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A Mission in Space: The Next Generation of Meteorological Satellites

The National Polar-orbiting Operational Environmental Satellite System (NPOESS) program was established by the Presidential Decision Directive to construct the next generation of meteorological satellites with onboard sensors to collect and broadcast information about the oceans, atmosphere, land, climate, and space environment. The NPOESS Satellite constellation is a monumental accomplishment for space-based remote sensing data. AER is the premiere NPOESS resource for algorithm development for critical sensor payloads.

NPOESS polar-orbiting satellites continuously gather and distribute real-time data, saving lives and money by improving

- Weather prediction, forecasting, and modeling
- Search and rescue efforts
- Support of general aviation, agriculture, maritime and space navigation
- Peacekeeping activities and disaster relief
- Research in Earth science

Polar-orbiting satellites observe the Earth's land, oceans, atmosphere, space environment, and climate.

Key benefits of NPOESS:

- **Better short-term weather forecasts:** The improved accuracy in atmospheric temperature and humidity soundings, in combination with other observations expected to become available over the next ten years, will enable the current 3- to 5-day short-term weather forecasts to be improved from 70 to 80 percent to better than 90 percent and to be extended to 5 to 7 days with 80-percent accuracy.
- **Accurate storm warnings, forecasts, and global climate change measurements:** The advanced technology visible, infrared, and microwave imagers and sounders that are being developed for NPOESS will deliver higher spatial and temporal resolution atmospheric, oceanic, terrestrial, and solar-geophysical data enabling more accurate short-term weather forecasts and severe storm warnings, as well as serving the data continuity requirements for improved global climate change assessment and prediction.
- **Safer space-based operations:** NPOESS will also provide improved measurements and information about the space environment necessary to ensure reliable and safe operations of space-based and ground-based systems, as well as continue to provide surface data collection and search and rescue capabilities.
- **Protection of Data:** Significantly improved operational capabilities and benefits to satisfy the Nation's critical civil and national security requirements for space-based, remotely sensed environmental data.
- **Increased hurricane landfall forecast skill:** NPOESS reduces the potential loss of human life and property and advances the national economy with improved hurricane landfall forecast skill saving an estimated \$1 million per mile of coastline that does not have to be evacuated
- Supports general aviation, agriculture, and maritime communities aimed at increasing U.S. productivity; improved early warnings will mitigate the devastating effects of floods through disaster planning and response
- **War fighter Support** - For the Military Community, NPOESS shifts the tactical and strategic focus from "coping with weather" to anticipating and exploiting atmospheric and space environmental conditions

 Projects of Interest

Evolution

The NPOESS program extends to the year 2018, building on new technologies to create a new system supporting long-term data continuity for environmental monitoring and global change assessment.

[To learn more about the NPOESS Project \(http://www.ipc.noaa.gov/index.html\)](http://www.ipc.noaa.gov/index.html)

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