



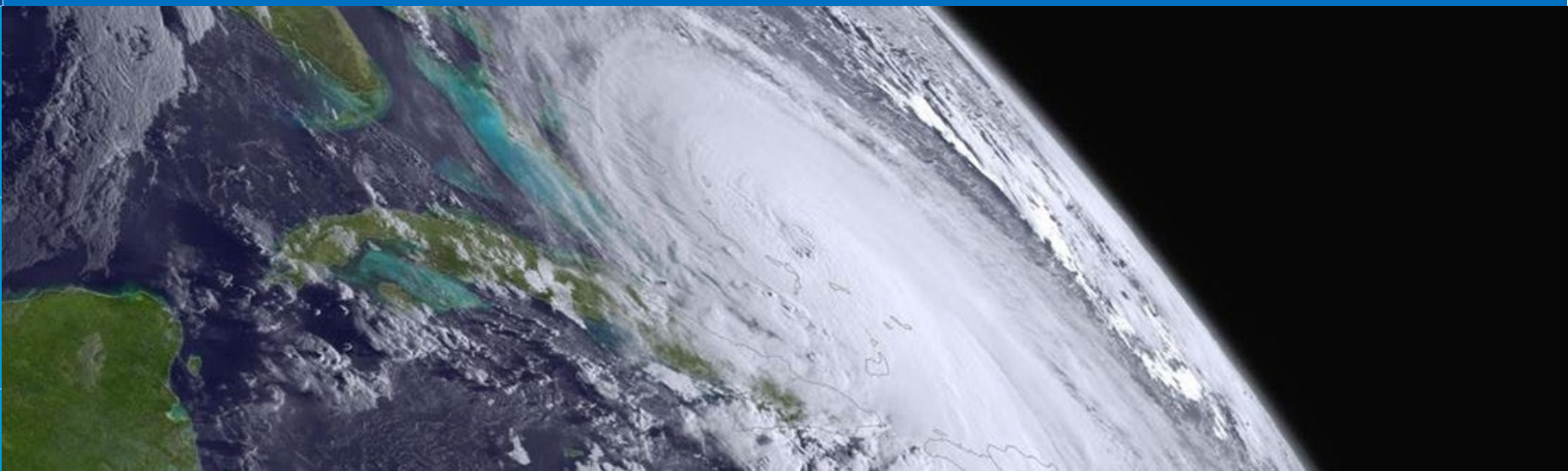
NOAA

Satellite and
Information
Service

Mar 21, 2023



NOAA Agency Report



NOAA's Next-Gen Earth Observation Strategy

LEO Program

- NESDIS established the Office of Low Earth Orbit (LEO) Observations
 - Plan, acquire and manage global measurements for NOAA users as an enterprise
- A microwave sounding mission (QuickSounder) is currently planned to provide global microwave sounding measurements to help inform a planned disaggregated architecture
- A study is underway to understand the next generation microwave sounding mission (SMBA) that will provide global microwave sounding measurements as the first post-JPSS instrument for a disaggregated architecture
- The LEO mission program level requirements covering all types of measurements will be developed and baselined in 2023
- Several studies are ongoing to determine the optimum end state of LEO architecture



2020

2025

2030

2035

2040

** LWS mission sequencing after QuickSounder are subject to change based on the assessment of periodic mission impact assessments

Growing User Needs

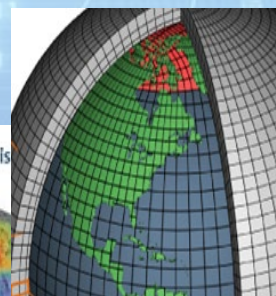
LEO: Users expect NOAA provide improved observations and forecasts:

- **Higher resolution forecasts for short term and long term weather prediction** - improved microwave, infrared and RO soundings. More frequent observations with improved spatial and vertical resolution to measure the atmosphere closer to Earth's surface
- **The Blue Economy and coastal communities requires improved information on phytoplankton and harmful algal blooms** - hyperspectral ocean-color imagery at improved spatial resolution
- **Timely and accurate forecasts of air quality hazards require enhanced atmospheric chemistry sensors** for monitoring gases such as sulphur dioxide that cause smog. Improved measurements of ozone and trace gasses such as nitrogen dioxide, methane and formaldehyde are need to assess climate change.

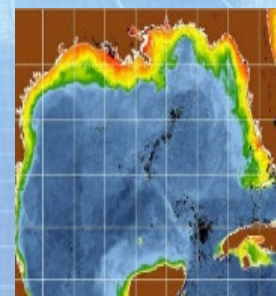
GEO: Users expect NOAA to meet new requirements with new observations

- **Improved numerical weather prediction and local nowcasting** - delivered by Hyperspectral IR Sounder
- **Monitoring dynamic coastal/ocean features, ecosystem change, water quality, and hazards** - delivered by Ocean Color Instrument
- **Monitoring air quality and linkages with weather and climate** - delivered by Atmospheric Composition Instrument

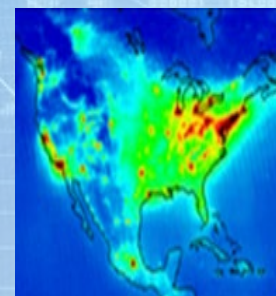
IR Sounding [NWS]



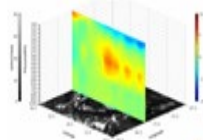
Ocean Color [NOS, NMFS]



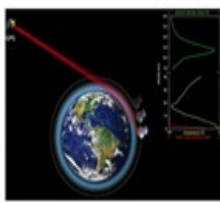
Atmo. Composition [OAR]



Improved MW and IR Soundings [Supporting NWS]



Radio Occultation [NWS]



Hyperspectral Ocean Color [NMFS, NOS]



Enhanced Atmospheric Chemistry [OAR, NWS]

