

Topics (T)

Earth Observing Missions and Systems to Address Climate Change and Its Impacts [1] (3A)

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NOAA OBSERVING SYSTEM EVOLUTION FOR A RESILIENT CLIMATE READY SOCIETY

Abstract

Our planet is complex and constantly changing. High-quality, timely, and global observations from Earth observing satellites are needed to understand climate trends and the impacts of climate change, such as changing ecosystems and environmental hazards. To meet these challenges, NOAA is evolving our business model to stay current with the expanding complexity of Earth observing contributors. This evolution requires a new approach to our satellite observing system architecture as well as to our product development and prioritization processes. NOAA is evolving our approach to common ground systems, satellite architecture, data stewardship, data distribution, and user preparedness to ensure we are a more mission-effective, integrated, adaptable organization that anticipates and responds efficiently to changing technology, emerging partnerships and evolving observation requirements.

NOAA currently operates 16 environmental satellites. We are actively planning for our next generation advanced geostationary (GeoXO), polar-orbiting (LEO), and space weather observing satellites in the context of NOAA's strategic goal of building a Climate Ready Nation. A number of planned improvements and enhancements to our observing systems will support climate services and the ability for users to respond to impacts of climate change, such as our plans for GeoXO to carry ocean color (OC) and atmospheric composition (AC) instruments. These new and enhanced capabilities will improve such priorities as science-based fisheries management, operational ecological forecasts (e.g., addressing water quality affecting ecosystem and human health), and improvements in monitoring air quality to support enhanced weather and climate services.

This presentation will focus on a number of NOAA's Earth observation missions, systems, services and programs that NOAA is focusing on to address climate change and its impacts. This includes discussion of NOAA's Climate Services Value Chain, which covers our work from research and development, to observational infrastructure, to data and information stewardship. We will also discuss our efforts for enhancing data access and usability, from integrating multiple observations in real time, to hosting all data in a common cloud framework, and providing authoritative products for decision making. We will also discuss NOAA's observational capabilities and products for monitoring and mitigating extreme events and cascading hazards, such as floods and wildfire. Finally, we will discuss NOAA's Climate Data Records (CDRs) and satellite-based climatology data. These robust and scientifically sound climate records provide trustworthy information on how, where, and to what extent the land, oceans, atmosphere and ice sheets are changing.