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# NATIONAL WEATHER RADAR PRIORITIES AND REQUIREMENTS IN THE USA

### SUMMARY

This document provides information on Weather Radar Priorities and Requirements in the USA. There is a large effort underway to extend the life of the WSR-88D radar until 2030. This includes four major changes: Signal processor refresh, transmitter refresh, pedestal refurbishment and equipment shelter refurbishment. Also, our Wide Area Network (WAN) communications capability is in the process of being increased from 2.5Mbps to 200Mbps, at most locations. Meanwhile, we continue to work on data quality improvements. We are focused on improving base data by using new signal processing, clutter filtering, and calibration techniques. We continue to work differential reflectivity calibration improvements, investigating technical sub-elements of the Cross Polarization Power Dual Polarization Calibration method, including solar and ground clutter scans. We are exploring calibration stability issues including possible temperature effects on antenna bias. We continue to work on CMD algorithm support, Hybrid Spectrum Width Estimator, and investigating new spectral clutter filter (CLEAN AP).

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1. **Region IV Weather Radar Networks:**
2. **USA**
3. There are 159 National Weather Service WSR-88D weather radars deployed in the United States, Korea, and Japan.
4. There are 45 Federal Aviation Administration (FAA) Terminal Doppler Weather Radars (TDWRs) in the CONUS and Puerto Rico.
5. The WSR-88D radars are all dual-pol S-band.
6. The TDWR radars are single pol C-band.
7. WSR–88Ds are used by the NWS, US Air Force and FAA. The WSR-88D radars are located in the United States, Korea, and Japan and designed specifically for weather surveillance and warnings.
8. The TDWR radars are used by the FAA and the NWS. The TDWR radars are located in the United States, close to major airports, and designed to look for low altitude phenomena.
9. **Known Projects and Priorities**
10. Extend the service life of the WSR-88D until 2030 or beyond (projects underway FY15 – FY22);
11. Improve WSR-88D data quality;
12. Improve differential reflectivity calibration;
13. Explore calibration stability issues including possible temperature effects on antenna bias;
14. Continue work on CMD algorithm support, Hybrid Spectrum Width Estimator, and investigating new spectral clutter filter (CLEAN AP) with emphasis on Staggered PRT Clutter Filtering support;
15. Infrastructure improvements, telecommunication service changes, high capacity upgrades, IT Refresh and security updates;
16. Improve performance monitoring tools; and
17. Collaborative use of NEXRAD Level II and cloud services.
18. **Issues:**
19. Increasing number of wind turbines/wind farms; and
20. Spectrum crowding.
21. **Discussion topics:**
22. CfRadial version 2;
23. Data exchange and use of Gibson Ridge; and
24. Growth of wind farms and wind turbines.

**References**

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