U.S. HOUSE OF REPRESENTATIVES COMMITTEE ON
SCIENCE, SPACE, & TECHNOLOGY
Opening Statement

Chairman Don Beyer (D-VA)
of the Subcommittee on Space & Aeronautics

Subcommittee on Space & Aeronautics
Subcommittee on Environment

Looking Back to Predict the Future: The Next Generation of Weather Satellites.

September 21, 2022

Good morning, and welcome to today's hearing, Looking Back to Predict the Future: The Next Generation of Weather Satellites.

I want to welcome our witnesses. We are pleased to have you with us, both in person and virtually.

Today, the Subcommittees on Environment and Space and Aeronautics are meeting jointly, and I want to thank Chair Sherrill for her collaboration on this hearing.

The importance of advanced, reliable weather prediction and understanding of long-term climate trends can't be understated. Devastating winds, storm surges, and flooding in Alaska and Puerto Rico are recent examples.

While weather continues to present serious risks to life and property, we've come a long way from 1900 when a hurricane with 135 mph winds decimated Galveston, Texas and wiped out 8,000 lives and an estimated 3,600 buildings.

Our nation's weather satellites and instruments are the workhorses that provide imagery and data to feed weather forecast models and predictive tools. These critical satellite capabilities support the government's core weather services, global users, as well as a thriving commercial weather industry.

Today, advanced technologies, increased scientific understanding of the Earth system, and a burgeoning commercial space industry are providing new options and opportunities for our next generation of operational weather systems.

We need to start by "Looking Back to Predict the Future", and that story begins with NASA.

In the earliest years of our space program, NASA developed and launched in 1960 the world's first weather satellite, the Television Infrared Observation Satellite—TIROS-1—equipped with

two television cameras and two video recorders that proved the value of space-based weather observations.

A year later, President John F. Kennedy, in his historic May 1961 speech to a Joint Session of Congress, included a request for appropriations that "will help give us at the earliest possible time a satellite system for world-wide weather observation."

Follow-on TIROS satellites led to NASA's Nimbus series as NASA worked first with NOAA's precursor, and then NOAA, to establish a weather satellite system.

NASA also developed the first geostationary weather satellite, followed by the first operational Geostationary Operational Environmental Satellite—GOES—in 1975.

Today, through a reimbursable arrangement with NOAA, NASA leverages its decades of experience to manage NOAA's satellite and instrument development, acquisition and contracting, and launch services.

Once NASA checks out the satellite's on-orbit performance, it hands responsibility to NOAA for operational services.

The benefits of NASA's contributions, however, don't end there.

NASA and NOAA can transition instruments initially designed for NASA's cutting-edge, space-based Earth science research into NOAA's operational weather systems.

The Moderate Resolution Imaging Spectrometer—MODIS—on NASA's Earth science Terra and Aqua satellites, led to the development of the Visible Infrared Imaging Radiometer Suite—VIIRS—a key instrument on NOAA's current Joint Polar Satellite System series.

And NASA's planned Earth science TROPICS mission—to involve a small satellite constellation-- could, if successful, provide options for future weather satellite missions and architectures.

NOAA and NASA's collaboration is long and strong, though the partnership has had its share of changes over time.

The challenges and eventual dissolution of the prior tri-agency—NOAA, NASA, and DOD--NPOESS weather satellite program led to NASA's establishment of the Joint Agency Satellite Division within the Science Mission Directorate. The Division provides a dedicated effort to managing NASA's work for NOAA.

It's clear both NASA and NOAA have learned a lot. Their decades long relationship has matured to the point in which NOAA and NASA jointly chair program management councils.

We need to examine the lessons of this partnership, especially as the Federal government considers equally challenging and important interagency efforts, including in space situational awareness, an area on which the Space and Aeronautics Subcommittee is actively working.

Because reducing miscommunication and facilitating information flow are essential if we are to develop successful systems, such as weather satellites, while minimizing cost, schedule, and management challenges.

For example, challenges with the GOES-R program's key instrument, the Advanced Baseline Imager on the currently operating GOES-17 satellite, led to significant redesign of the instrument for the follow-on GOES-T satellite, which launched 18 months later than planned.

Ensuring that lessons learned from previous mistakes are incorporated into future programs is essential to successfully executing NOAA's critical weather forecasting mission.

I look forward to hearing from our witnesses on how NOAA and NASA's partnership and decades of experience and lessons will lead and advance our nation's next generation of weather satellite systems.