NEXRAD/WSR-88D (ROC) HISTORY

NEXRAD
(Last Updated: December 16, 2024)

1971 - First Doppler radar installed (at the National Severe Storms Laboratory (NSSL), OK) to study morphology of storms (June).

1973 - Second Doppler radar installed (at the Cimarron Airport, OK) to study morphology of storms (May).

1976 - DOC, DOD, and DOT (tri-agency) formed Joint Doppler Operational Project (JDOP) to explore benefits of Doppler radar observations.

1978 - JDOP report presented three basic findings:
.. 20-minute average lead time for detecting storm before occurrence;
.. Doppler able to detect gust fronts;
.. Doppler information can be processed for display in real time.

1979 - The US Air Force Geophysical Laboratory (AFGL) transferred 5 cm Doppler radar to Norman, OK to compare with NSSL radar (spring).
- April 10th storm (at Wichita Falls, TX) provided evidence that 5 cm radar had;
.. More attenuation;
.. More range folding;
.. More velocity aliasing.
- The Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM) approved the concept document of NEXRAD (July).
- OFCM established NEXRAD Program Council (NPC) (July).
- NPC approved formation of Radar Test and Development Branch (RTDB) (fall).
- The Congressional Office of Management and Budget (OMB) directed OFCM to conduct a tri-agency crosscut study for NEXRAD (October).
- The National Oceanic and Atmospheric Administration (NOAA) approved establishing of the Joint System Program Office (JSPO) (November).

1980 - NPC approved establishment of Interim Operational Test Facility (IOTF) (forerunner of Operational Support Facility) (OSF).
- NPC formed NEXRAD Technical Advisory Committee (TAC) (spring).
- Congress appropriated first funding (1981) for NEXRAD (October).

1981 - RTDB name changed to Interim Operational Test Facility (IOTF) (January).
- NPC approved Joint Operational Requirements (JOR) (January).
- NPC approved the NEXRAD Technical Requirements (NTR) (March).
- NPC and Source Evaluation Board (SEB) approved release of System Definition Phase Request for Proposal (RFP) (July).

- NEXRAD Research and Development Plan (R&D) issued (December).

1982
- Fixed price contract awarded to Raytheon Company, Sperry Corporation, and the team of Ford Aerospace and Westinghouse Corporation for concept development (February).
- Interim Oral Reports conducted on design alternative (NTR, JOR, and optimum) and high-cost drivers. Reports indicated JOR and optimum alternative not affordable (May).
- NPC approved revisions to acquisition strategy to remove Full Scale Development Phase (May).
- Agency Requirements Team (ART) met to review high-cost drivers and to trim NTR (July).
- NPC approved modifications to the NTR to address high-cost drivers (July):
  .. System reliability and maintainability;
  .. Range folding;
  .. Scan sequence; and
  .. Clutter suppression.
- Cooperative Institute for Mesoscale Meteorological Studies (CIMMS)/Doppler Workshop held (September).
- NPC and SEB approved Validation Phase (September).
- Validation Phase Request for Proposal (RFP) released (October).
- System Definition Phase Final Reports submitted by Contractors (November).

1983
- Source Selection Official (SSO) selected Raytheon and Sperry for Validation Phase contracts (March).
- Raytheon and Sperry awarded competitive, cost-plus-fixed-fee contracts for Validation Phase (April).
- Demonstration of Prototype NEXRAD products in operational environment occurred (April-July).
- Cost-plus-fixed-fee contract for site surveys awarded to SRI International (August).
- Preliminary site surveys began (August).
- Preliminary design review completed (October).
- Boston area NEXRAD demonstration (BAND) began (November).

1984
- Doppler/Lightning (DOPLIGHT) Project began in OKC (April).
- Contractors conducted risk reduction demonstration of data processing, and display systems and Validation Phase, Part 1 completed (April).
- Validation Phase, Part 2 option exercised (May).
- NPC approved revision to NTR to include;

.. Layer composition products;
.. Automated alerts;
.. Radar coded message; and
.. Scan strategy for clear air.

- Contract Modification issued (November).
- Programmatic Environmental Impact Statement published (November).

1985
- DOC secretary established independent "Blue Ribbon" panel (Kammer Committee) to review, assess and validate NEXRAD requirements (April).
- Critical Design Reviews completed (May).
- Contract Modification issued for parallel system design and software development for Hydro-Precipitation Pre-processing Subsystem (HPPS) (May).
- BAND report issued (May).
- Development Test and Evaluation (DTE) began (June).
- In-depth site surveys began (August).
- "Blue Ribbon" panel published findings that NTR was on target (September).

1986
- NPC and SEB approved Limited/Full Scale Production RFP (February).
- Preliminary site surveys completed (May).
- Limited/Full Scale Production Proposals received (June).
- Initial Operation Test and Evaluation (IOT&E) Part 1A conducted by US Air Force Test and Evaluation Center (AFOTEC) (August-October).
- Validation Phase contract option to perform First Article upgrade task exercised (December).

1987
- DOPLIGHT radar supported operations at OKC (at OUN) (March).
- IOT&E Part 1B conducted (April-May).
- Validation Phase completed (June).
- Unisys corporation awarded Limited Production Phase contract (December).

1988
- Operational Support Facility (OSF) established (May).
- Unisys Prototype erected at OSF (winter).

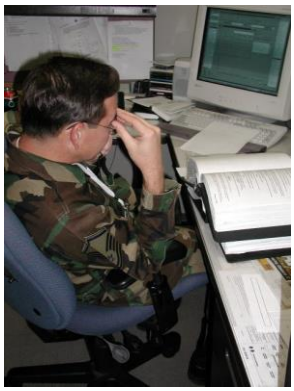
1989
- OSF Engineering and Configuration Management staffed to support IOT&E Part 2 (January).
- Unisys conducts its first software training class (February - March).
- NEXRAD Training Unit established as part of WFSO (i.e., Weather Service Forecast Office) Norman (July).
- IOT&E Part 2 conducted (March-August).
- WSR-88D Hotline planning and staffing began (August).
- First System Requirements Evaluation Committee (SREC) meeting held to review and prioritize WSR-88D service reports (September).
- Independent Evaluation Team (IET) Meeting held (September-October).

- NEXRAD System Production Readiness (SPR) Demonstration occurred (December).

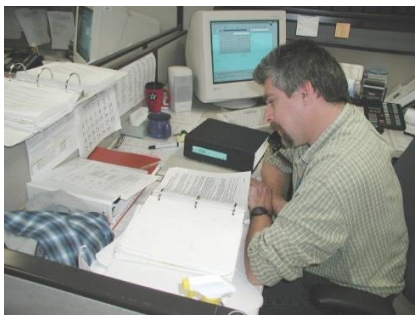
1990
- Exercised option to start Full Scale Production (FSP) (January).
- OSF Engineering started collaborating with external users to develop communications interfaces.
- First Limited Production Unit delivered (to OKC) (May).
- Software Build 5.0 deployment began (summer).
- First OPS course taught by UNISYS and NTU (September).

1991
- Tri-agencies entered comprehensive settlement with Unisys to resolve outstanding contract claims and deficiencies (spring).
- Real-time Operational Assessment performed at OKC/OSF (March-April).
- OSF began its first formal operational assessment of WSR-88D software (Build 5.1B) (July).
- NEXRAD Training Unit renamed to Operations Training Branch (OTB), and it became part of OSF (fall).
- OSF Operations Course began (September).
- National Weather Service Training Center (NWSTC) WSR-88D Maintenance Course began (September).
- WSR-88D Hotline began operations coincident with first system utilization by field sites at Norman, Sterling, and Melbourne (November).

1992
- First Full Scale Production (FSP) unit delivered to National Reconditioning Center (NRC) (July).



- WSR-88D Hotline began continuous 24x7 operations coincident with the first formal government acceptance of field WSR-88D systems (July).

- Started the conversion from circular polarization to linear polarization for the first six fielded radars (September).

1993
- Tulsa Radar Accepted on Friday and killer tornados hit on Saturday (April).
- First Micro5/VME system and Software Build 6.0 delivered (to Pittsburgh) (May).
- Micro5/VME retrofit began (August).
- OSF released its first software with Government changes (Build 5.3) (August).
- Lightning/grounding retrofit began (October).
- DOD loaned three radars to FAA for Anchorage, Fairbanks, and Molokai (October 1993 - December 1994).

1994
- First NWS system commissioned at OKC (February).
- OSF began coding the first version of WSR-88D software (Build 8.0) (May).
- Support Management Responsibility Transfer (SMRT) completed (June).
- First Federal Aviation Administration (FAA) redundant system delivered to South Kauai (June).
- First NWS Redundant (NWS-R) system delivered to Reno (July).

1995
- 100th NEXRAD system accepted by the Government (January).
- OSF deployed WSR-88D Software Build 8.0 (March).
- FAA returned the three borrowed DOD radars (Kunsan, Kadena, and Camp Humphreys) (May - August).

1996
- OSF formed a team for the development of ORPG (January).
- JSPO Began efforts for the installation of three additional systems (Fort Smith, aka Western Arkansas; North Webster, aka Northern Indiana; and Hytop, aka Northeast Alabama (spring). A result of a DOC Secretary report to Congress (October 1995).
- OSF deployed WSR-88D Software Build 9.0 (September).

1997
- Last OSF Operations Course taught (April).
- OSF deployed WSR-88D Software Build 9.1 (RPG) (April).
- OSF deployed WSR-88D Software Build 9.2 Principal User Processors (PUP) (May).

- Fort Smith Radar installed (August).
- Contract signed for the installation of a Rotary Uninterruptible Power Source (UPS) for each NWS and DOD NEXRAD System (TPMS) (September).
- First Distance Learning Operations Course (DLOC) taught (September).
- Hytop radar installed (December).

1998
- North Webster radar installed (March).
- Tornado strikes NEXRAD tower at Charleston, WV (June).
- OSF deployed RDA/RPG Remote Access Terminal (RAT) (June).
- OSF formed a team for the development of Open Systems Principal User (OPUP) (August).
- FAA deployed the Remote Monitoring Subsystem (RMS) for the FAA WSR-88Ds (September).
- OSF deployed WSR-88D Software Build 10.0 (October).

1999
- The NWS requested an additional three pedestals (January).
- OSF distributed Tornado warning guidance related to Build 10.0 and the Tornado Vortex Signature (TVS).
- Modernization/Transition Committee (MTC) confirmed a requirement for radar at Evansville, IN (June).
- OSF plan for Evansville, IN installation formalized (August).
- OSF deployed WSR-88D Software Build 10.1 for FAA sites only (November) (Build 10.2 internal OSF Software Build).

2000
- NEXRAD Contract - Defense Contract Audit Agency completed two final audits. Both parties (Government and Contractor) agreed with results.
- NEXRAD Contract - The contractor Estimate-at-Completion (EAC) settled.
- Evansville, IN Interim Radar contract signed (February).
- Stop Work Order issued for the installation of the Rotary UPS (TPMS) (April).
- Interim Evansville, IN Radar became operational (April).
- The contractor made the last delivery - three additional pedestals (June).
- Received the last of the production line residual materials (June).
- NWS reorganization resulted in name change -- from NEXRAD OSF to the Radar Operations Center (ROC) (October 8).
- NWS reorganization resulted in administrative removal of OSF OTB Re-designated Warning Decision Training Branch (WDTB) (October).
- Contract Modification signed for the installation and retrofit of the Rotary UPS with a Static UPS (TPMS) (November).
- Retrofit of the Rotary UPS with the Static UPS begins (TPMS) (December).
- NEXRAD Contract closed out (December).

2001 - Central Product Collection (CPC) switches from NIDS to Radar Product Central Collection and Dissemination Service (RPCCDS) (January).
- Permanent Evansville, IN Radar RFP issued (May).
- Restoration of Little Rock, AR – replace Azimuth Bull Gear (May).
- Catastrophic loss of Radome (i.e., image below) at Laughlin AFB, TX (May).

- First Open RPG installed at the ROC (June).
- Contract for ORDA project signed (June).
- Severe hail damage (i.e., image below) to Radome at Denver CO (June).

- Permanent Evansville, IN, Radar contract signed (September).
- Last TPMS Retrofit site installed (94 total) (September).
- First new TPMS Site accepted (September).
- Change of TPMS COTR (November).
- 50th Open RPG installed at Boston, MA (November).
- ROC hosts SREC to define ORPG Build 2.0 and preliminary definition for Builds 3.0 and 4.0 (December).

2002
- Tallahassee (KTLH) radar and office move were completed (February).
- 100th Open RPG installed (Wichita, KS) (March).
- Build 1.2 S/W for ORPG deployed (March).
- ROC hosts SREC to define ORPG Build 3.0 and preliminary definition for Builds 4.0 and 5.0 (April).
- Change of TPMS COTR (May).
- Transfer of Keesler AFB, MS, operational radar to NWS from DOD for use at Jackson MS radar move (May).
- 150th Open RPG installed (Minot, ND) (June).
- Caribou, ME WFO moves (i.e., see image below) to a new office (~200 feet from its current location) and time will be taken to get everything operational (telecoms) (July).

- Last Open RPG installed (King Salmon, AK) (188) (July).
- Third Generation (3G) Cellular Phone Interference Testing (July).
- Integration of New Science into RPG Build 3.0 (August).
- Caribou, ME WFO move was completed and brought back on (August).
- AWIPS Build 5.2.2 Interface Certification Testing (August).
- ROC Deployed Redundant RDA/RPG Remote Access Terminal (RAT) (August).

- Restoration of Beale AFB, CA - replace Azimuth Bull Gear (August).

- Build 10.3 Correction of RDA Attenuator (4A23) Calibration deployed (September).

- Software Build 2.0 (RPG) deployed (September).
- Removal of Keesler AFB, MS, radar (September).
- NWS plans to deactivate 149 NWS PUPs and the ROC may coordinate with sites to reuse PUP components (September).
- Cooperative Agreement - between Federal Government and City of Brandon for the Jackson radar relocation site (September).
- Groundbreaking ceremony for the Evansville radar (September).
- Groundbreaking for Weather Center Building in Norman (November).
- ROC hosts SREC to define ORPG Build 4.0 and preliminary definition for Builds 5.0 and 6.0 (November).

2003
- Permanent Evansville, IN Radar operational (January).
- NWS Plans for Real-Time Level II Data Collection and Distribution Network (CDN) (January).
- Hytop ORPG/WFO moved from Birmingham to Huntsville (January).
- Reinstall Keesler AFB radar in Jackson/Brandon, MS (February).
- Software Build 3.0 (RPG) deployed (March).
- Remove Jackson, MS radar (April).

- Reinstall Jackson, MS radar at the ROC as a test bed radar (May).
- Software Build 4.0 (RPG) deployed (September).
- Beta test installation (OPUP), Yokota AB JP, MCAS Futenma JP, and Buckley AFB, CO (November).
- Restoration of Camp Humphreys, Korea – replace Azimuth Bull Gear (December).

2004
- OPUP Deployment begins including 4 AF Large, 3 AF Medium, 35 AF Small, and 35 Navy Small (January).
- Software Build 5.0 (RPG) deployed (March).
- First Frame Relay Communications Link installed Ft. Hood/Ft. Worth (March).
- Software Build 5.0 (OPUP) deployed (April).
- ROC hosts SREC to define Build 7.0 (April).
- Real-Time Level II Data Collection and Distribution Network (CDN) reaches full operational capability (April).

- Spiral 2 OPUP Deployment completed (July).
- Real time Level 2 data collection begins at 139 sites (July).
- Software Build 6.0 (RPG) deployed (September).
- The dedication of the ROC Pedestal Test Facility (i.e., image below) takes place in Norman. The radar is named KCRI (October).

- Software Build 6.0 (OPUP) deployed (November).

2005
- Software Patch Release 6.1 (RPG) deployed (January).
- ROC Hosts SREC to define Build 8.0 (January).
- Houston TX WFO moved from its current location to the second floor of the Galveston County EMF (April).
- ROC hosts SREC to define Build 9.0 and preliminary definition for Builds 10.0 through 12.0 (June).
- Software Build 7.0 (RPG) deployed (June).
- Software Build 7.0 (OPUP) deployed (July).
- Key West WFO moved offices (two miles down the from currents location) (July).
- ORDA Maintenance Demonstration (July/August).
- First ORDA site installed at Norman WFO (August)
- Last Frame Relay installed Vance/Wichita (August).
- Emergency OPUP deployment to Keesler AFB, MS for Hurricane Katrina support (September).
- State College WFO moved to a new location (December).

2006
- Additional OPUP Deployment (56) begins (January).
- 50th ORDA site installed (Nashville, TN) (March).

- Software Build 8.0 (OPUP) deployed (March).
- Restoration of Eglin AFB, FL – replace Elevation Bull Gear (April).
- Software Build 8.0 (ORDA/RPG) deployed (May).
- 100th ORDA site installed (Cincinnati, OH) (May).
- Norman WFO moved to the NWC from OU's north campus (August).
- Radar Engineering Team moves to old Armory – starts ROC consolidation (September).
- Weather Center Building in Norman commissioned (September).
- System Documentation Team (SDT) moves to old WFO space (October).
- Last ORDA installed (Middleton Island, AK) (October).

2007
- Software Build 9.0 (ORDA & RPG) deployed (June).
- Software Build 9.0 (OPUP) deployed (June).
- First RPG Re-host deployed (June).
- Restoration of Philadelphia (Mt Holly), PA – replace Azimuth Bull Gear (June).
- Dual-Pol contract signed (September).
- National Symposium on Multifunction Phased Array Radar (October).
- The rest of the Program and Engineering Branches move to the old NSSL building (November).
- Software Build 9.1 deployed (November).
- Camp Humphrey radar relocation completed (November).
- Last RPG Re-host deployed (December).

2008
- Restoration of Dover AFB, DE – replace Azimuth Bull Gear (January).
- Relocated DOD training assets to a new location on Keesler AFB (March).
- Sterling Radar and WFO are moved because of the expansion of Dulles Airport expanding its runways (March-April).
- Software Build 10.0 (ORDA & RPG) deployed (May).
- Restoration of New Braunfels (Austin/San Antonio), TX – replace Azimuth Bull Gear (May).
- Software Build 10.0 (OPUP) deployed (June).
- Sterling, VA radar relocation, due to runway expansion, completed (June).
- Old Sterling pedestal refurbishment – replace Azimuth Bull Gear in preparation for the Evansville installation (June).
- Restoration of Fort Rucker, AL – replace Azimuth Bull Gear (July).
- Restoration of Missoula, MT – replace Azimuth Bull Gear (July).
- Restoration of Binghamton, NY – replace Azimuth Bull Gear (August).
- Dual-Pol Critical Design Review (CDR) held (October).
- Old Sterling LPP system was relocated to Evansville, IN to replace the commercial EEC radar (November).
- ROC collaborated with OST to initiate public distribution of TDWR/SPG products (November).

- NEXRAD received 3-year Security Authorization to Operate (ATO) at the moderate risk level (December).

- Catastrophic loss of Radome (i.e., image above) at Reno, NV; recovery effort started (December).

2009
- Reno, NV recovery effort completed, and site restored to operation (February).
- Initiated TDWR/SPG product data distribution and archive (February).
- Based on FY09 appropriation for initial funding to add a weather radar along the Washington State coast, the ROC began project and acquisition planning to install a new radar (March).
- Software Build 11.0 (RDA/RPG) deployed (May).
- Dual-Pol contractor modified NSSL Radar (KOUN) for Dual-Pol testing (June).
- Software Build 11.1 (RDA) deployed (June).
- ESS/EA for Washington State Coast radar completed (July).
- Software Build 11.1 (RPG) deployed (September).
- Software Build 11.2 (RDA/RPG) deployed (November).
- Restoration of Eglin AFB, FL – replace Azimuth/Elevation Bull Gears (December).
- 2010 Consolidated Appropriations Act signed, contained funding for Washington Coast radar installation (December).

2010
- Software Build 11.0 (OPUP) deployed (January).

- Software Build 11.2 (OPUP) deployed (January).
- National Level II (NL2) Initial Release (January).
- Software Build 11.3 (RDA/RPG) deployed (February).
- Software Build 3.2 (TDWR/SPG) deployed (February).
- Initiated project for new Washington Radar (March).
- Software Build 11.4 (RDA) deployed (April).
- Software Build 3.3 (TDWR/SPG) deployed (April).
- Dual-Pol System Test Readiness Review (TRR) held (May).
- Software Build 3.4 (TDWR/SPG) deployed (July).
- Software Build 12.0 (RPG) deployed (August).
- Software Build 11.5 (RDA) deployed (August).
- Software Build 3.5 (TDWR/SPG) deployed (August).
- Conducted Operational Assessment of Dual-Pol data (August).
- Dual-Pol Operational (TRR) held (September).
- DOD transferred two Keesler Maintenance Training assets to NWS. One was utilized for the new Western WA radar (KLGX) and the other was added to the ROC Test Bed (October).
- Retrofit of RVP8 (Dual-Pol Requirement) (October).
- Installation of Pedestal Maintenance Hatch Toe Boards (Safety enhancement) (October).
- Retrofit of Filament Power Supply (Dual-Pol Requirement) (November).
- Software Build 11.6 (RDA) deployed (November).
- Software Build 12.1 (RPG) deployed (November).
- Fielding of Ladder Stability Device (Safety enhancement) (November).
- Initial Software Update 1.1 (NL2) deployed (November).
- Dual-Pol Demonstration #1 Conducted (December).

2011
- Software Build 3.6 (SPG) deployed (January).
- Lease for Washington State Coast radar (KLGX) site completed (February). This radar site was assigned an elevation angle of +0.2° (February).
- First Dual-Pol site (Vance AFB) installed (February).
- Software Build 1.2 (NL2) deployed (March).
- Dual-Pol Maintenance Demonstration #2 Conducted (April).
- Restoration of Chicago, IL – replace Azimuth Bull Gear (April).
- Software Build 12.0, Digital OPUP, deployed (April).
- Dual-Pol Beta TRR held (May).
- First Dual-Pol Beta Site accepted, Phoenix, AZ (May).
- Kadena Okinawa radar hit by Hurricane, destroyed antenna and radome (May).

- Software Build 12.2 (RPG) deployed (May).
- Software Build 11.7 (RDA, all legacy sites) deployed (May).
- Software Build 12.1 (OPUP) deployed (July).
- Software Build 2.0 (NL2) deployed (July).
- Software Build 3.7 (SPG) deployed (July).
- San Juan, PR replaced RMG with Static UPS (July).
- The collection of Real time Level 2 data increased from 139 to 156 sites (July).
- Software Build 12.0 (RDA, Dual-Pol) deployed (August).
- Dual-Pol Deployment Readiness Review (September).
- Langley Hill, WA (KLGX), installed with Dual-Pol, was the first low elevation angle (i.e., +0.2 degrees) site (August).
- KLGX Dedication Ceremony: Sen Cantwell, Rep Dicks, Dr. Hays, and other dignitaries attended (September).
- Portland, OR (KRTX) Dual-Pol system installed (September).
- Restoration of King Salmon, AK – replaced Azimuth Bull Gear (October).
- Software Build 12.3 (RPG) deployed (October).
- Automated Volume Scan Evaluation and Termination (AVSET) Deployed with Software Build (October).
- Software Build 11.8 (RDA) deployed (October).
- Lower Elevation Test Started (November).
- Software Build 2.1 (NL2) deployed (November).
- Kenai, AK replaced RMG with Static UPS (December).

2012
- Frame-Relay circuit upgrades for FAA Alaska radars to NWS WFOs, deployed (January).
- Coordinated first signed wind farm Operational Curtailment agreement (Letter of Intent) between a WFO and a wind farm (February).
- SPG Software Build 4.0 deployed (February).
- Software Build 13.0 (OPUP) deployed (March).
- AWIPS prepares to undergo a major upgrade (AWIPS I → AWIPS II) (March).
- Software Build 11.9 (RDA) deployed (April).
- Software Build 13.0 (RPG) deployed (April).

- Restoration of Reno, NV – replace Azimuth/Elevation Bull Gears (April).
- RDA software preparations for DP (April).
- Software Build 12.3 (RDA) deployed (April).
- RPG procedures to support DP for RDA Build 12.3 deployed (April).
- Software Build 13.1 (OPUP) was deployed. During this time, the medium OPUP was converted to the Large OPUP (April).
- Software Build 2.4 (NL2) deployed (May).
- RPG files to support RDA Build 13.0, deployed (June).
- Software Build 13.0 (RDA) deployed (June).
- SPG Software Build 4.1 deployed (July).
- 1000th wind farm analysis completed since starting them in 2008 (August).
- Software update 11.10 (RDA) deployed (September).
- RDA Laptop software 1.3 deployed (September).
- Software update 1.6 (Level I) deployed (September).
- Software update 2.5 (Level II) deployed (September).
- Coordinated first signed wind farm data sharing agreement between an individual wind farm and a WFO (Oct).
- Restoration of Brookhaven, NY – replace Azimuth/Elevation Bull Gears (November).
- Software update 2.6 (Level II) deployed (December).
- Revised NEXRAD Service Life Extension Plan (SLEP) (December).

2013
- Software Build 13.1 (RDA/RPG) deployed (January).
- Software Build 4.1 (SPG) deployed (January).
- The reduction of the velocity de-aliasing errors, in Build 13.1, is performed using two-dimensional velocity de-aliasing algorithm (2DVDA) (January).
- Melbourne, FL (KMLB) radar tower was raised from 20m to 30m (January).
- Deployed the first of 28 early production Servo Power Amps (February).
- Software Build 13.2 (RDA/RPG) deployed (May).
- Software Build 3.0 (NL2) deployed (May).
- ROC Technicians install Dual-Pol on Kunsan, KR (RKJK) radar (May).
- ROC Technicians install Dual-Pol on Camp Humphreys, KR (RKSG) radar (June).
- King Salmon, AK (PAKC) was the last operational radar installed with Dual-Pol (June).
- SPG Software Build 5.0 deployed (July).
- Restoration of Albany, NY – replaced Azimuth Bull Gear (July).
- Software Build 3.1 (NL2) deployed (July).
- Software Build 3.2 (NL2) deployed (September).
- The AWIPS upgrade (I → II) was performed for Group #1 (Omaha, NE; Boulder, CO; Blacksburg, VA; Taunton, MA; Huntsville, AL; Norman, OK; Houston, TX; and Billings, MT) (October).
- Software Build 13.3 (RDA/RPG) deployed (October).
- DOD plans to deactivate most of its OPUPs in efforts of reducing costs

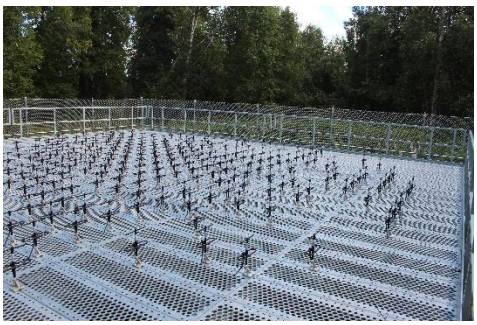
(November).
- The AWIPS II (upgrade) system passed a 30-day beta trial and was given clearance to proceed on to Group #2 (November).
- Restoration of Miami, FL – replace Azimuth/Elevation Bull Gears (December).
- Software Build 3.3 (NL2) deployed (December).

2014
- Software Build 5.1 (SPG) deployed (January).
- Software Build 3.4 (NL2) deployed (February).
- Software Build 4.0 (NL2) deployed (April).
- Software Build 14.0 (RDA/RPG) deployed (May).
- Storm-Based Auto PRF fielded (May).
- Modifiable PRF for SZ-2 VCPs (May).
- Improvements were made to the MLDA and QPE algorithms (May).
- AVSET default was set to ON (May).
- RPG Software Build 14.1 deployed (May).
- SAILS deployed with Build 14.1 (May).
- Construction of the new Kadena Okinawa radar site started (May).

- Software Build 6.0 (SPG) deployed (July).
- Software Build 4.1 (NL2) deployed (July).
- Restoration of Charleston, SC – replace Azimuth/Elevation Bull Gears (August).
- Software Build 6.1 (SPG) deployed (September).
- Software Build 15.0 (RPG) deployed (October).
- Software Build 15.0 (RDA) deployed (October).
- RDA Console Server refresh (October).
- Build 15.0 brings improvements to PhiDP where the Estimated PhiDP will be used to modify Phi Data used in DP algorithms. The URC adaptable parameter for correcting Phi Data will be set to default NO (October).

- Build 15.0 Three R (Z, ZDR) parameters were added as URC parameters. These values are changed as a set with user choosing between Tropical (default setting) and Continental (October).
- Multi-SAILS was added as non-operational to this Build (October).
- Software Build 5.0 (NL2) deployed (October).
- Software Build 5.1 (NL2) deployed (December).

2015
- SPG Software Build 7.0 (SPG) deployed (February).
- 4G Backup Comms installed at selected sites (March-June).
- MESO-SAILS Field Test began (April).
- WDTB gets renamed to Weather Decision Training Division (WDTD) (April).
- Software Build 5.2 (NL2) deployed (April).
- Software Build 16.0 (RDA) deployed. While the RDA software went from Build 15.0 to Build 16.0, there were no changes to the software except updating the Build number (June).
- Software Build 16.0 (RPG) deployed (June).
- RPG Processor refresh occurred in Build 16.0 (June).
- Changes and updates were fielded in this build to Backup Comms (4G or VSAT) (June).
- Restoration of Kadena AB, JP – replaced Azimuth/Elevation Bull Gears (June).
- Changes were made in Build 16.0 to help prevent biota contamination (June).
- An update was fielded on VCP 121 velocity de-aliasing. The process was updated where it is de-aliased and then recombined (June).
- Select DP Products can be generated for the SAILS cuts. They must be requested currently but will be added to the National RPS List in the future (June).
- MESO-SAILS is fully functional but will not be operational in this Build. A field test of the sites (i.e., KTLX, KINX, KEPZ, KDDC, KICT, KGLD, KRAX, KCLE, KENX, KRLX, KMHX, KGGW, & KIWA) will be conducted after the Build deployment (June).
- The SAILS control window will change from Build 14/15 display (i.e., either toggle SAILS on or off) to Build 16 version (i.e., 0 (SAILS Off) or 1 (SAILS On) and MESO-SAILS (which is only ROC only parameter) will have options for 2 or 3 (June).
- Numerous changes have been made to the DP Precip/QPE (i.e., DP Max Precip Rate, R(KDP), DS Multiplier Below ML) (June).
- Software Build 6.0 (NL2) deployed (April).
- Software Build 7.1 (SPG) deployed (July).
- ROC Technicians return Kadena Okinawa radar site to operation (July).
- Software Build 8.0 (SPG) deployed (July).
- The last site to receive AWIPS II upgrade was WFO Honolulu (September).



- Wind Profiler (NPN), (i.e., see images above), Software Build 2.0 deployed (October).
- Restoration of Dodge City, KS – replace Azimuth replaced Azimuth Bull Gear (October).
- Software Build 6.1 (NL2) deployed (December).

2016 - Software Build 8.0 (SPG) deployed (January).
- ASP (i.e., in SPG Build 8.0) will be generated every 3 hours instead of 8 hours (January).
- A Planning Committee meeting was held to discuss moving NL2 cluster to College Park. The move would start in February or March and would be completed by December (January).
- Software Build 7.0 (NL2) completed deployment (February).
- Software Build 16.1 (RPG) deployed MESO-SAILS fleet wide; completed (April).
- Raw CC product is generated in this Build and it is not centrally collected, but sites can add it to their local RPS list (April).
- Level II enabled along with distant Master System Control Function (MSCF) from Camp Humphreys, Kunsan, and Kadena over OPSNet (April).
- With existing SonicWalls nearing end of life, failing at increasing rates and no longer supportable, DOD and FAA hub router configurations will connect to NEXRAD and OPSNet directly from the RPG router to the OPSNet router (April).
- Signal Processor (SP) SLEP (Build 17.0) BETA Test Begins, Wichita KS (April).
- SP SLEP replaces the Radar Control Processor (RCP)/Radar Signal Processor (RVP) processors with a single Radar Signal Processor (RSP) SLEP. The Signal Processor Interface Panel (SPIP) and IF Digitizer Receiver (IFDR) are added and removes the DAU, DCU, IO Panel, Maintenance Panel, and two power supplies (April).
- The plan to move NL2 cluster was placed on hold at this time and future meetings.
- Lajes AB Radar was decommissioned (June).
- NEXRAD Build 18.0 Decision paper was presented to the PMC (June).
- Software Build 8.1 (SPG) deployed (July).
- Software Build 2.1 (NPN) deployed (August).
- Software Build 17.0 (RDA/RPG) deployed (August).
- Build 17.0 (RPG) software implements Hail Size Discrimination Algorithm

(HSDA), MetSignal algorithm (for improving DP QPE estimates), and makes Continental DP QPE Z/ZDR relationship default (August).
- Build 17.0 (RPG) generates the ASP every 3 hours instead of every 8 hours. (August).
- Phoenix/Tempe WFO moved to new suites within its current building (August).
- Signal Processor (SP) SLEP (Build 17.0) Deployment Begins, Missoula MT (September).
- Software Build 7.1 (NL2) deployed (October).
- Restoration of Duluth – replace Azimuth Bull Gear (October).
- Restoration of Portland, OR – replace Azimuth Bull Gear (November).

2017
- TDWR Build 2.0 is deployed. (January).
- Build 2.0 upgrade improves velocity de-aliasing (January).
- Software Build 17.1 (RPG) and 17.2 (RDA) deployed for installation (February).
- Software Build 8.2 (SPG) deployed (February).
- Restoration of Jacksonville – replace Azimuth Bull Gear while doing SP SLEP (March).
- Restoration of Atlanta – replace Azimuth/Elevation Bull Gears (April).
- Software Build 8.0 (NL2) deployed (April).
- The refurbishment of the transmitter (XMTR SLEP) will be performed in the three components. First will be Backplane Printed Wiring Board (PWB) and Combined Circuit Card (CCA), followed by the Modulator Upgrade, and then the XMTR Chassis Refurbishment. Contractors will perform the Chassis Refurb (June).
- The refurbishment of the transmitter was performed at Cannon AFB. It is expected to take about 5 days (June).
- Cannon AFB came back online from XMTR SLEP after 10 days (June).
- Davenport IA WFO moved into a constructed building. The RDA remains at its current location (June).
- Restoration of San Joaquin/Hanford – replace Azimuth/Elevation Bull Gears (July).
- Software Build 8.3 (SPG) deployed (July).
- Restoration of Blacksburg – replace Azimuth/Elevation Bull Gears (August).
- Restoration of Albany NY – replace Azimuth Bull Gear (August).
- Restoration of Wilmington OH– replace Azimuth/Elevation Bull Gears (August).
- San Juan PR Radar sustained major damage (i.e., image below) with both the Radome and Pedestal taken out) from Hurricane Maria (September).

- Restoration of Pueblo – replaced Azimuth/Elevation Bull Gears (September).
- KMUX became a low angle elevation (i.e., +0.0°) site (December).

2018
- Restoration of Dyess AFB TX – replaced the Azimuth Bull Gear (January).
- Restoration of Melbourne FL – replaced the Azimuth Bull Gear (February).
- Restoration of Wakefield – replace the Azimuth Bull Gear (March).
- Pedestal SLEP contract award delayed due to protest (March).
- Restoration of Miami – replace the Elevation Bull Gear (March).
- The decommissioning of the remaining DOD operational OPUPs, testbed, and support of OPUPs are to be performed. Additionally, the system (OPUP) will be removed from the baseline (April).
- Jackson MS was the last site on the list to undergo RSP SLEP. RSP SLEP has been completed for the 88D Radar Network (April).
- Boston WFO moved from one building to another building (March-April).
- Software Build 18.0 (RDA/RPG) deployed (April).
- Restoration of Paducah KY – replaced the Azimuth Bull Gear (April).
- Build 18.0 (RDA) OS migrates from RHEL5 to RHEL7 and improves backup wideband communication (April).
- Elevation Correction Bias (ECB) was introduced (at the RDA) to offset point errors in the system because of the SP SLEP (April).
- Software Build 3.1 (NPN) deployed (April).
- RPG Console Server Refresh in Build 18.0 (April).

- VCPs 11, 21, 211, and 221 were all removed in Build 18.0 (RPG). VCPs 35 (clear air) and 215 (non-severe, precipitation) were added in replacement (April). The default Precip VCP will be 215 and the clear air VCP will be what the site had previously set it to (April).
- Mid-volume Rescan of Low-level Elevations (MRLE) was introduced to test sites before becoming operational (April).
- VCP, AVSET, and SAILS are now capable of being controlled by AWIPS. Likewise, FTMs can be sent on AWIPS. The FTM will be sent to the RPG (from AWIPS) and this message is then sent (via RPG) to all resolute users except the sender. (April).
- The Data Quality Dashboard (DQD) is now available (RPG), and it is viewable via Firefox browser (April).
- Medford and San Francisco radars become test sites low level angle elevation field test (April).
- TDWR Build 2.0 last site upgraded (May).
- Restoration of Morehead City NC – replace Azimuth Bull Gear (May).
- Restoration of Bismarck – replace Azimuth/Elevation Bull Gears (May).
- Software Build 8.2 (NL2) completed deployment (June).
- San Juan PR radar was restored/returned to service (i.e., image on the next page) after being severely damaged by Hurricane Maria upon techs completing sun check (June).
- KICX becomes a low angle elevation (i.e., +0.2°) site (June).
- Restoration of Vance AFB OK – replace Azimuth Bull Gear (July).
- Software Build 18.1 (RDA/RPG) deployed to a limited number of radar sites (i.e., KBUF and KMAX). These sites, as previously discussed, are testing low elevation scans. After a few weather events, KMAX will select a final lower elevation angle (i.e., -0.2°, 0.0°, or 0.2°) that deploys operationally in a future build or update (August).

NEXRAD/WSR-88D (ROC) HISTORY

- Pedestal SLEP contract award protest resolved and awarded to TSS (August).
- Software Build 8.1 (NL2) deployed (September).
- Build 18.1 (RDA/RPG) deployed to the remaining radar sites (September).
- The ROC provided NWS CFO with an IGCE for the proposed Engine/Generator/ Automatic Transfer Switches (ATS) /Fuel Tank SLEP proposal based upon anticipated NEXRAD SLEP cost savings (September).
- KMAX, officially, becomes a low angle elevation (i.e., -0.2°) site (September).
- Software Build 3.2 (NPN) deployed (September).
- KBUF becomes a low angle elevation (i.e., +0.3°) site (October).
- Shelter SLEP contract award accelerating the start by 12 months (September).
- KCRI was the first site to undergo the refurbishment of the Pedestal (Pedestal SLEP) (October).

- Pedestal SLEP involves replacing the existing pedestal (i.e., image below) with a remanufactured one (October).

- KCRI was brought back online after the completion of the Pedestal SLEP. It was offline for about three weeks (November).

- Restoration of Springfield MO – replace Azimuth Bull Gear (November).
- Rapid City SD was the radar site to go under Pedestal SLEP (November).
- Software Build 9.0 (NL2) completed deployment (December).
- Restoration of Jackson MS – replace Azimuth Bull Gear (December).
- Rapid City returned to service after being offline for approximately three weeks (December).

2019
- Restoration of Maxwell AFB AL – replace Azimuth Bull Gear (February).
- Software Build 9.0 (SPG) deployed (March).
- Build 9.0 migrates OS from RHEL 5 to RHEL 7 (March).
- Software Build 9.0 (NL2) deployed (March).
- The ROC provided the NWS CFO with the justification for establishing the Engine Generator SLEP project supporting official notification to the congressional appropriations committee to reprogram NEXRAD SLEP funds (April).
- Restoration of Philadelphia – replace the Azimuth Bull Gear (May).

- Software Build 18.2 (RDA/RPG) deployed (June).
- Build 18.2 (RDA) OS migrates from RHEL 7.5 to RHEL7.6 (June).
- MRLE becomes operational in this Build (June).
- Build 18.2 (RPG) adds the operation of MRLEx2 (i.e., VCP 215) and MRLEx3 (i.e., VCP 12 and 121), but MRLEx4 becomes available in the future build (i.e., Build 19.0) (June).
- Additional low angle elevation (i.e., base tilt) sites will be added. They are KDGX KGSP, KMBX, KRAX, and KSHV (June).
- Software Build 9.1 (SPG) deployed (June).
- Build 9.1 migrates OS from RHEL 7.5 to RHEL 7.6 (June).
- Software Build 9.1 (NL2) deployed (July).
- KMBX becomes a low angle elevation (i.e., +0.3°) site (July).
- Software Build 4.0 (NPN) deployed (July).
- KRAX becomes a low angle elevation (i.e., +0.2°) site (August).
- KGSP becomes a low angle elevation (i.e., +0.2°) site (August).
- NL2 Software Build 9.2 deployed (September).
- KDGX becomes a low angle elevation (i.e., +0.3°) site (September).
- WFO Relocation Committee discusses the moving of the New Orleans/Slidell FO. It is expected to move either in spring or summer of 2021 (September).
- KSHV becomes a low angle elevation (i.e., +0.3°) site (September).
- NL2 Software Build 9.3 deployed (December).

2020
- Software Build 4.1 (NPN) deployed (January).
- KREX at the ROC was the first site to go under the refurbishment of the Generator (i.e., Generator SLEP installation). The radar will remain offline from 7-10 days (January).
- The NEXRAD Shelter SLEP is part of the Generator SLEP and both updates apply to NWS and DOD sites only (January).

- Generator SLEP involves removing and laying new marseal floor, emergency standby generators, ATS, and fuel tanks (January).

- KREX returned to service after being offline for 10 days (January).
- XMTR Chassis SLEP schedule was completed at Kadena AB (February).
- KTLX was the first radar site to undergo Generator SLEP installation (February).
- KTLX returned to service after seven days (March).
- Due to the global pandemic, COVID-19 restricted all non-essential employees to mandatory (i.e., situational) telework until further notice (March).
- Software Build 10.0 (SPG) deployed (June).
- Software Build 10.0 (NL2) deployed (July).
- Software Build 4.2 (NPN) deployed (July).
- Build 4.0 (NPN) upgraded the OS to Red Hat 7 (July).
- KRGX becomes a low angle elevation (i.e., +0.0°) site (July).
- Software Build 19.0 (RDA/RPG) is deployed (August).
- Build 19.0 (RDA) introduces continuous recording of time series data (Level I) (August).
- Additional supplemental low elevation angle sites are added. They are KCLE, KCLX, KDLH, KFSX, KGJX, KMSX, and KTMX (August).
- Build 19.0 (RPG) removes the CFC product, the Base Data Display from the RPG HCI, and the Generation Distribution Control List, and introduces the Power Removed Control (PRC) product (August).

- VCP 121, in Build 19.0, was removed and replaced with the Multi-PRF (Pulse Repetition Frequency) Dealiasing Algorithm (MPDA) VCP 112. VCP 112 has similar elevations of VCP 12/212. MPDA is used for the split cuts. One CS cut and two CD cuts. 2DVDA is used instead of legacy VDA for non-MPDA cuts. (August).
- The extra low elevation angle (i.e., below 0.5°) is now called Base Tilt. There will be 18 sites that will have Base Tilt with Build 19.0 (August).
- Base Tilt Selection Field Test was granted to Grand Junction (i.e., KGJX). It was assigned a base tilt angle of -0.2° in Build 19.0. The site would like to be able to change this angle during this experiment. In Build 20.0, the site will be able to select from angles of -0.2°, +0.0°, or +0.2° (August).
- OFFLINE Operate has been removed from the system in this Build 19.0 (RDA/RPG) (August).
- Lake Charles LA Radar sustained major damage (i.e., image below) with the radome being torn off and the pedestal sustaining major damage from Hurricane Laura (August).
- KMSX becomes a low angle elevation (i.e., -0.2°) site (September).
- KMTX becomes a low angle elevation (i.e., +0.0°) site (September).

- Restoration of Sterling – replace the Azimuth/Elevation Bull Gears (October).
- Software Build 10.1 (NL2) deployed (October).
- KCLE becomes a base tilt (i.e., +0.4°) site (October).
- KFSX becomes a low angle elevation (i.e., -0.2°) site (October).
- KCLX becomes a low angle elevation (i.e., +0.3°) site (November).

- Software Build 10.1 (SPG) deployed (November).
- Software Build 4.3 (NPN) deployed (December).
- KDLH becomes a low angle elevation (i.e., +0.2°) site (December).
- Restoration of Denver – replace the Azimuth/Elevation Bull Gears (December).

2021 - Software Build 21.0 (RDA/RPG) Kickoff Meeting was held (January).
- Lake Charles Radar restoration project was completed by the ROC team, placed in 24-hour test mode, and then returned to the WFO for operational use (January).

- Software Build 19.1 (RDA/RPG) is deployed (April).
- Software Build 11.0 (NL2) deployed (May).
- The move of the NL2 cluster is currently being reevaluated. It is projected to move to Ashburn, VA from Silver Springs (May).
- Software Build 11.1 (SPG) kickoff meeting was held (May).
- Software Build 11.0 (SPG) is deployed to TOKC as an "initial field look" (June).
- Build 11.0 (SPG) provides major updates including the removal of precipitation products and algorithms, ability to change VMI due to TDWR Build 2.0, and updates the main HCI features (June).
- Restoration of Mobile AL – replace the Azimuth/Elevation Bull Gears (June).
- Generator SLEP installations are currently on hold (June).
- Software Build 11.0 (SPG) is deployed to the rest of the fleet (July).
- Restoration of Andersen AFB – replace the Azimuth/Elevation Bull Gears (July).
- Build 5.0 (NPN) was deployed to the sites (August).
- The kickoff meeting for the relocation of NL2 servers from Silver Springs, MD to

Ashburn, VA was conducted (August).
- After some time of preparation, Cleveland WFO has moved to a new location (building) (September).
- Software Build 20.0 (RDA/RPG) is deployed (September).
- The RDA will no longer use the GPS unit as a time source in Build 20.0. The RDA will now get its time source from the RPG. The RPG will get the time from NL2 servers (September).
- The RDA Router will be replaced in this Build (September).
- The RDA GPS unit will be disabled in this Build but will be removed in the future (September).
- Build 20.0 (RPG) removes Agency Level of Change Authority (LOCA) (September).
- Restart and Reinitialize buttons have been added to the LDM Control in this Build (September).
- Grand Junction was selected as a field Base Tilt for Build 20.0 (September).
- The Albany WFO has moved to a new building and is now fully operational (September).
- Software Build 20.1 (RDA/RPG) is deployed (December).
- A bug fix is deployed for Manual PRF Operation. Manual mode selection made via AWIPS Control Command resulted in the PRFs being lost (December).
- Software Build 21.0 (RDA/RPG) has been approved via TRC to undergo testing (December).
- SPG Software Build 12.0 kickoff meeting was held via email (December).

2022
- Software Build 12.0 (NL2) kickoff meeting was held (January).
- Software Build 11.1 (SPG) is deployed to the remainder of the fleet (January).
- The ROC, with this Build (11.1), will transition the delivery of software and modification notes from printed copies to electronic documents (January).
- Software Build 5.1 (NPN) is deployed to the Alaska (Anchorage and Fairbanks) sites (January).
- Software Build 22.0 (RDA/RPG) Kickoff BRB meeting was held via google meet (January).
- Software Build 6.0 (NPN) has been prepared for development and testing (January).
- Software Build 12.1 (NL2) kickoff meeting was held (March).
- Software Build 12.0 (NL2) is deployed to the fleet (May).
- Generator SLEP resumes after being idle for year (June).
- Software Build 13.0 (NL2) has been developed. It is expected to be released in March of 2023. It will migrate to RHEL 8 and will contain security (RPM) updates (June).
- Software Build 12.0 (SPG) is deployed to the Ft. Worth, TX WFO as an “initial field look” site (July).
- SPG Software Build 12.0 is deployed to the remainder of the fleet (August).
- In Build 12.0, the Hydromet Preprocessing has been removed from the Algorithm

window. While removing this completes the removal of the Precip products from SPG (August).

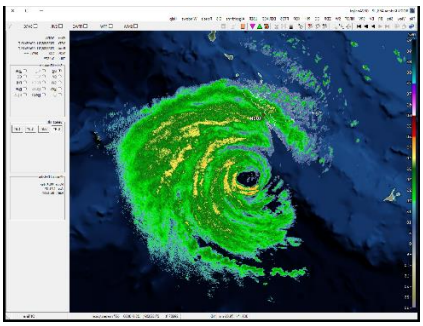
- Additional updates were made to several of the GUIs. These updates made are the Save Log, User Account Management, and SPG Software Restart (e.g., MRPG) (August).
- Software Build 6.0 (NPN) is deployed and installed on the Alaska (Anchorage and Fairbanks) sites (August).
- ROC personnel (i.e., ROC Engineering Team) assisted Charleston WV, (KRLX) WFO personnel with the move of the forecast office. The RPG and MSCF were relocated to the new office. While on-site, the ROC Engineering Team installed the 4G LTE as communications backup solution. The transition to the Enterprise Infrastructure Solutions (EIS) contract for telecommunications has caused a delay in ordering and provisioning the KRLX terrestrial T1 wideband circuit between the radar and the WFO. Since the move in September 2022, the RDA has been solely relying on the 4G backup circuit for radar data transmission to the WFO's RPG. The ROC Engineering Team is working diligently with the Enterprise Network Program Office (ENPO) and AT&T to prioritize and provision the circuit as soon as possible (September).
- Software Build 12.1 (SPG) kickoff meeting was held (September).
- Software Build 6.1 has been prepared for development and testing (October).
- Software Build 21.1 (RDA/RPG) Kickoff Meeting was held (October).
- Software Build 12.1 (NL2) is deployed to the fleet (October).
- The relocation of the NL2 Servers from Silver Spring, MD to the Enterprise Data Center in Ashburn, VA has been completed (October).
- Software Build 12.2 (NL2) kickoff meeting was held (November).
- Software Build 22.0 (RDA/RPG) began testing (November).
- Software Build 13.0 (NL2) kickoff meeting was held (November).
- Software Build 21.0 (RDA/RPG) is deployed (December).
- Build 21.0 (RDA/RPG) updates were made to the algorithms, HCI, User Control, Security, Product, and Narrowband lines (December).
- SPG Software Build 13.0 kickoff meeting was held via email (December).

2023

- Software Build 21.1 (RDA/RPG) began testing (January).
- Software Build 12.1 (SPG) is deployed to the radar sites (January).
- Software Build 23.0 (RDA/RPG) Kickoff Meeting was held (February).
- The wideband T1 line for KRLX was restored and made fully operational by AT&T. A weekend test was performed prior to the ROC receiving acceptance of the functioning line from AT&T (February).
- Wind Profiler Software Build 6.1 (NPN) is deployed and installed on the Alaska (Anchorage and Fairbanks) sites (February).
- Software Build 21.1 (RDA/RPG) is deployed (March).
- Fort Rucker has been officially renamed to Ft. Novosel. This will result in the radar site (KEOX) taking this new name as well (April).
- Build 7.0 (NPN) has been prepared for development and testing (April).

- Software Build 12.2 (NL2) is deployed to the fleet. Software Build 13.0, currently in development, is expected to be deployed later this year (i.e., October of 2023) (May).
- Fort Hood has been officially renamed to Fort Cavazos. This will result in the radar site (KGRK) taking this new name as well (May).
- The radar (i.e., the RDA site) move from Slidell, LA to Hammond, LA is slated to begin later this year (the fall), and a return to service is expected in early 2024. The WFO move is scheduled for a later date (i.e., sometime in 2025) (June).
- Fort Polk has been officially renamed Fort Johnson. This will result in the radar site (KPOE) taking this new name as well (June).
- Kadena Okinawa (RODN) radar was hit by Typhoon Khaun.

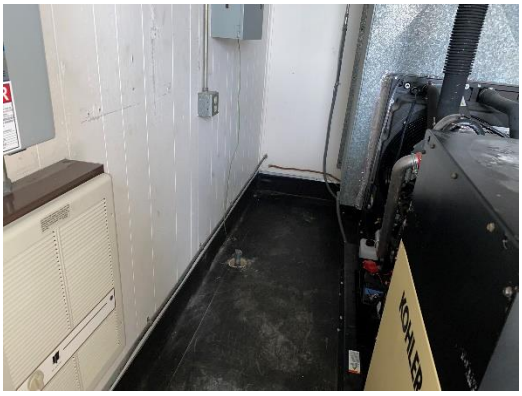

- The typhoon destroyed the antenna and radome (August).

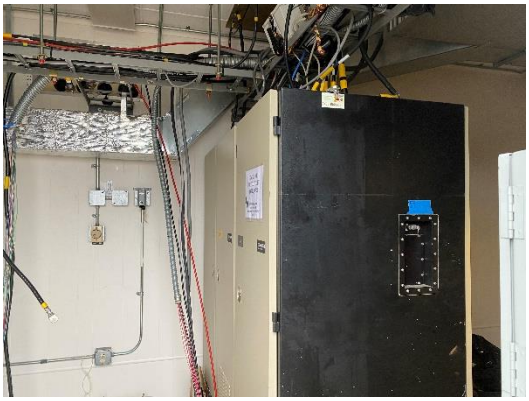

- KMSX was the last radar site to undergo Generator SLEP installation. With this site being completed, the Generator SLEP project has officially been completed (August).
- The radar moves from Slidell, LA to Hammond, LA has been awarded. It is expected to be completed in early 2024 and it is the RDA only with the WFO

moving at a later (TBD) date (August).

- Software Build 22.1 (RDA/RPG) Kickoff Meeting was held (September).
- SPG Software Build 13.0 is deployed to the radar sites (September).
- Build 13.0 (SPG) upgrades OS from Red Hat 7 to Red Hat 8 (September).
- Build 13.0 (SPG) has default storm motion calculated from hour model data and the ring of erroneous data have been fixed (September).
- Software Build 7.0 (NPN) is deployed and installed on the Alaska (Anchorage and Fairbanks) sites (September).
- Software Build 13.1 (SPG) kickoff meeting was held (October).
- Software Build 13.0 (NL2) was deployed to the NOAA Ashburn Data Center and was loaded remotely to the other sites (October).
- Build 13.0 (NL2) upgrades OS from Red Hat 7 to Red Hat 8
- Software Build 13.1 (NL2) will be renumbered to be Build 14.0. The kickoff meeting (i.e., Build 14.0) is expected to take place in early 2024 (October).
- Software Build 7.1 (NPN) has been prepared for development and testing (November).
- Software Build 23.0 (RDA/RPG) began testing (November).




- The Slidell radar has been taken offline for the official move (i.e., to Hammond, LA).




- The process is expected to be completed in March or April of 2024 (November).



- Software Build 22.0 (RDA/RPG) is deployed (November).

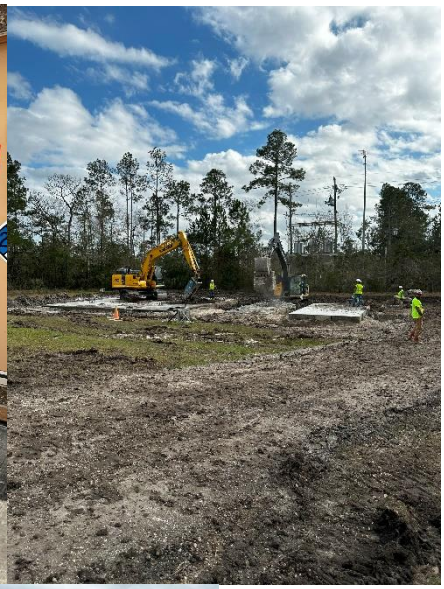
- Build 22.0 (RDA) removes the existing RSP and replaces it with a new one in the RDA Shelter (November).

- Build 22.0 (RDA) upgrades OS from Red Hat 7 to Red Hat 8 (November).

- Build 22.0 (RDA) removes VCP 32 as an option (November).
- Build 22.0 (RPG) upgrades OS from Red Hat 7 to Red Hat 8 (November) (November).
- Build 22.0 (RPG) removes VCP 32 as an option (November).
- Build 22.0 (RDA/RPG) adds additional supplemental elevations sites. The additional base tilt sites are KPAH, KCRP, KSGF, and KPDT (November).
- After being a Base Tilt Selection Field Test site since Build 20.0, KGJX settled on +0.0° being their base tilt elevation. (November).
- Build 22.0 (RPG) updates products (i.e., SR V all angles, TVS/TRU, PRC, FTMs from AWIPS, SCL Updates) (November).
- Build 22.0 (RPG) updates Algorithms (i.e., 2DVDA, MPDA, MSF, Default ***ON*** Apply RPG ISDP, OPE, TDA, along with decreasing task failure occurrences) (November).
- Build 22.0 (RPG) updates the HCI (i.e., Environmental Data Editor, GTK to various GUIs, and Clutter Censor Zone Editor) (November).
- Additional Build 22.0 (RPG) updates include narrowband (i.e., OTR managing of AVSET), wideband, and Logs along with user control update (i.e., fully supports VMI change from AWIPS) (November).
- Software Build 22.1 (RDA/RPG) began testing (November).
- The New Orleans WFO's RDA (i.e., KLIX) has been dismantled and will be moved to its new location. It will be moved to Hammonds.
- The radar move is expected to be completed early in 2024 (November).



- The radome and pedestal have been removed the Slidell site (December).



- The old site was completely cleaned up after the RDA site (i.e., tower, pedestal, and shelters) was completely dismantled (December).

2024
- SPG Software Build 14.0 kickoff meeting was held (January).
- Build 14.0 (SPG) will support the FAA's transition by removing direction connections to the TDWRs and will transition to System Wide Information Management (SWIM). Additionally, changes will come to how the SPGs receive information from the TDWRs (i.e., no information over the T1 lines) (January).
- KSGF becomes a low angle elevation (i.e., +0.2°) site (January).
- KPAH becomes a low angle elevation (i.e., +0.3°) site (January).
- Software Build 14.0 (NL2) kickoff meeting was held (January).
- Build 14.0 (NL2) was renumbered to Build 14.0 from 13.1. This change allows for major Build releases to come out during the spring of each year (January).

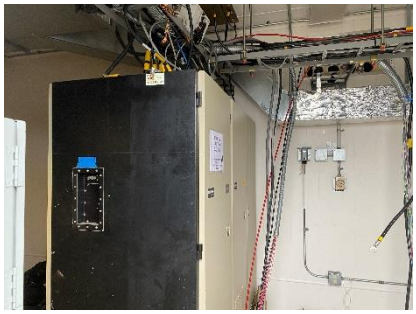


- Site preparation has been underway and continues for the new site of the New Orleans RDA site at Hammonds (January).



- Software Build 24.0 (RDA/RPG) Kickoff Meeting was held (February).
- KCRP becomes a low angle elevation (i.e., +0.3°) site (February).
- Software Build 7.1 (NPN) is deployed and installed (i.e., remotely) on the Alaska (Anchorage and Fairbanks) sites (February).
- KPDT becomes a low angle elevation (i.e., +0.2°) site (February).
- Software Build 13.1 (SPG) is deployed to the radar sites (February).
- Build 13.1 (SPG) has made security updates to the recently updated Red Hat 8.0 (February).
- Build 13.1 (SPG) has bug fix that allows LDM stats (e.g., latency) to be coded properly by NL2 (February).
- Build 13.1 (SPG) allows Status Log to be populated with a message when an emergency patch is installed (February).

- Software Build 22.1 (RDA/RPG) was deployed (March).
- Build 22.1 (RPG) made security updates to the recently updated Red Hat 8.0 (March).
- Build 22.1 (RPG) set MPDA and Base Tilt bits into the RDA Local VP Definitions (March).
- Build 22.1 (RPG) added additional base tilt sites. They are KBMX (i.e., +0.4°) and KMOB (i.e., +0.2°) (March).


- ROC El Techs arrived onsite to assist and help with the continued preparation of bringing the Hammonds radar online (March).



- Software Build 7.2 (NPN) has been prepared for development and testing (March).
- ROC personnel have completed installation of equipment. The radar came online (i.e., KHDC) and began transmitting data late in the month (March).

- KHDC became base tilt site (i.e., +0.3°) when the radar was brought online (March).
- Software Build 14.0 (NL2) was loaded remotely on all sites (April).
- Build 14.0 (NL2) load schedule was adjusted to get back into the spring routine of loading software (April).
- Build 14.0 (NL2) software contained bug fixes, security updates, and changes to accommodate changes to the SPG latency data (April).
- Software Build 14.1 (NL2) kickoff meeting was held (May).
- The ROC has officially decommissioned the NOAA Profiler Network (NPN) (July).
- The operational sites for NPN were Anchorage (AWPA), Homer (HWPA), and Talkeetna (TLKA) in Alaska and ROC in Norman. It was decommissioned due to obsolete equipment and inconsistent data availability which never met the operational availability requirements (July).
- SPG Software Build 15.0 kickoff meeting was held (August).
- Build 15.0 (SPG) will be testing the delayed (i.e., from Build 14.0) SWIM system This is change comes as the FAA removes direct connections to the TDWRs and transitions to SWIM. By this, the SPG will get its data from the TWDR via ITWS → SWIM → OneNWSNet → Distribution Server → into SPG at the WFO (August).
- With the completion of Pedestal SLEP at KMSX (Missoula, MT), the ROC has completed the nine-year SLEP project (August).
- The SLEP upgrades, as recapped in the *News Around NOAA* Report, were Digital Signal Processor Refresh: The computer equipment that controls the radar and processes the radar data was modernized, Transmitter Refresh: The transmitter components were redesigned and all infrastructure wiring was replaced to improve reliability and maintainability, Pedestal Refurbishment: All moving components in the radar pedestal that rotates the radar dish were inspected and replaced or refurbished, Equipment Shelter Refurbishment: The shelters that house the radar

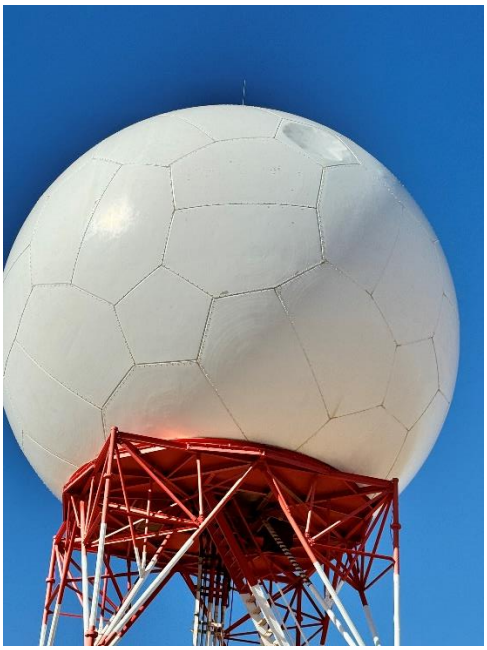
and generator equipment were refreshed with new paint, seals and doors as needed, and New Generators: The emergency generator, used to keep the radar running in the event power is lost, was replaced to meet compliance with EPA guidelines and address emerging obsolescence (August).

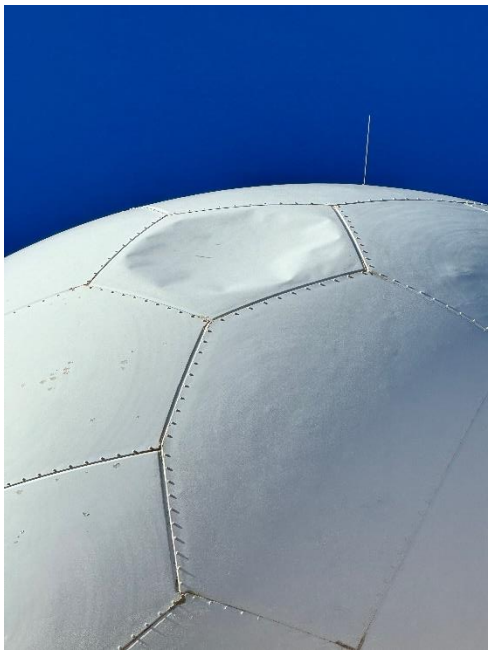
- Additionally, the SLEP project was completed on time and under budget. This upgrade is expected to extend the operability of the radars beyond 2035 (August).
- The ROC did a complete renovation and upgrade to the internal and external (public) ROC websites (August).
- Software Build 23.1 (RDA/RPG) Kickoff Meeting was held (October).
- Software Build 14.0 (SPG) is deployed to the radar sites (October).
- Build 14.0 (SPG) contains software security updates and SPG Processor refresh (October).
- Software Build 14.1 (NL2) deployed to the sites (October).
- Build 14.1 (NL2) contained security updates (i.e., the IPv6 dual stacking), removing of KCRI_LDM-specific code, and addition of Hotline accounts and sudo access for chronyc (October).
- Software Build 23.1 (RDA/RPG) began (i.e., Integration) testing (October).
- Software Build 23.0 (RDA/RPG) is deployed (November).
- Build 23.0 (RDA/RPG) hardware changes include removing the RPG UPS and updating RPG Processors (RPG A and RPG B) and KVM with new ones (November).

- Build 23.0 (RDA) enhancements include no Maintenance Required (yellow) alarms for Linux User/Root Password login (November).
- Build 23.0 (RDA) added Adaptation Data Items (i.e., Encoder Alignment, IFDR Acquisition Frequency, RF Generator COHO Frequency), added Performance Maintenance Data (PMD) information (i.e., Wideband T1 and Dedicated/Commercial Ethernet Port Status), updated usage on STS and Log Data

(November).

- Build 23.0 (RPG) enhancements include updates to Shift Change Checklist (i.e., adding 1) RDA/RPG Build Info, 2) Add MPDA Status, 3) Wideband T1 & Ethernet Status, 4) VPRC Status, 5) Number of Exclusion Zones for PPS & QPE, 6) Dedicated User RPS List Size, 7) Bypass Map Last Update Date/Time, 8) Equip Shelter Temp, 9) A/C Unit 1 & 2 Temps, 10) Aircraft Hazard Light Status, 11) AME Internal Temp, 12) RDA Level 1 Recording Status, 13) RDA Log Transmission Status) (November).
- Build 23.0 (RPG) removes certain radar products (i.e., Layer Composite Reflectivity, Radar Coded Message, Composite Reflectivity Edited for AP, and Clutter Likelihood Doppler (November).
- Build 23.0 (RPG) added Unfiltered Differential Reflectivity (SDZ) (i.e., referred to as Raw ZDR and it is Product 198), and updated with new GTK windows to RDA Control/Status, RPG Control, and Archive II GUIs (November).
- Build 23.0 (RPG) added Vertical Profile of Reflectivity Correction (VPRC) for QPE. It minimizes discontinuity in/above the melting layer (ML), using R(Z) and contains no multiplier in/above ML (dry snow/ice crystal) (November).
- Build 23.0 (RPG) added additional base tilt sites. They are KEVX and KDOX (November).
- Build 23.0 (RDA/RPG) added a new long pulse (i.e., VCP 34). It is a Clear Air that has SAILS x1 available for usage and scans the same elevation angles as VCP 35 (November).
- Build 23.0 (RDA/RPG) made Multi-PRF Dealiasing Algorithm (MPDA) available for VCP 212 and VCP 215 (November).
- After a passing of a thunderstorm, damage was found to KMAF radome panel. The damaged panel was located on the northeast side of the dome (November).





- A site survey was performed on the radome during this period. It was determined that prior to the storm damage the entire radome needs replacing due to mushy panels (November).
- Software Build 15.0 (NL2) kickoff meeting was held (December).