RADAR NEXT

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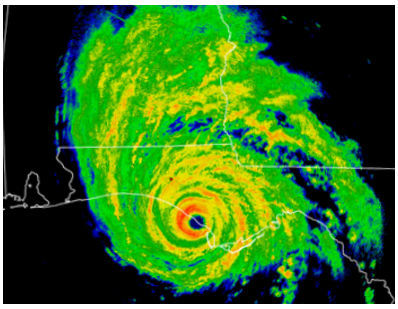
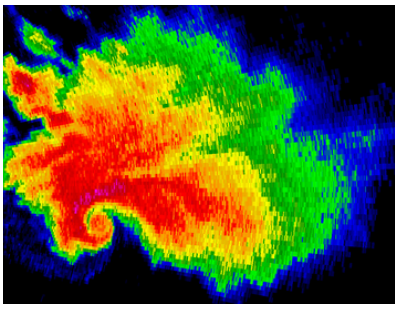




RADAR NEXT PROGRAM OVERVIEW

The Radar Next Program will design and deploy the next generation of weather surveillance radar technology to improve environmental data and products. This new generation of radars will provide critical atmospheric data enabling forecasters to improve the lead times and the accuracy of warnings for high-impact weather events.

Address Impacts of NEXRAD Exceeding Design Life: The Program will replace the current radar system, NEXRAD, as it approaches the end of its life and can no longer meet the radar's weather sensing requirements to inform critical life and property Impact-Based Decision Support Services.

Develop and Deploy Next-Generation Weather Radars: The Program will manage the development and deployment of the next generation of weather radar technology. This process balances the urgency of evaluating new technology, replacing outdated systems, and addressing many of the user communities' needs and concerns. The Program will ensure the viability and efficiency of the next generation of radar coverage for the Nation.

Improve Public Safety through Enhanced Weather Prediction: The Program, in partnership with OAR, will evaluate all modern technologies to enhance the NWS' ability to observe and predict weather accurately and support our response to emergencies, ultimately mitigating the impacts of severe weather events. This improves public safety and enhances disaster preparedness, economic stability, infrastructure resilience, scientific knowledge, and environmental observations.

BUSINESS CASE

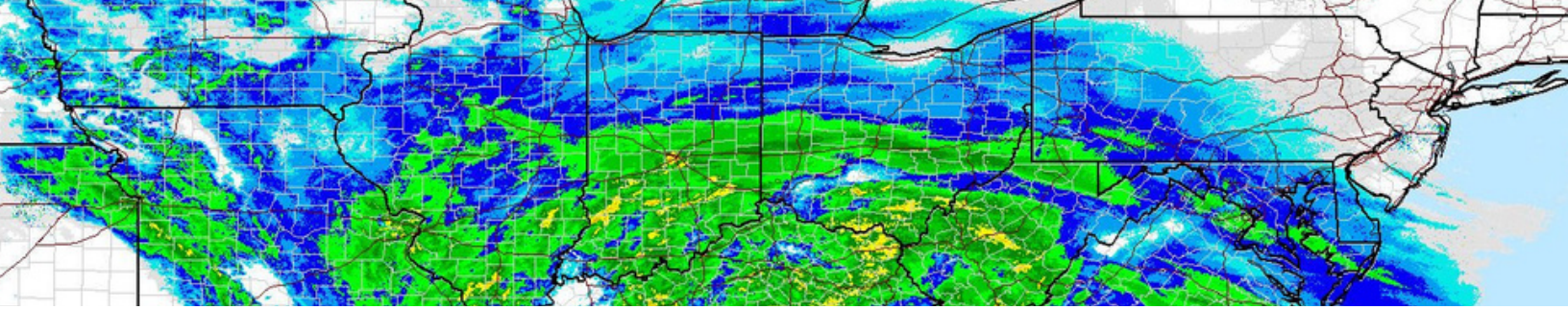
- The current NEXRAD system has exceeded its original design life; it is projected that the system will not meet future availability requirements
- Aging infrastructure and obsolescence leads to reduced reliability and availability
- There is a risk for prolonged gaps in radar coverage and increasing lifecycle cost
- Due to the estimated time to plan for a new generation of radars, it is crucial to initiate and implement the Program now to avoid gaps in radar coverage

MISSION NEEDS

- NEXRAD is one of the most impactful observing systems in the Nation
- Since its deployment in the 1990s, Doppler radar observations have been essential to issuing warnings for severe weather
- Radar capabilities have been proven to:
  - Increase the number of tornadoes detected and warned in advance
  - Increase the warning lead time for tornadoes
  - Reduce tornado-related fatalities and injuries

IMPACT OF NOT ADDRESSING

- Decrease in accuracy of weather forecasts and warnings leading to increased casualties and property damage
- Delayed or ineffective disaster responses
- Aviation safety risks, ineffective water management, economic, and property losses
- Environmental and climate impact
- Loss of institutional capability



RADAR NEXT PROGRAM BENEFITS

Improved Public Safety due to Increased Accuracy: Provides high-resolution data, enhancing the accuracy of weather forecasts and predictions, allowing meteorologists to track rapidly changing weather phenomena with greater precision to enable more accurate predictions.

Enhanced Disaster Preparedness, Fire and Flood Forecasting: Enables better preparation for natural disasters by improving forecasters' ability to observe and predict fire and flood events, allowing emergency management agencies to plan evacuations, allocate resources, and coordinate response efforts effectively.

Reduced Economic Impact: Helps businesses and communities respond to adverse weather conditions, reducing disruptions to transportation, supply chains, and services. Minimizing economic impact is vital for local economies, underserved communities, and national stability.

Enhanced Infrastructure Resilience: Provides historical climatological and storm-specific information, which benefits infrastructure planning and design, ensuring accurate information is available for designing resilient infrastructure such as buildings, bridges, roads, and information and power systems capable of withstanding extreme weather events.

Advanced Scientific Research and Climate Studies: Provides detailed information about precipitation patterns through archived data. This information is vital for understanding long-term climate trends. Meteorologists and researchers rely on radar data for climate studies, atmospheric research, and understanding weather patterns.

PROGRAM TIMELINE

Dates are notional and subject to change based on the availability of funds among other circumstances

2023 – 2028

PROGRAM INITIATION AND PLANNING

Define user needs and identify capability gaps, focus on fulfilling needs by refining requirements; identify and analyze alternative solutions

2027 – 2032

PROGRAM DESIGN AND DEVELOPMENT

Refine requirements and prepare for procurement

2032 – 2040

MANUFACTURING AND INSTALLATION

Begin phased approach to install new radars and decommission the old system

2035 and Beyond

OPERATIONS AND MAINTENANCE

Transition operations from NEXRAD to Radar Next with full operational capability achieved by the early 2040s