

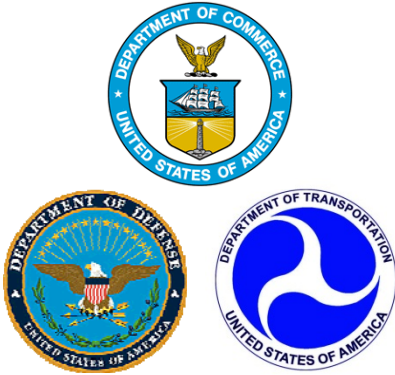


NEXRAD Program Update

(Informational Briefing)

Terry Clark
Acting Director, Radar Operations Center

1 March 2012
NEXRAD Technical Advisory Committee Meeting
Norman, OK



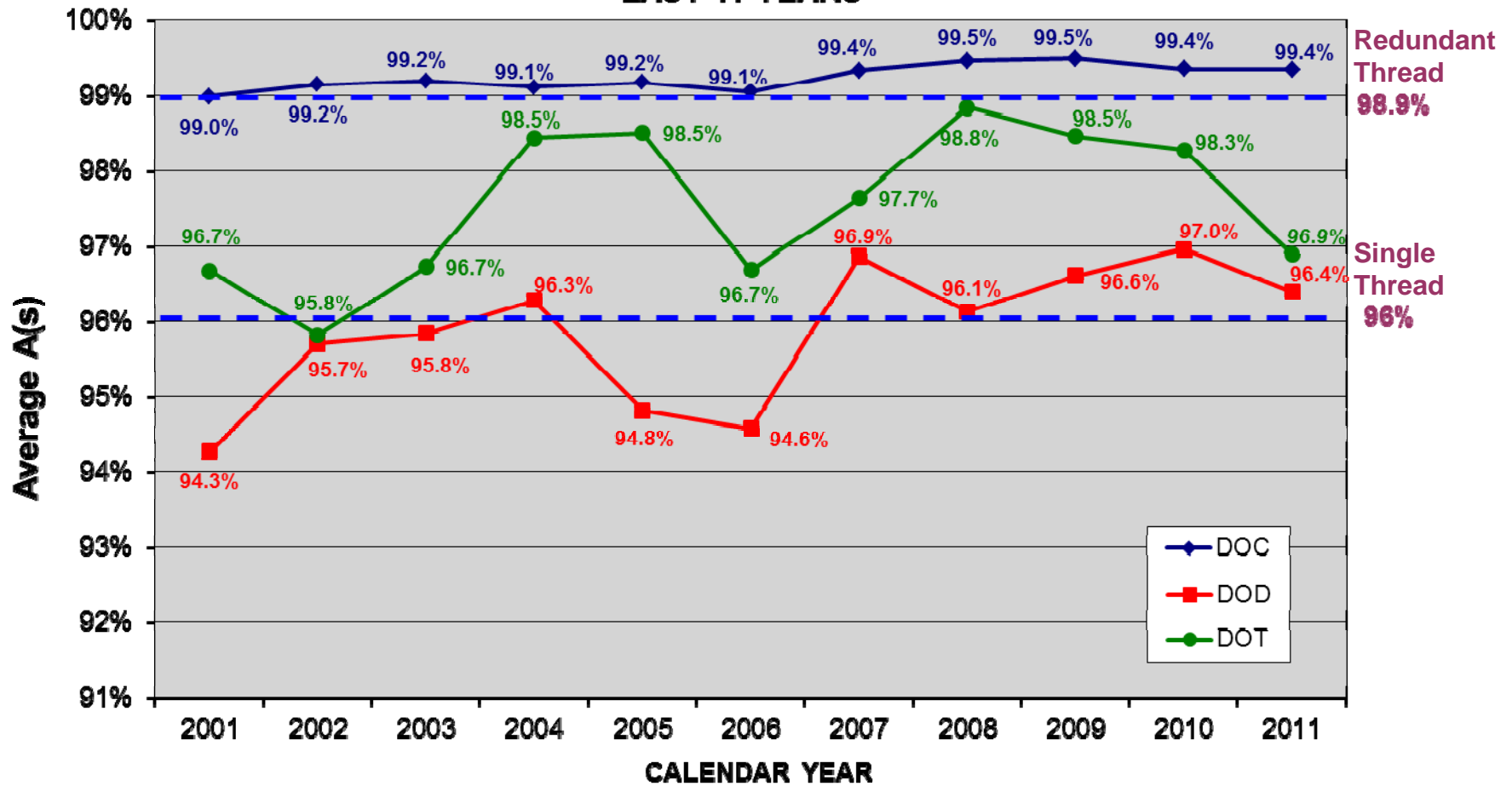
Keep Operational Systems Running

- 820 Hotline Assists per month
- 65 trips annually to field sites for depot-level support
 - Includes pedestal bull gears: 1–CY06; 1–CY07, 5–CY08, 1-CY09, 0-CY10, 2-CY11
 - Preparation for restoration of Kadena WSR-88D; Typhoon Songda
- Depot-level tower and radome maintenance via contractor
 - Replaced Molakai, HI tower
 - Radome and tower inspection program continued; radome panels replaced at 28 sites



Keep Operational Systems Running

WSR-88D AVAILABILITY LAST 11 YEARS

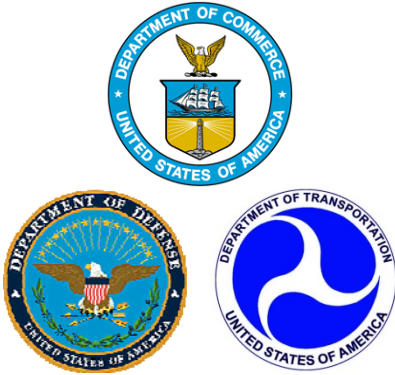


NEXRAD/ROC Update, 3/1/12 TAC



Sustain Baseline Operational Radar System Capabilities

- Technology Refreshment Modifications
 - Deployment of RDA RVP8 Motherboard/Processor upgrade to support Dual Pol processing continued
 - Deployment began 1FY11
- Software releases
 - Eleven RPG, RDA, SPG, OPUP, National Level II software builds
 - RDA Full Load Performance Test results (Build 13, with Dual Pol)
 - RDA: 28.4% (CS waveform); 20.2% (CD waveform)
 - RPG: 14%
- Frequency spectrum/Interference/
 - Loss of all/partial S-band spectrum still a threat
 - Interference challenges continue; making progress on 4G



Sustain Baseline Operational Radar System Capabilities

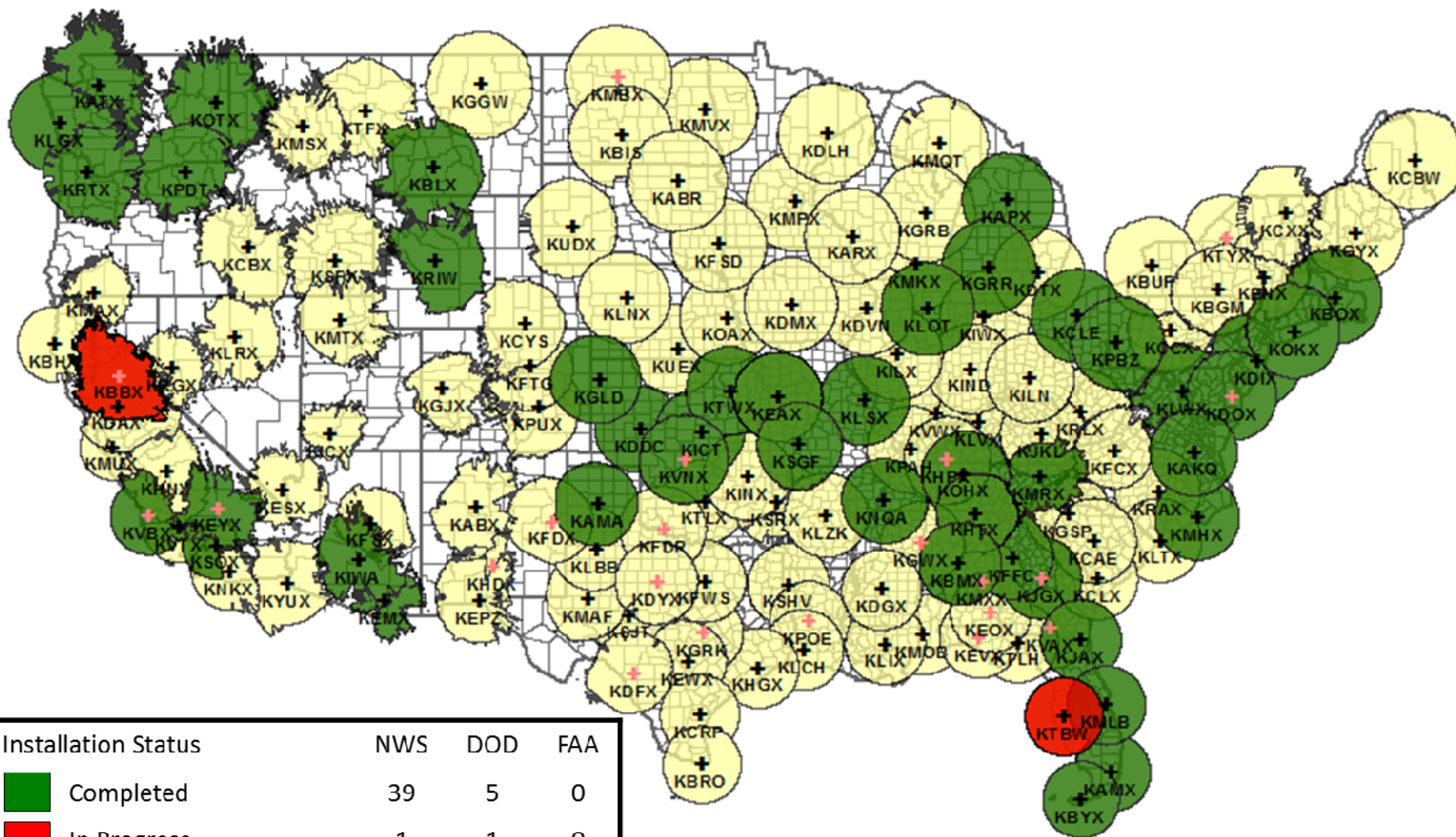
- ROC Wind farm – WSR-88D Interaction efforts
 - Completed 153 case-by-case analyses since last TAC; 950+ total
 - Completed first signing of operational curtailment LOI
 - “Feathering” turbine blades in critical SVR WX warning situations; reduces wind turbine clutter/potential impacts on warning operations
 - More developers considering potential weather radar impacts; some making changes
 - Sharing wind turbine location GIS data; ROC-NSSL collaboration
 - AWIPS Program; AF NORTHCOM; other federal agencies
 - Developing ESRI (industry-std) GIS software analysis capabilities
 - Working more closely with TDWR Program on wind farm issues
 - Continuing collaboration with DHS, DoD, FAA on DHS-funded radar/wind turbine interaction model development contract



Improve Radar System Reliability And Integrate New Capabilities....Dual Polarization

- Dual Pol deployment well underway: 44 of 160 operational sites installed and operating
 - Operator feedback is positive, enthusiastic
 - Check WDTB web site for training modules and Storm of the Month follow-on training
- End of deployment scheduled for May 2013
- ROC/NSSL Data Quality Team reviewing data from sites
- ROC web site (www.roc.noaa.gov/radar) has deployment status updates and schedule

WSR-88D Dual Polarization Program



Installation Status	NWS	DOD	FAA
Completed	39	5	0
In Progress	1	1	0
Scheduled w/in 14 Days	0	0	0
Pending	82	20	12

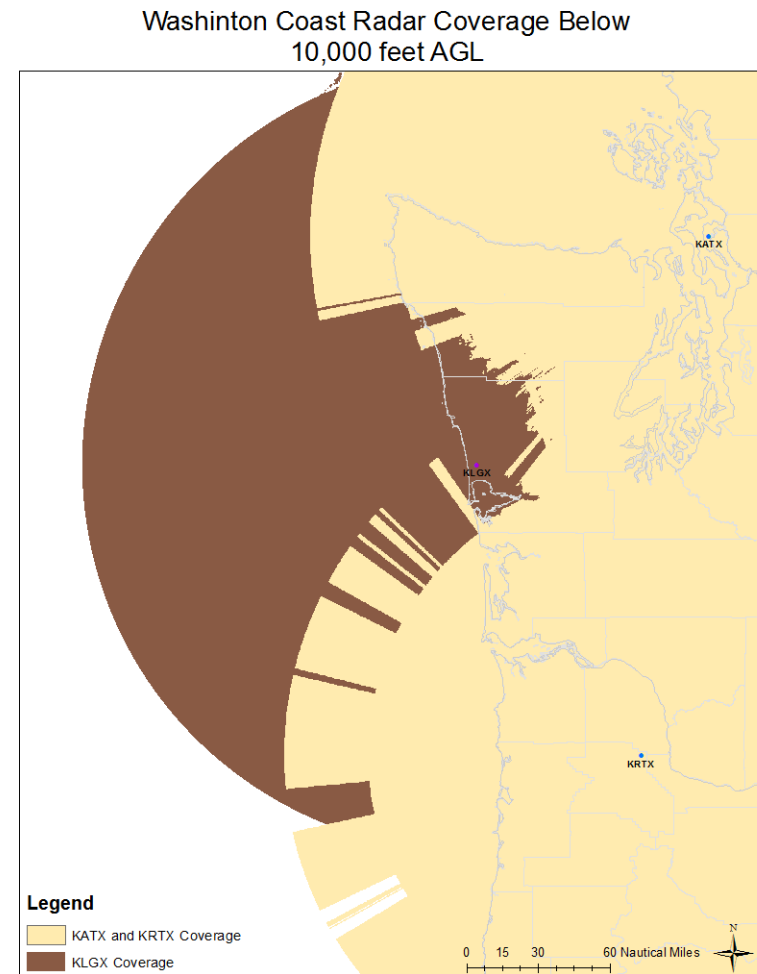
Radar coverage shown is at 10,000 ft AGL or below

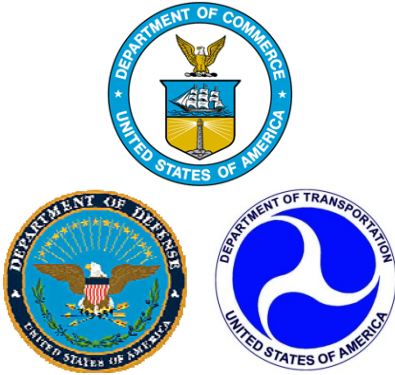
V14.1 As Of Thursday, 2012-03-01 07:19 CST



Improve Radar Reliability And Integrate New Capabilities

- New WSR-88D (KLGX) in Grays Harbor County, WA
 - Dedication ceremony 9/29/11
 - Dual Pol installed prior
- 1-year Field test of lower (0.176°) elevation angle
 - Started 11/1/2011
 - Goals: develop cost/benefit information
 - Costs/impacts on user systems
 - Benefits to forecast/warning operations

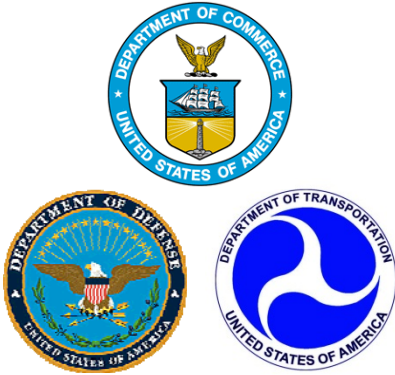




Improve Radar System Reliability And Integrate New Capabilities

(Continued)

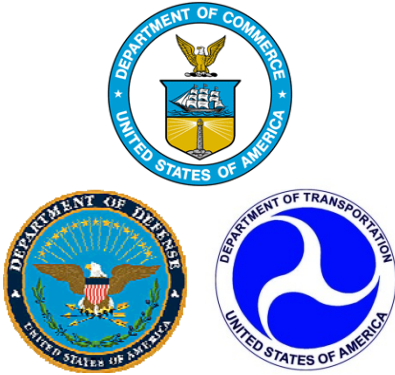
- RDA 11.8 (October 2011 release) enabled AVSET at all non-Dual Pol (DP) sites
- RPG Build 13.0, target July 2012 release
 - DP algorithm improvements and fixes; Enhanced VWP algorithm
 - 2D Velocity Dealiasing, Storm-based PRF selection (both non op)
- RDA Build 13.0, target July 2012 release
 - Hybrid Spectrum width
 - Re-enable CMD, using DP data
 - Re-enable AVSET



Improve Radar System Reliability And Integrate New Capabilities

(Continued)

- RPG Build 13.1, target December 2012 release
 - Several DP algorithm corrections/adaptation
 - Reduce velocity dealiasing errors; 2-D Velocity Dealiasing
- RDA Build 13.1, target December 2012 release
 - Merges Dual Pol redundant changes (12.3) with single channel (13)
 - RDA goes back to single software baseline!!!
- National Level II changes completing new architecture
 - Terminate server at the U. of MD MAX
 - Unidata elevated to “top tier” status
 - Will send Level II data to the three MAX recipients



Improve Radar System Reliability And Integrate New Capabilities

(Continued)

- Build 14 SREC, 15 Feb, Recommended major changes
 - Correct IOC DP software applications
 - SAILS (operational or non operational TBD)
 - Staggered PRT VCP(s)
 - Clean AP
 - Radial-by radial noise estimation
 - Storm-based/Cell-based PRF Selection
 - Manual/automatic PRF selection for SZ2 VCPs
 - Lincoln Lab/FAA
 - Icing Hazard Levels Algorithm
 - Hail Hazard Layers Algorithm
- Build 14 recommended deployment start: July 2013



Support Pre-Planned Product Improvement

- Assisting Dual Polarization Program -- 21,500 staff hours since last TAC
- Funding supporting NSSL, SEC, and NCAR work – ends in FY12, seeking opportunities to fund continued support



Other Major Events Since Last TAC

- “CASA” DFW Urban Experiment
 - ROC exploring requests for participation
 - Lower scan angle for Dallas/Ft Worth WSR-88D
 - Enable real-time TDWR Level 2 data collection
- Technology Refresh and Service Life Extension Program (SLEP) investments
 - ROC provided triagencies with draft SLEP plan in December 2011 for review
- Interaction with FAA on NexGen Surveillance & Weather Radar Capability (NSWRC)
 - FAA seeking NOAA commitment in FY14 in preparation for their Final Investment Decision for NSWRC in FY17



Other Major Events Since Last TAC

- FY12 and beyond budget challenges
 - NEXRAD O&M
 - SLEP
 - Unless current budget situation changes
 - NSSL's capacity to provide technology infusion and/or reach-back scientific and engineering support for NEXRAD will be virtually eliminated on September 30, 2012
 - OS&T's capacity to repair the existing dual pol software and to provide functionality for winter weather will be greatly diminished; ROC resources will be applied as best resources allow



Summary

- Dual Pol deployment: 44 of 160 op sites installed/operating
- ROC proceeding with SLEP investment planning
- Budget outlook increasingly challenging
 - New initiatives and improvements/enhancements are going to be few and far between
 - Software builds to continue, albeit likely to be at slower pace
 - Technology transfer funding to be very sparse

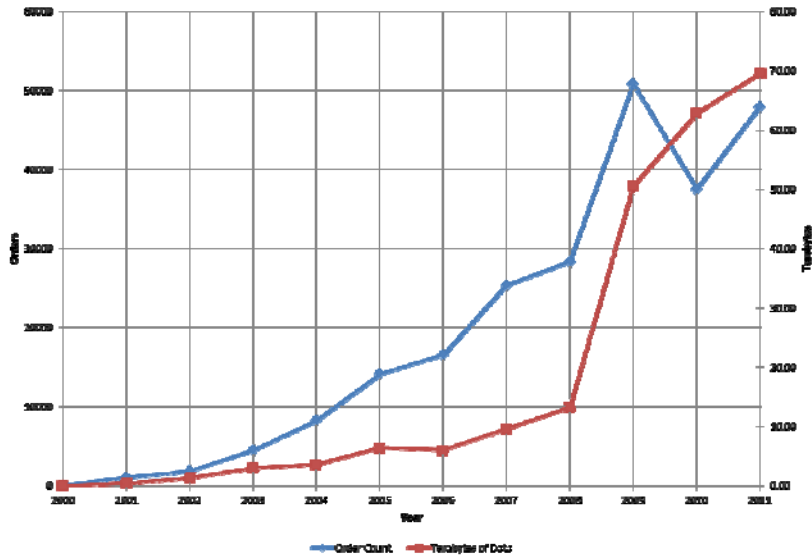


Backup Slides/Notes

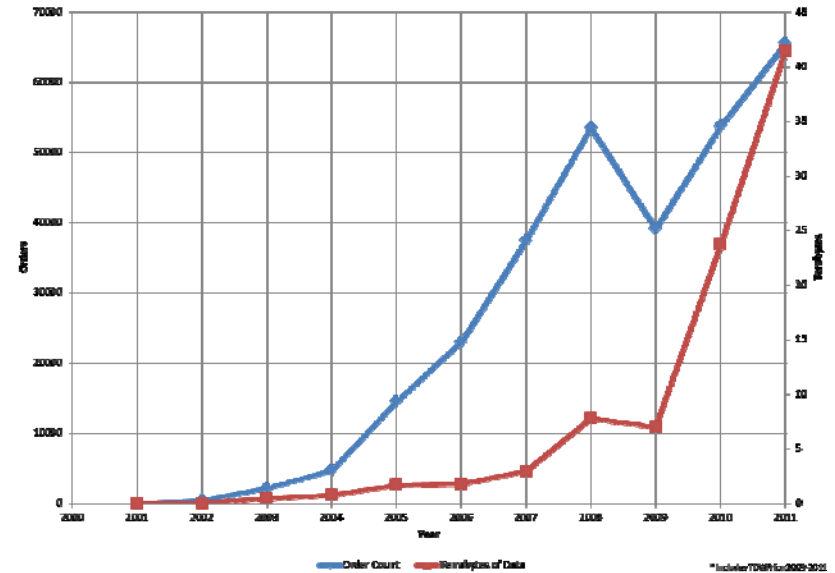


Annual Requests for WSR-88D Level 2 and 3 Data NCDC Filled

Yearly Level II Data Request Summary



Yearly Level III Data Request Summary



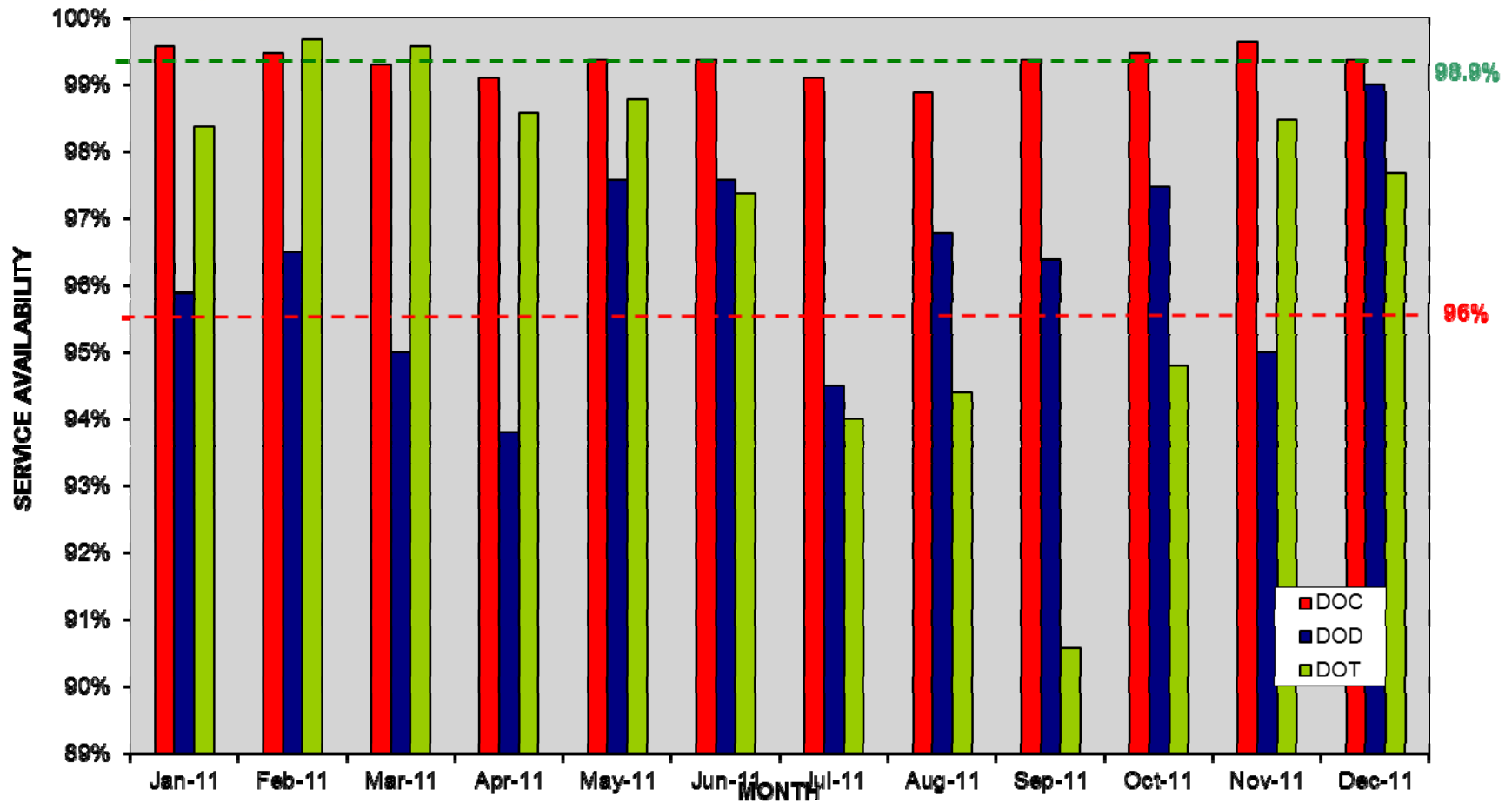
* Includes WSR-88D for 2009-2011



Keep Operational Systems Running



TRIAGENCY WSR-88D AVAILABILITY LAST 12 MONTHS





Radar Life Cycle Decision Tree

2017

2020

2024

2030

Notional
Timeframe

FAA's Final
Investment
Decision (FID)
for NSWRC

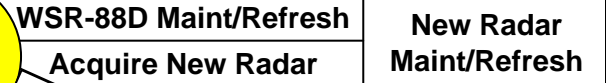


WSR-88D Maint & Refresh
MPAR Development

WSR-88D SLEP

WSR-88D Maint/Refresh

Decision Point
Replace WSR-88D w/
Conventional Radar



WSR-88D SLEP

WSR-88D Maint / Refresh

- NextGen Surveillance & Weather Radar Capability (NSWRC)
- Cost Study – 5 Options (Enroute vs Terminal) (10-15-20 year decommissioning & implementation schedules)
 - Concept & Rqmt Def, Dec 2012
 - Investment Analysis Readiness Decision, Dec 2014
 - Alternatives Analysis
 - Production Prototype

Spectrum Change ?? Gap Filling ??