Vanessa
Griffin
NOAA NESDIS
Richard Ullman, NOAA NESDIS
Oral
NOAA's access to Radio Occultation data to meet NOAA mission needs will evolve in the coming years, from reliance on COSMIC-2, Metop, Kompsat-5, and PAZ today to the inclusion of future NOAA systems, additional international capabilities, and commercial data over the next two decades.

In 2016, the NOAA Observing Systems Council (NOSC) endorsed the objective of 20,000 occultations per day as recommended by IROWG-6. The NOAA Satellite Observing System Architecture (NSOSA) study established a threshold of 5,000 globally distributed occultations per day that must be provided at the highest quality and availability. The remaining 15,000 observations per day may have more flexibility in performance level, availability, and geographical distribution.

In the near term, NOAA will leverage approximately 5,000 occultations per day from COSMIC-2 in the low latitudes, leverage RO data from Metop-A/B/C, Kompsat-5, and PAZ, initiate purchases of commercial RO data for operational use, and will make use of partner "missions of opportunity" for additional RO data as available.

In the medium term, NOAA plans to build a "foundational" backbone of government satellites to provide a set of high-quality, post-COSMIC-2 RO data, consisting of RO instruments on the next generation LEO sounder satellites. These next generation satellites would include infrared, microwave, and RO instruments together on smaller, more cost-effective satellites that can be launched more frequently to maintain the required high availability levels. NOAA will add data from RO sensors hosted on NOAA (and possibly other U.S. government) LEO satellites, Jason Continuity of Service mission on the Sentinel-6 Michael Freilich spacecraft, and Joint Polar System EUMETSAT observations as available, along with continuing to leverage commercial data and other international missions as available.

In the long term, NOAA will continue the operation of a base of small NOAA LEO satellites dedicated to producing soundings, including high-quality RO data. RO payloads on other NOAA LEO satellites, and our ongoing partnership with EUMETSAT (Metop-Second Generation) will provide a backbone set of global measurements to satisfy threshold requirements. NOAA will augment this base with high quality RO data from additional international partner missions that will be coming online in the 2020s (e.g., follow-on missions to JasonCS/Sentinel-6), and supplement the foundational and partner coverage using commercial RO data as it is available.
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