Status report on the current and future satellite systems by NOAA

Presented to CGMS-54 plenary session, agenda item 3

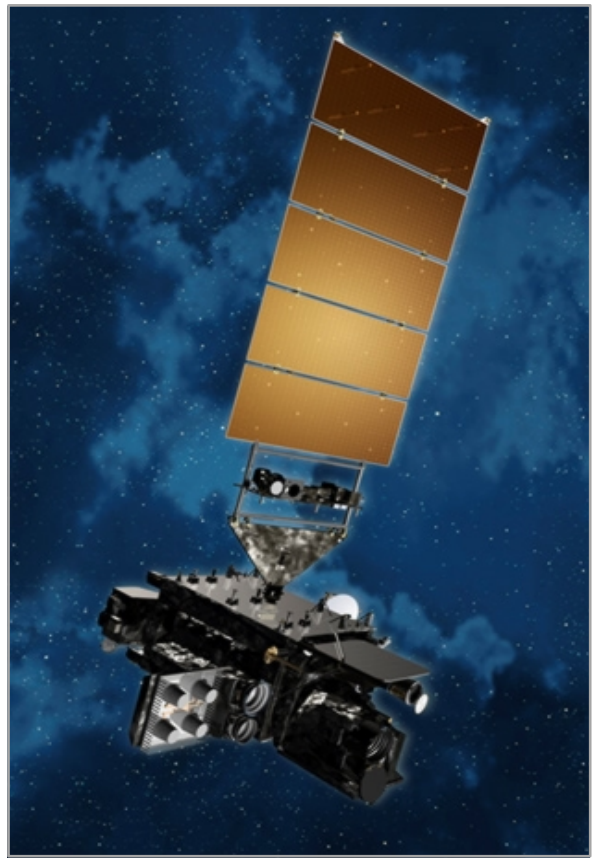
Coordination Group for Meteorological Satellites

CGMS

NESDIS Mission

Essential to National Security, Safety, & Prosperity

- Operates the Nation's weather satellites, 24/7
- Acquires next-generation Earth observation satellites
- Provides data and imagery for predictive environmental and atmospheric modeling from our own satellites, our partners', and the commercial sector
- Maintains one of the most comprehensive archives of environmental data on Earth

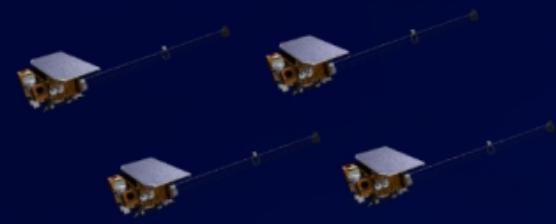


~90% of the data used in weather forecast models come from satellites - highlight the importance of our coordination and data sharing here in CGMS

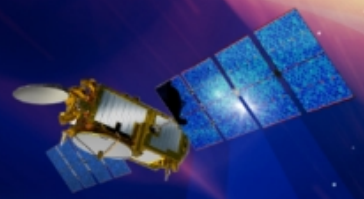
NOAA Satellite Missions

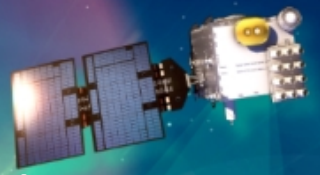
DSCOVR
Operational July 27, 2016

SWFO Program
SOLAR-1- Launched Sept. 24, 2025

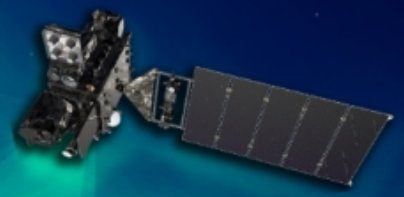


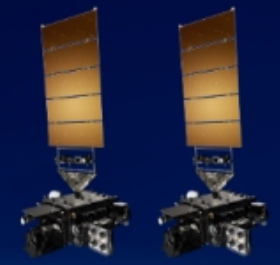
SW Next





COSMIC-2
Operational Feb. 25, 2020



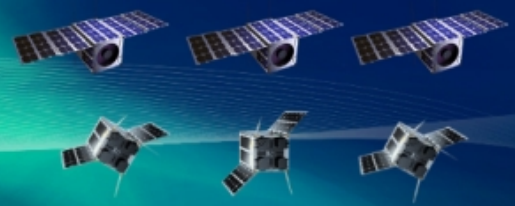


JASON-3
Operational July 1, 2016

GOES-R SERIES
GOES-16 - Operational Dec. 18, 2017
GOES-17 - Operational Feb. 12, 2019
GOES-18 - Operational Jan. 4, 2023
GOES-19 - Operational April 7, 2025

GeoXO

SENTINEL-6 Michael Freilich
Operational Nov. 22, 2021



NEON

EUMETSAT Metop Series
Metop-B Operational 2013
Metop-C Operational 2019
MSG-A1 Launched Aug. 12, 2025
MSG-B Launch planned Mar 2026

JPSS SERIES
Suomi-NPP - Operational May 1, 2014
NOAA-20 - Operational May 30, 2018
NOAA-21 - Operational Nov. 8, 2023
JPSS-3 - Launches fiscal year 2033
JPSS-4 - Launches fiscal year 2028

QuickSounder
Launches 2027

Geostationary Earth Orbit: Current & Future

GOES:

- 2 operational, 2 serving as on-orbit backups
- GOES-19 launched in June 2024 and began operations as GOES-East on April 7, 2025

Artist rendition of GOES-19 in orbit

GeoXO:

- The GeoXO program is being restructured to prioritize weather operations and ensure operational continuity
- First launches planned in 2032 and 2034
- Provides continuity of operations through 2055

GeoXO program logo

Geostationary Earth Orbit: Future

GeoXO-West

VIS/IR Imager

IR Sounder

Two-satellite operational constellation with replacement satellites for continuity through 2055

GeoXO-East

VIS/IR Imager

IR Sounder

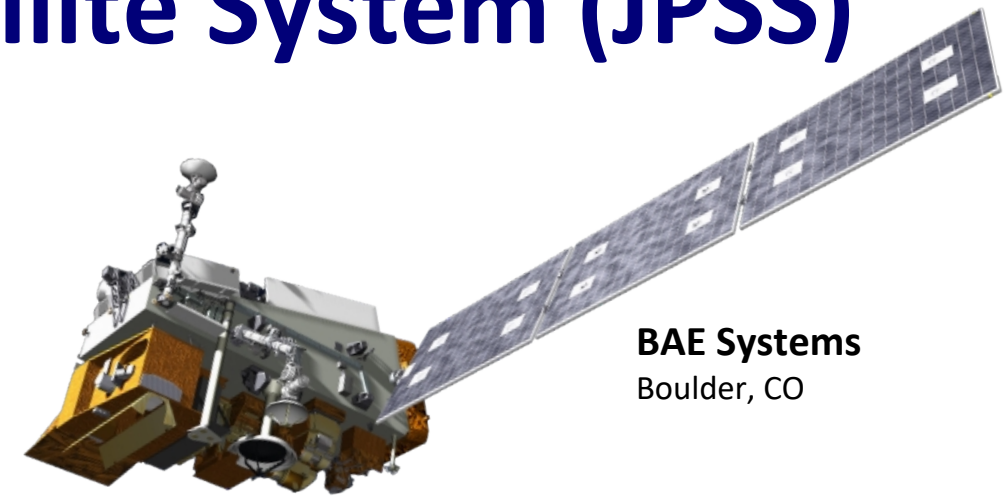
GeoXO-1 (2032): ABI 5 and GXS

GeoXO-3 (2039): GXI and GXS

GeoXO-2 (2034) and GeoXO-4 (2043): GXI and GXS

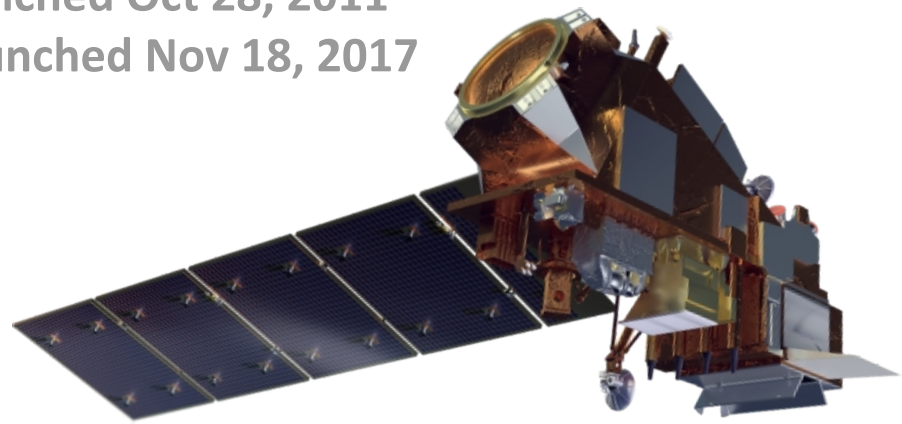
Current LEO: Joint Polar Satellite System (JPSS)

- Three satellites on-orbit (S-NPP, NOAA-20, NOAA-21)
  - S-NPP will remain operational through 2026 hurricane season, at which point we will work with NASA to complete end-of-life testing and deorbit planning for decommission in FY27
- Two satellites to launch (JPSS-4 in 2027 & JPSS-3 in 2032)
  - JPSS-4: all instruments, including NASA's Libera, are integrated; satellite testing is underway
  - JPSS-3: in storage



BAE Systems
Boulder, CO

Suomi-NPP (tertiary): launched Oct 28, 2011
NOAA-20 (secondary): launched Nov 18, 2017



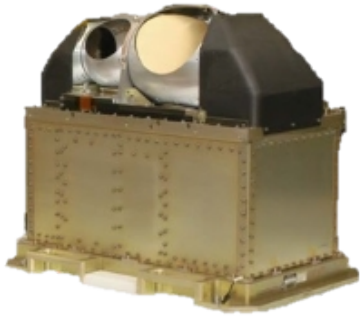
NOAA-21 (primary): launched Nov 10, 2022
JPSS-4: planned launch Sep 2027
JPSS-3: planned launch Sep 2032

Northrop Grumman
Gilbert, AZ

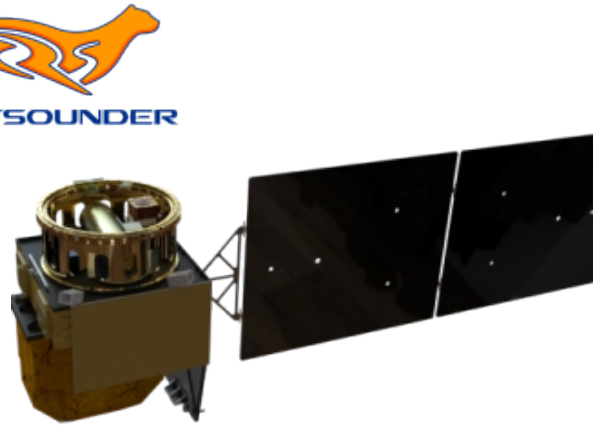
Future LEO: Near Earth Orbit Network (NEON)

QuickSounder Project

- Demonstrate operational observations can be obtained with a small, commercial-based satellite on a compressed schedule
- Satellite integration and testing underway; targeting launch in 2027



ATMS EDU

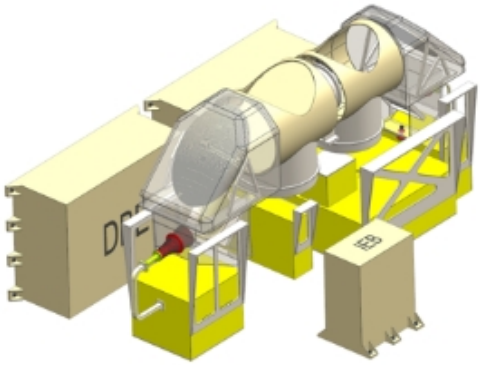


QuickSounder Concept

QuickSounder Render Credit: Southwest Research Institute/Richard Menchaca

Series-1 Project

- Provide microwave soundings essential to the performance of the NWP global models
- Sounder for Microwave-Based Applications (SMBA) Request for Proposals released on March 31, 2026



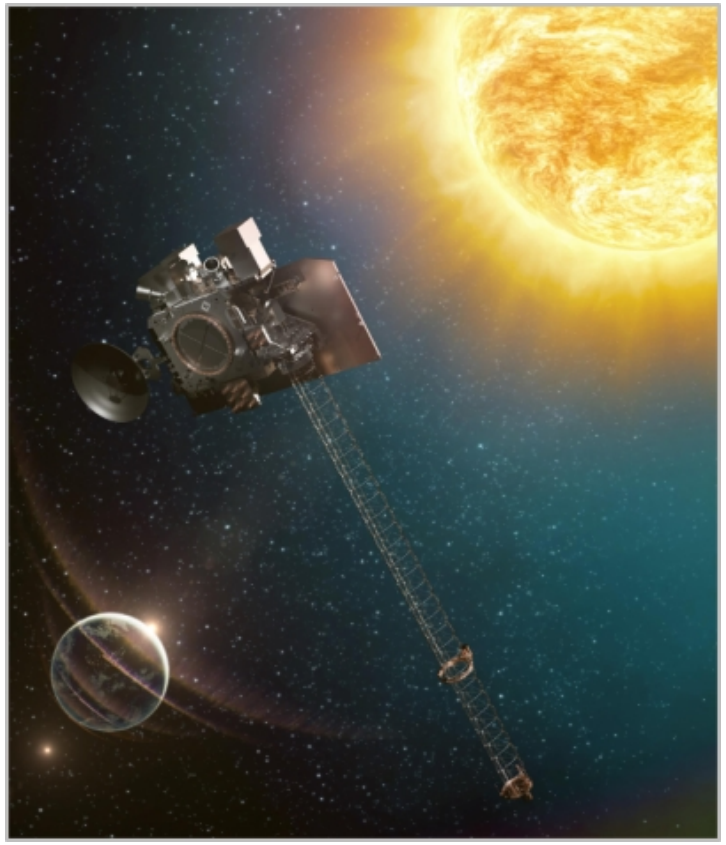
High Performance SMBA Concept

Series-1 Satellite

Current Space Weather Observations: DSCOVR and SOLAR-1 at L1

DSCOVR (launched 2015) **and SOLAR-1** (launched 2025), ensures the **operational delivery of NOAA's foundational set of space-based space weather observations and measurements from L1** to ensure continuity and resilience of critical data.

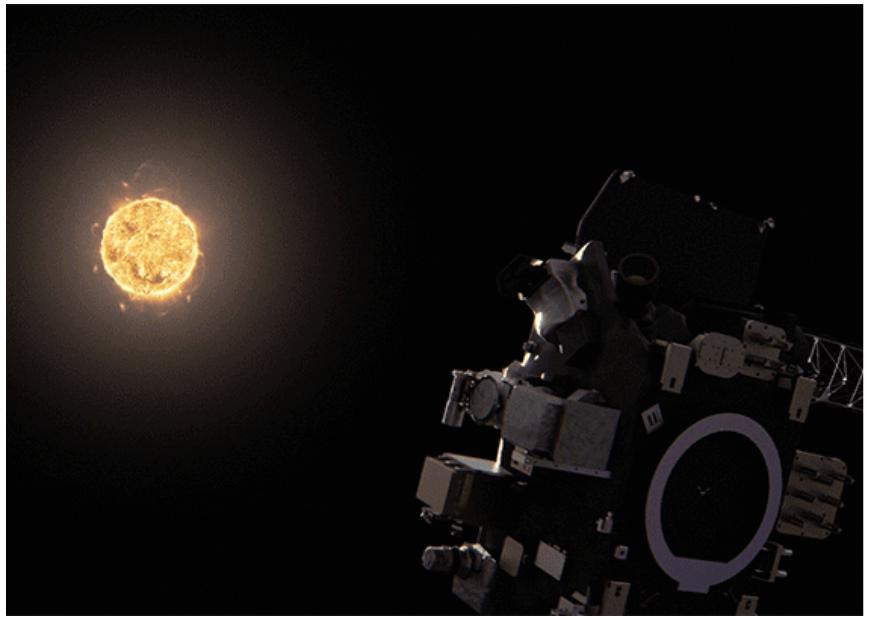
- **DSCOVR Highlights**
  - NOAA's demonstration-turned-operational satellite at L1; predecessor to SOLAR-1
  - Status as of May 2026: NOAA/NASA working on deorbit planning as it exceeds its planned operational lifespan.
- **SOLAR-1 Highlights**
  - NOAA's first **operational** space weather satellite
  - Arrived at L1 in January 2026, when it was renamed from *SWFO-L1* to **SOLAR-1**
  - Rideshare with NASA's IMAP mission
  - Spacecraft passed PLAR and OHR spring 2026; scheduled to declare SOLAR-1 operational NET spring 2026



Future Space Weather Observations: SW Next

Space Weather Next (SW Next) will maintain and extend space weather observations, selected to provide comprehensive knowledge of the Sun and the near-Earth space environment.

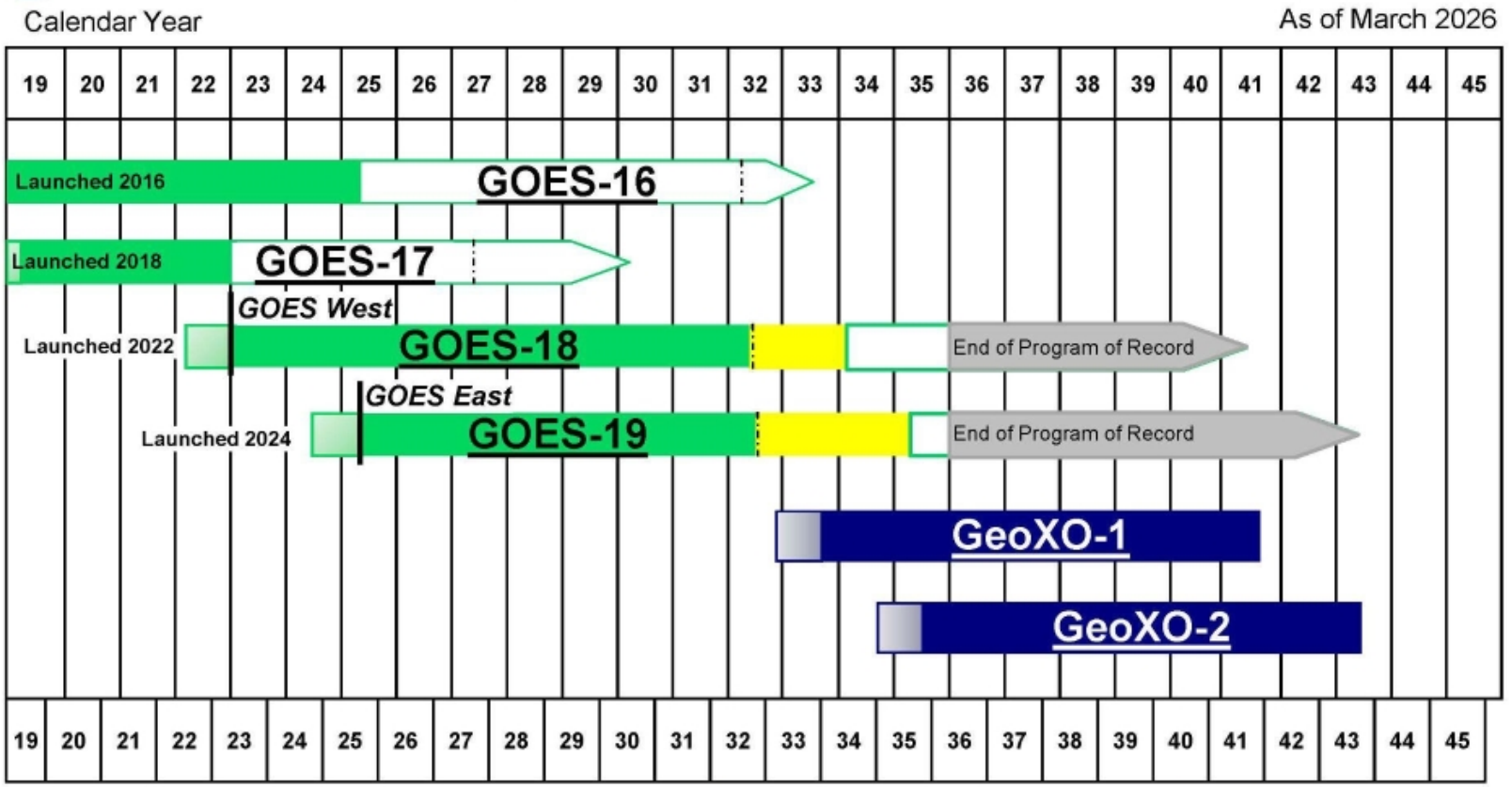
- **SOLAR-A**, the first project of the **SW Next program**, provides continuity for SOLAR-1 measurements of the solar wind, thermal plasma, the sun's magnetic field, and corona.
  - Contracts awarded for spacecraft and all SOLAR-A instruments
  - Mission PDR completed March 2026
  - Launch date NET November 2029
- **SOLAR-B**
  - Succeeding satellite to SOLAR-A; designed to provide continuity of space weather measurements from L1 at the end of SOLAR-A's operational design life in the 2030's
  - Launch date NET 2032
- **L5 Project**
  - NOAA partner-contributed CCOR-3 instrument on ESA's Vigil mission to L5
  - Joint PDR/CDR scheduled for May 2026
- Agreements in place with NASA, NRL, and ESA (L1 and L5 cooperation)



Thank You

WWW.NESDIS.NOAA.GOV

NOAA Geostationary Satellite Programs
Continuity of Weather Observations



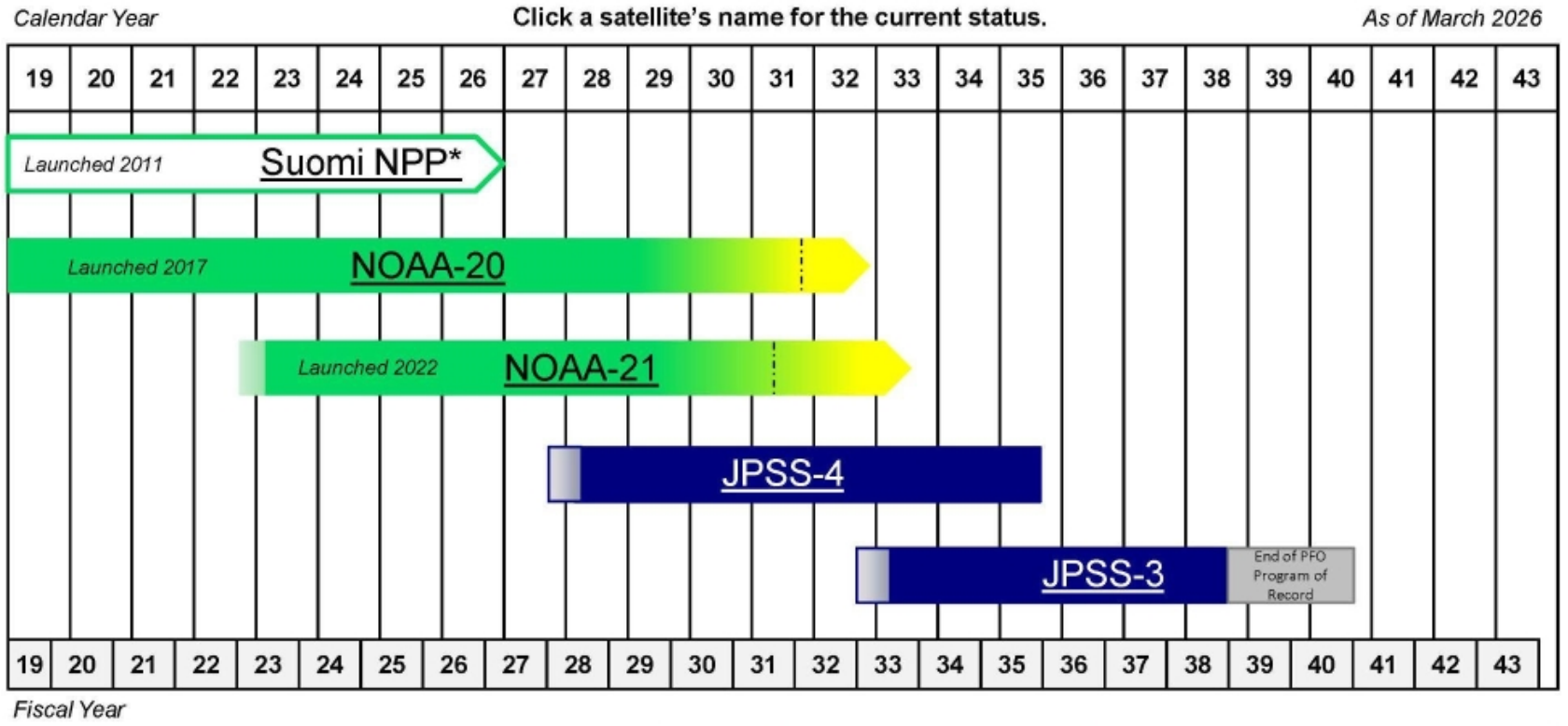
Approved: Irene Parker
Assistant Administrator for
Satellite and Information Services (Acting)

Operational satellite extended life estimates (indicated by an arrow) are based on July 2025 reliability analyses (60% confidence) for satellites in orbit for at least one year.
GOES: Geostationary Operational Environmental Satellites

Coordinati
Meteorolog

CGMS

NOAA Polar Satellite Programs
Continuity of Weather Observations



Key

On-orbit, operational	Planned mission life
On-orbit, operational, End-of-Life	Planned on-orbit checkout
On-orbit residuals	End of Polar Follow-On Program of Record
On-orbit checkout	90% probability that satellite meets threshold requirement for HAPS

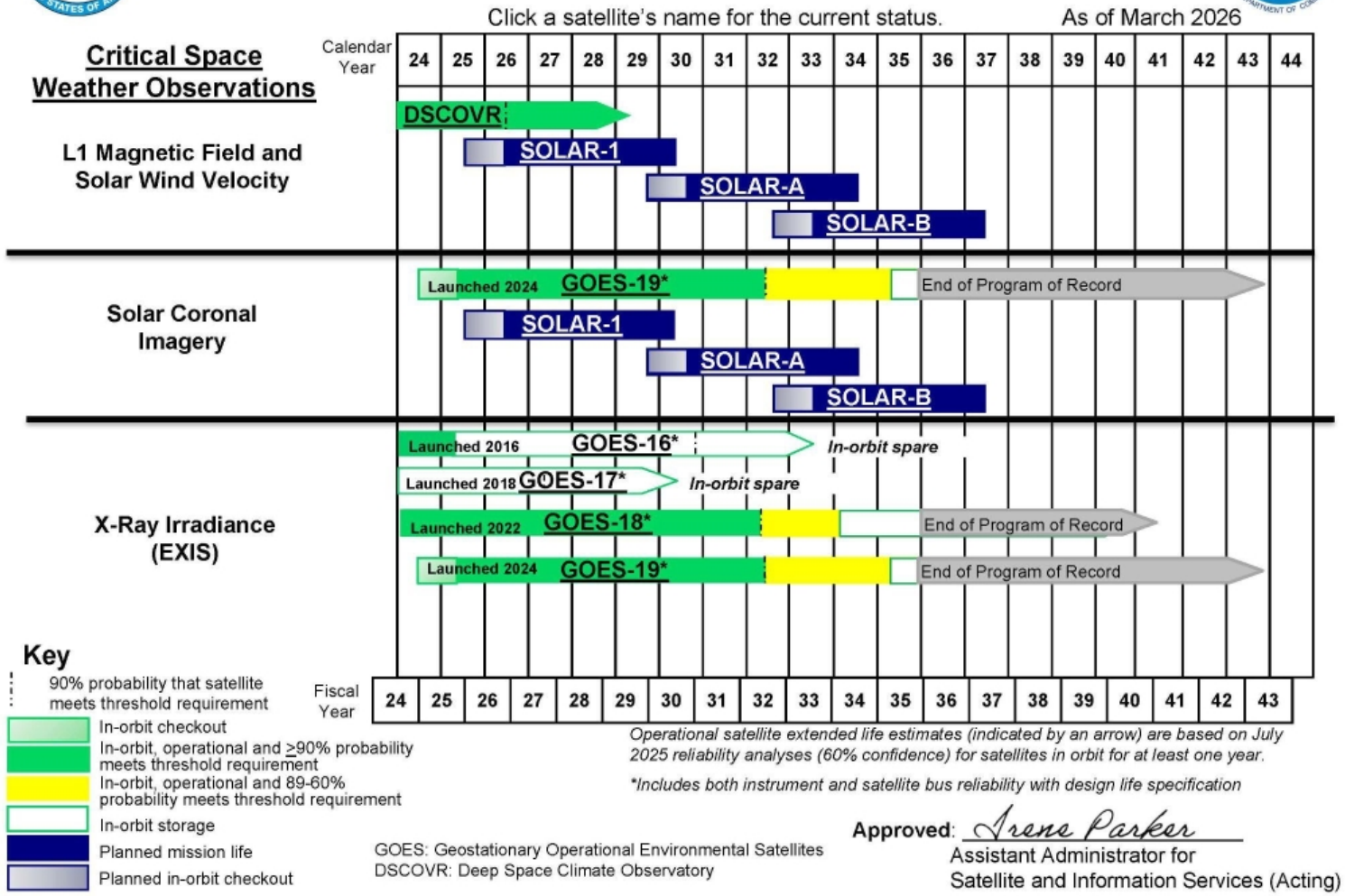
Operational satellite extended life estimates (indicated by an arrow) based on July 2025 reliability analyses.
Suomi NPP: Suomi National Polar-orbiting Partnership; JPSS: Joint Polar Satellite System

Approved: *Irene Parker*
Assistant Administrator for
Satellite and Information Services (Acting)

Coordination Meteorological Satellites

CGMS

NOAA Space Weather Satellite Programs
Continuity of Space Weather Observations



Operational satellite extended life estimates (indicated by an arrow) are based on July 2025 reliability analyses (60% confidence) for satellites in orbit for at least one year.

**Includes both instrument and satellite bus reliability with design life specification*

GOES: Geostationary Operational Environmental Satellites
DSCOVR: Deep Space Climate Observatory

Approved: *Irene Parker*
Assistant Administrator for
Satellite and Information Services (Acting)

Coordination Group for Meteorological Satellites

CGMS