



Report in Brief

September 20, 2023

Background

The National Oceanic and Atmospheric Administration's (NOAA's) Geostationary Extended Observations (GeoXO) program will provide the next generation of satellites in geostationary earth orbit, replacing Geostationary Operational Environmental Satellite-R (GOES-R) Series satellites, in the early 2030s to mid-2050s. The GeoXO program (the program) is developing new technology and scientific advancements that will allow for improved environmental observations for weather tracking and forecasting and provide new capabilities to support NOAA missions. The program is the responsibility of NOAA's National Environmental Satellite, Data, and Information Service (NESDIS) and, like other NESDIS satellite programs, is a partnership with National Aeronautics and Space Administration (NASA).

As currently planned, the GeoXO system will consist of three operational satellites at West, East, and Central locations over the Western Hemisphere. The program plans to launch six satellites.

The program has progressed through various stages of procurement. A key challenge for the program will be to mature the technology of new instruments and their respective subsystems. The program must ensure that new technology is sufficiently mature by the instruments' preliminary design review, planned for 2025. In addition, the program needs to identify the Central satellite's partner-provided instrument prior to the preliminary design review to resolve uncertainties related to it.

Why We Did This Review

Our audit objective was to assess NOAA's progress in defining GeoXO's mission and establishing programmatic baselines.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

The GeoXO Program: Cost and Schedule Baselines Are Established, But NOAA Should Evaluate Plans for the Central Satellite Mission and Revise Its Approach to Performance Gains to Provide the Best Overall Value

OIG-23-028-A

WHAT WE FOUND

Overall, we found that the program has defined its operational capabilities to support meeting its mission requirements. Also, the program has established cost and schedule baselines but continues to refine its initial requirements. In reviewing the program's mission baselines, we found that the program should evaluate its plans for the Central satellite mission.

The program's current plan to provide a high level of system availability for the non-core Central satellite mission would—according to NESDIS' own guidelines—result in little or no additional value. Revising the program's plans would enable it to put funds to better use. The estimated cost of the second Central satellite for fiscal years 2024 and 2025 is \$32,800,000; implementing recommendation 2 will enable the program to potentially put these funds over the next 2 years to better use.

Specifically, we found that:

- I. The Program should evaluate its plans for the Central satellite mission.
- II. The Program should improve its approach to achieving performance gains.

WHAT WE RECOMMEND

We recommend that the NOAA Deputy Under Secretary for Operations ensure that NESDIS:

1. Updates GeoXO's Central satellite plans to align with the expected availability level to determine cost and performance tradeoffs.
2. Assesses the cost and performance tradeoffs of the second Central satellite to put its planned funds to better use.

We recommend that the NOAA Deputy Under Secretary for Operations direct the Assistant Administrator for Satellite and Information Services to:

3. Ensure remaining GeoXO procurements specify contract requirements for desired performance gains with threshold and objective values to provide more transparency for cost and performance tradeoffs.
4. Ensure future satellite system acquisitions define both threshold and objective contract requirements for desired performance gains.