Abstract

Initial Steps on Developing NOAA's Next Generation Doppler Weather Radar System

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ABSTRACT

The Federal government has fielded and operated a network of weather surveillance radars since the 1950s with the deployment of a variety of radar systems including the CPS-9, WSR-57, and others. The current system, WSR-88D, was first built and tested in 1988 under the NEXRAD program, and it has been installed and used operationally at over 160 locations across the United States, including Alaska, Hawaii, Puerto Rico, and several locations in the Pacific and Atlantic regions. The system has a projected 20-year service life, but has been upgraded routinely with pre-planned modifications including Dual-Polarization of the radar signal in 2013. The WSR-88D is currently undergoing further improvement through a service life extension program where pedestals, generators, signal processors, transmitters, and other select components will be replaced, refurbished and/or modified. This will extend the life of the current system into the 2030s while research is conducted to plan for replacement of the WSR-88D.

Because of the challenges posed by obsolescence in the current system and the advancement of new technologies, NOAA is beginning the process to define requirements through user engagement, evaluate new technologies, and initiate studies to define cost effective solutions to not only maintain current capability, but also to upgrade and extend radar data collection to provide critical data to underserved communities.

The authors will report on efforts to initiate a program office that will refine requirements, develop acquisition strategies, assess scientific and societal value of the new system, and encourage government and commercial partnerships. The expected benefits of the new radar capability include increased scanning update rates, adaptable and flexible scan strategies, ability to mitigate interference, expand coverage, and improved forecaster ability to identify severe weather and issue life-saving weather forecasts and warnings to the public.