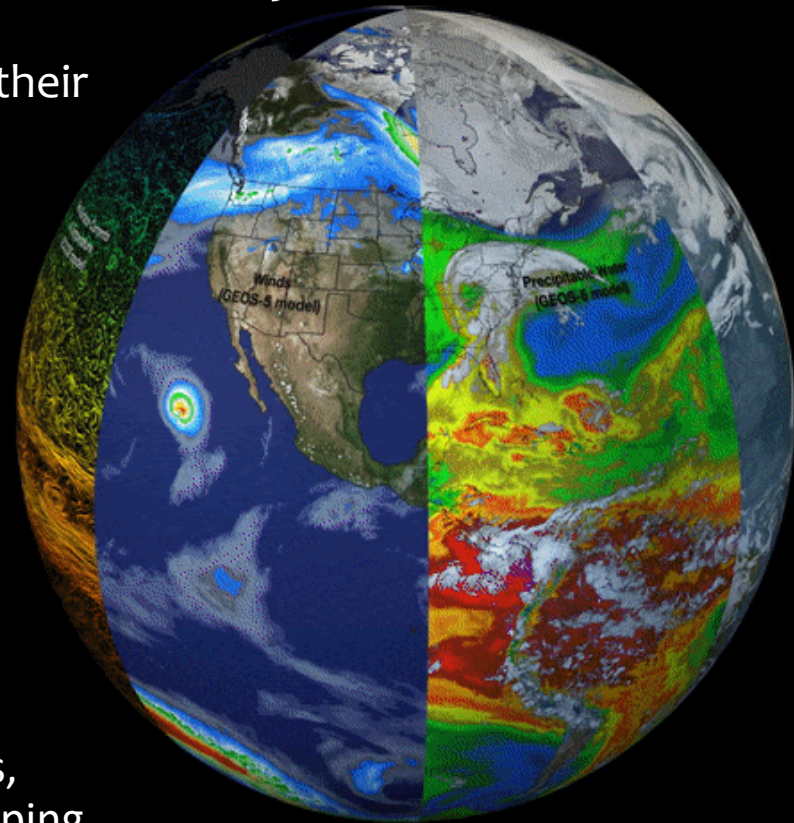
## Weather/climate disaster events in the U.S. in 2021...

- 20 events with losses exceeding \$1b
- Resulted in 688 deaths
- Damages from these disasters totaled approx \$145 billion
- Hurricane Ida was the most costly event of 2021 at \$75 billion
- The mid-February winter storm/cold wave was the costliest winter storm on record (\$24 billion)
- The total cost over the last five years of these disasters (2017-2021) exceeds \$742 billion

NOAA National Centers for Environmental Information: [nccdc.noaa.gov/billions](https://nccdc.noaa.gov/billions)

# Working Together to Create Climate Ready Communities

- Engaging our users to better understand and meet their needs
- Working with partners to exploit new and emerging technologies in new observing systems and refreshing Information Technology
- Maintaining and growing commercial and international partnerships to deliver a resilient and high-performing observing system
- Meeting the increasing demand for environmental information and data products in a rapidly changing world
- Getting information into the hands of decision makers, providing support for vulnerable communities, developing new products and services that support climate readiness, response and resilience.



# NOAA's Next-Gen Earth Observation Strategy

## Integrated, Adaptable, and Affordable: Orbits, Instruments & Systems

### LEO

Miniaturized instruments on small, lower cost, and proliferated satellites and partner data improving forecasts through better and additional data. Better precipitation forecasts, wave height predictions, ocean currents, and more.

### GEO

Continuous real-time observations supporting warnings and watches of severe weather and hour-by-hour changes. High-inclination orbits to observe northern latitude & polar regions.

### Space Weather

Reliably monitoring coronal mass ejections from L1, GEO, and LEO can protect the nation's valuable, vulnerable infrastructure. New capabilities at L5 and high earth orbit can provide additional insight and improve forecasts.

### Common Ground Services

Secure ingest of data in different formats from different partners requires a flexible, scalable platform. Common Services approach integrates cloud, AI, and machine-learning capabilities to verify, calibrate, and fuse data into new and better products and services.

# GeoXO Constellation

(Preliminary, pending program approval)



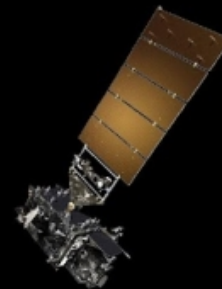
## GEO-West

Visible/Infrared Imager  
Lightning Mapper  
Ocean Color



## GEO-Central

Hyperspectral Infrared Sounder  
Atmospheric Composition  
Partner Payload



## GEO-East

Visible/Infrared Imager  
Lightning Mapper  
Ocean Color

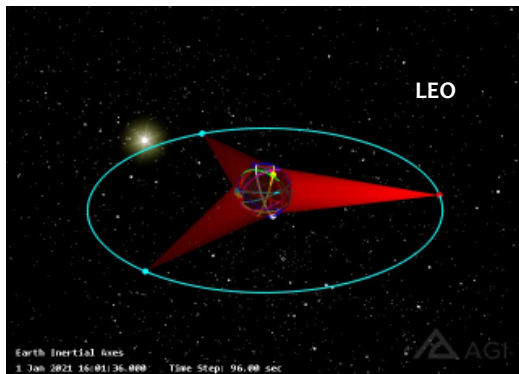




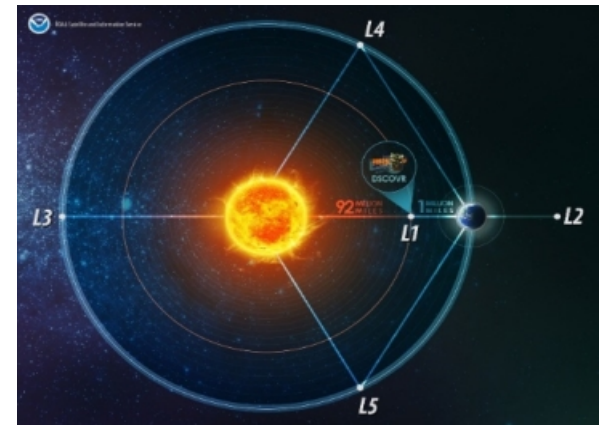
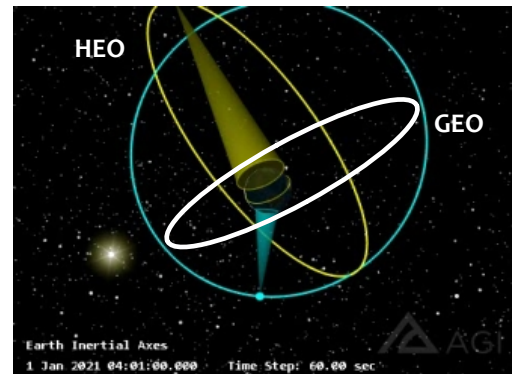
# Space Weather Observations Program

The Space Weather Program will need a comprehensive observational capability for several orbital regimes.

Thermospheric and ionospheric objectives will require in situ measurements from LEO as well as imaging capabilities from GEO.



For the magnetosphere, in situ measurements from GEO and HEO can be combined with auroral imaging.



Coronal and photospheric imagery from L1 and L5 can be used for stereoscopic analysis. In situ plasma/field data will drive heliospheric models.

# Next Launch: JPSS-2



NOAA and NASA are now targeting November 1, 2022 as the new launch date for NOAA's Joint Polar Satellite System-2 (JPSS-2) mission

# Recent NOAA Accomplishments

- Signed the Space for Climate Observatory (SCO) as the lead agency for the United States
- Signed an Agreement with ESA for Space-based Space Weather Observations
- Signed space weather agreements with Germany/DLR and Korea/RRA, and a Letter of Intent with Brazil/INPE.
- Ingesting COSMIC-2 data into weather models once this US-Taiwan partnered program reached full operational capability
- Awarded fourth Delivery Order to purchase commercial radio occultation data
- Signed a Letter of Intent for Preformulation Phase of Canada's Arctic Observing Mission
- Began definition phase for GeoXO, and awarded to date 4 of 5 instrument design studies
- Completed the Mission Concept Review and initial RFI work for the LEO QuickSounder Project
- Hired a new director of the Office of Space Commerce, Richard DalBello