

NOAA Update: Main developments since CGMS-48 and an outlook for the future

Presented to CGMS-49 Plenary, Session 2, NOAA-WP-01

Four Pillars of NOAA's Next-Gen Earth Observation

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.

Looking Ahead

Recommended GeoXO Constellation

(Preliminary, pending program approval)



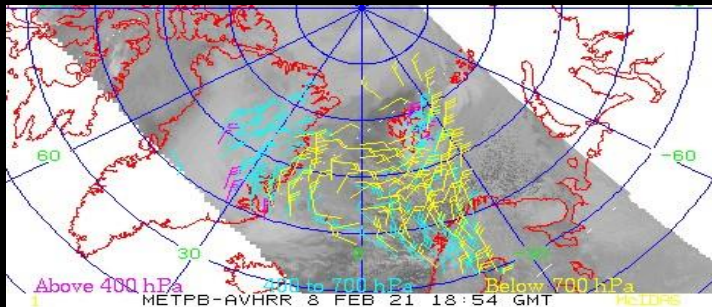
Space Weather Program Plans

Diverse observation requirements from distributed vantage points in LEO, GEO, HEO, L1 and off the Sun-Earth line.

Near-term plans:

- Solar Wind Instrument Suite at L1
- Compact coronagraph at L1 & on GOES-U
- SWFO-L1 launching on a NASA IMAP 2025, coronagraph on GOES-U launching 2024

LEO Satellites: Mission Concepts to Augment Global Measurement Capability



- More frequent launches beginning in mid-2020s
- Replenish **critical sounding data**
- Capture **3D winds, ocean surface vector winds, precipitation data, and low-light imagery**
- **Hybrid approach:** data from NOAA satellites, strategic partners, and commercial providers