NOAA's Radio Occultation Architecture:
Current Status and Future Plans

National Environmental Satellite, Data, and Information Service

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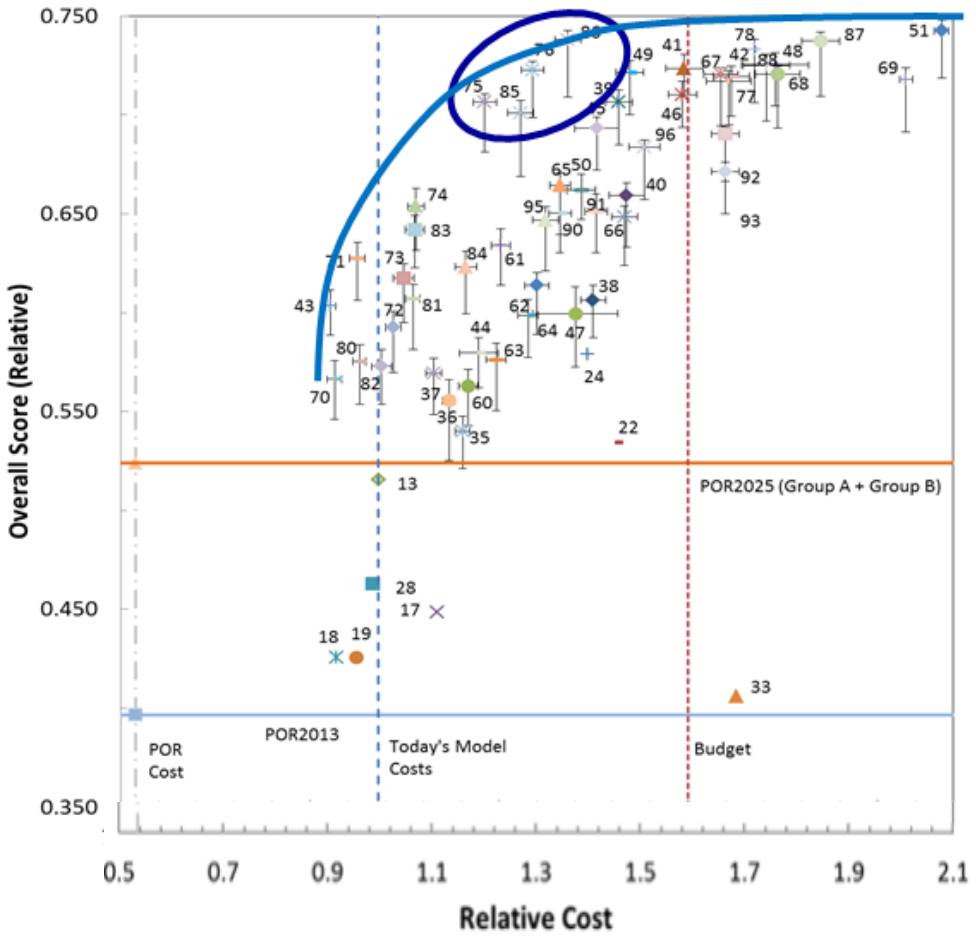
Meeting the Objectives of Today & Tomorrow: Desired Features of NOAA'S New Architecture



ATTRIBUTES OF HIGH-VALUE FRONTIER

Mix of observations with higher mission impact

- Small and medium platforms
- Enhanced imagery and high-latitude coverage
- New & more observations

More agility

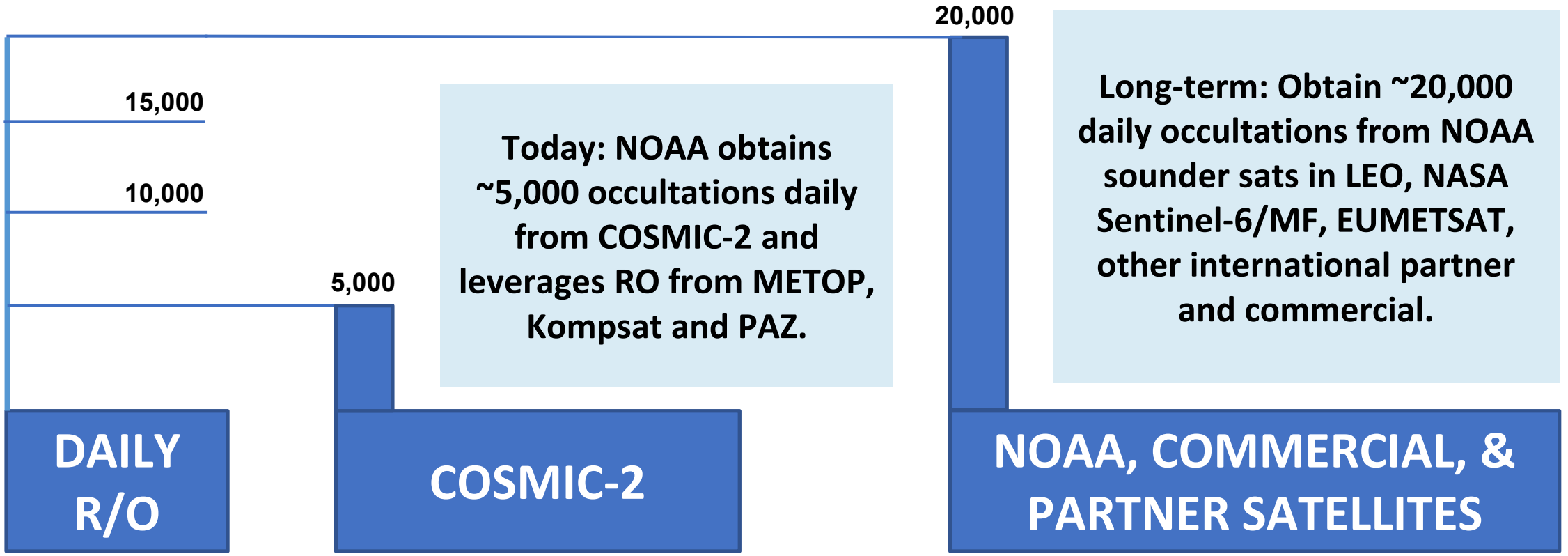
- Disaggregated LEO – smaller building blocks
- Onramps for new technologies
- Evolving partner observations

New business models

- Data purchases, ride shares, hosted payloads
- Commercial communication & data-relay services
- Instruments of opportunity

NOAA's Long Term R/O Objectives: 20,000

NOSC endorsed IROWG-6 goal of 20,000 occultations a day. NSOSA established threshold of 5,000 globally distributed occultations daily at highest quality and availability. Remaining daily observations more flexibility in performance, availability and geographic distribution.



Today: NOAA obtains ~5,000 occultations daily from COSMIC-2 and leverages RO from METOP, Kompsat and PAZ.

Long-term: Obtain ~20,000 daily occultations from NOAA sounder sats in LEO, NASA Sentinel-6/MF, EUMETSAT, other international partner and commercial.

Near Term: Obtaining 5,000 Daily Occultations

- When fully operational, COSMIC-2 to provide ~5,000 high-quality daily RO soundings – a threshold established by NSOSA.
- NOAA will continue to leverage “missions of opportunity“ to fill out polar regions.
- Initiated commercial RO data for operational use.

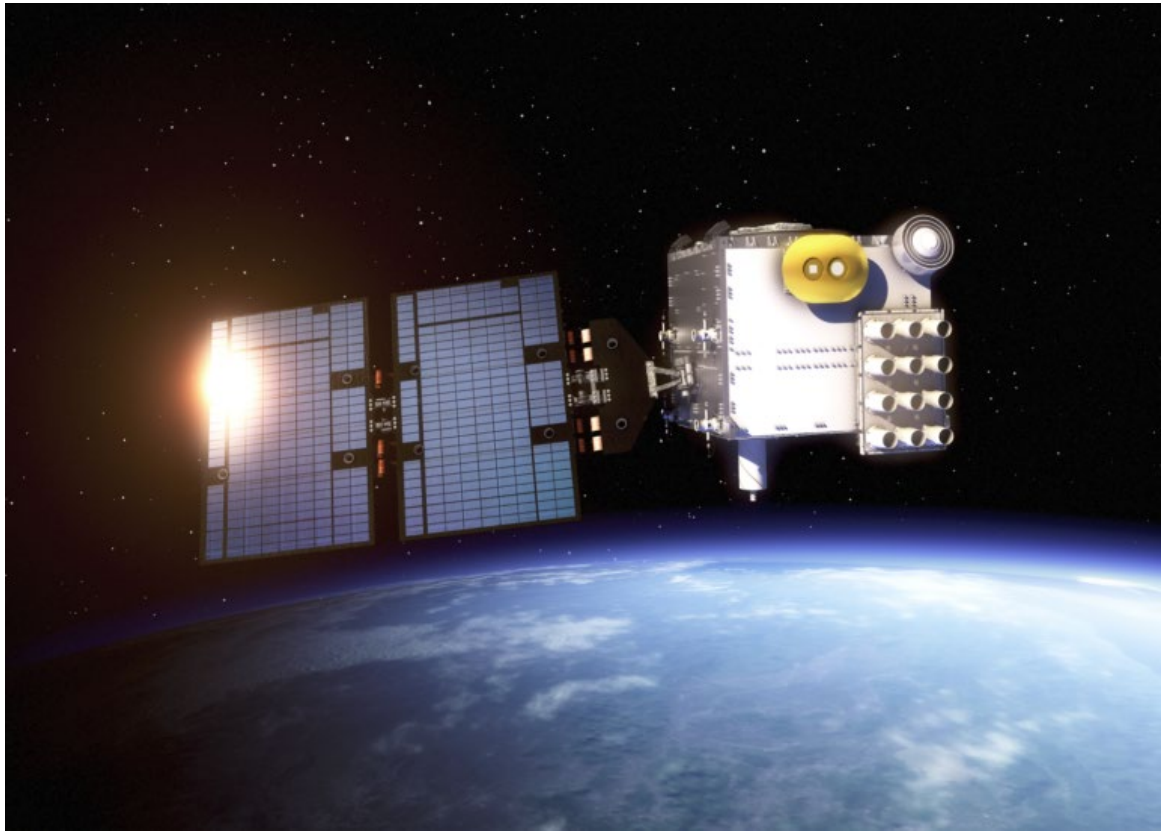
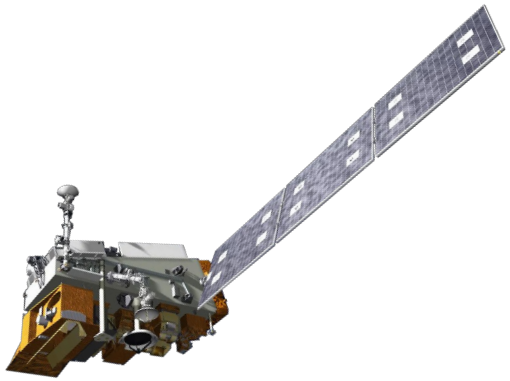


Image credit: Surrey Satellite Technology Ltd.

Medium Term: Build a Foundation in NOAA's LEO Program



NOAA's LEO Program Priorities:

- A foundation of sounder satellites
- Small to medium-sized instruments

Industry awards to explore design & capability options:

- Sounding instruments (MW, infrared, RO)
  - Commercial services
  - Multi-orbit coverage
  - Risk tolerance and observing system risk management

NOAA to leverage data from commercial vendors and strategic partners, add data from RO sensors on NOAA (and other USGS) satellites.

Long Term: Augmenting High-Quality RO

- NOAA to continue operating a base of NOAA LEO satellites dedicated to soundings, including high-quality RO
- Other NOAA satellites, ongoing partnership with EUMETSAT, to provide “backbone” set of global measurements to satisfy threshold requirements
- NOAA to augment this base with high-quality RO data from other international partners coming online in 2020s (JasonCS/Sentinel-6 follow-on) and commercial data when available

THANK YOU