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Issue 15

# Real-Time WSR-88D Level II Data Collection & Distribution

Did you know that the National Weather Service (NWS) listed making WSR-88D Level II data widely available as one of the Top 10 NWS accomplishments in 2004? Do you know how the Level II data flows from 133 sites in real time and how government and private sector users are using Level II data? Read on to learn more about this exciting new capability.

**Background**

Level II data are the base data used by the Radar Product Generator (RPG) to generate products. Beginning in the early 1990s, the data were archived on 8 mm tapes at the Radar Data Acquisition shelter and mailed to the archives at the National Climatic Data Center (NCDC). Beginning in 1999, in a project termed CRAFT (Collaborative Radar Acquisition Field Test), Level II data were compressed and sent via 56 kbps lines to the NCDC and users for real-time use. The success of this project led to a NWS announcement in January 2003 that a Level II data collection and redistribution network would be implemented across the country using a standard configuration of hardware, software, and 128 kbps communication lines. The last stage of this implementation was completed near the end of 2004. All NWS WSR-88Ds and 12 (13 by the end of 2005) of the 21 Department of Defense (DoD) radars in the contiguous US are on the network. A list of the sites is located at: http://www.roc.noaa.gov/NWS_Level_2/ListOf_Level2_Sites.pdf, and a depiction of the network architecture is located at: http://www.roc.noaa.gov/NWS_Level_2/FOC_LDM_Architecture_v5.pdf.

**Users**

There are approximately 10 federal organizations, 22 universities, and 12 private sector companies using real-time Level II data to support operations and other applications. The commercial users in turn provide the data and value-added products to over 100 television stations nationwide. The users require a reliable flow of high quality, real-time Level II data.

**Data Delivery**

The Telecommunications Operations Center (TOC) staff checks the Level II network for outages twice daily. If they detect an outage at a site, they will contact the local weather forecast office (WFO). The WFOs

*(Continued on page 4)*

## What's Inside?

# New Transmitter Tuning Technique

ROC Engineering has performed extensive research in the area of transmitter operation with particular emphasis on the subject of transmitter tuning. As a result of this effort, a Publication Change Request (PCR) is in preparation, which completely revises and simplifies the transmitter tuning procedure following field replacement of the Klystron. The overall objective of the procedure, as always, is to produce a reasonably flat radio frequency (RF) pulse envelope, which meets the requirements for 700+/- 50 Kw peak power and one which meets the radar spectrum engineering criteria (RSEC) requirements for a radiated spectrum. Details of the new procedure are outlined below with particular emphasis on the differences between the old and new procedures.

**RF Drive Power**

The new procedure requires setting the RF Drive power to the same peak power as appears on the manufacturer's data sheet. This is 7.5 watts peak in the case of L3-Comm (Litton) tubes and 2 watts peak in the case of CPI Klystron tubes. In several iterations of the new procedure, it has not been necessary to change the initial setting due to the overdrive (dog ear) condition discussed in the old, i.e., present procedure.

**Initial Cavity Tuning**

As in the past, it is essential to begin the tuning procedure with a valid Klystron data sheet. Initial cavity settings start with properly zeroed Veeder Root counters and the initial cavity tuning settings, per the manufacturer's data sheet.

**Pulse Parameter Measurements**

Modern oscilloscopes such as the Tektronics 420, have built in measurement capabilities to measure rise time, fall time and positive pulse width. This capability has been determined to be particularly usable in the tuning process and is utilized to measure and adjust these parameters. This has proven to be much simpler and more efficient than the old method.

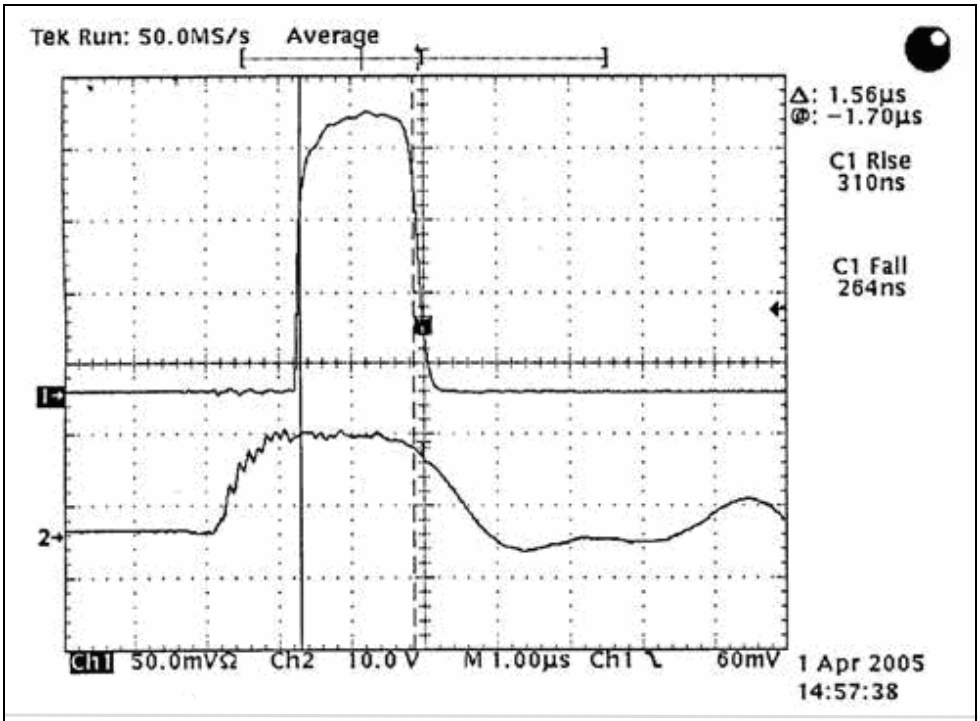


**Figure 1:** Detected pulse resulting when the transmitter is brought up with all cavities set to data sheet values.

**RF Bracketing**

It has been empirically determined that a delay of 1.2 +/- .05 usec (short pulse) and 1.6 +/- .05 usec (long pulse) yields near perfect positioning of the RF sample with respect to the start of the cathode current at 3A7A1TP2. A pulse rise time of 150 +/- 25 nsec, which meets the RSEC spectrum requirements, is the criteria for proper RF bracketing. This delay is measured with the vertical cursor capability of the scope. This is a major simplification over the present method.

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# Transmitter Tuning *(Cont.)*

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**Pulse Width**

Pulse width is set after RF bracketing to 1.57+/- .05 usec using the positive pulse width capability of the oscilloscope.

**Cavity Tuning**

It is only necessary to adjust cavities 4 and 6 to accomplish optimum cavity tuning. Cavities 2 and 3 are set by the manufacturer to have a specific tuning offset from the center frequency. This offset is difficult if not impossible to simulate in the field since it is not possible to offset the center frequency of the frequency generator 4A1 in order to peak cavities 2 and 3. The effect of the offset of cavities 2 and 3 is that the Klystron is stagger tuned rather than synchronously tuned for optimum performance. In view of this, cavities 2 and 3 shall not be moved from their data sheet values.

Figure 1 shows the detected pulse, which results from bringing the transmitter up with all of the cavities set to data sheet values. Cavity 4 is adjusted to fill in the front edge to achieve a reasonably flat top and to produce a rise time of 150 +/- 25 nsec. Figure 2 shows the setting of cavity 4 which is optimum, usually about 4 counts lower than data sheet and Figure 3 shows the result of tuning cavity 4 a bit too low. After adjustment of cavity 4, cavity 6 is adjusted for peak amplitude, usually less that 0.5dB from data sheet value. It is not necessary to alter the cavity tuning for long pulse operation.

**Peak Power**

The peak power is measured at the output of 1AT4 to a value which corresponds to 700+/- 50Kw by adjusting the pulse forming network (PFN) voltage not to exceed 5200 volts as shown on the front panel meter. Usually, a voltage setting of 4600 to 4800 is obtained. Once the cavities are tuned as above, the cavities should NOT be altered to obtain the required peak power. This is the task of the PFN voltage adjust.

**RSEC Spectrum Requirements**

A critical reading of RSEC, the governing document which specifies the requirements of the radiated spectrum, may lead to the interpretation that the -40dBc and -80dBc spectrum values need to be symmetrical about the center frequency. Consultation with the authors of the document revealed that symmetry of spectrum requirements was never the authors' intent as long as the FULL bandwidths met the specified requirements. In the case of the WSR-88D, this would be a FULL -40dBc bandwidth of

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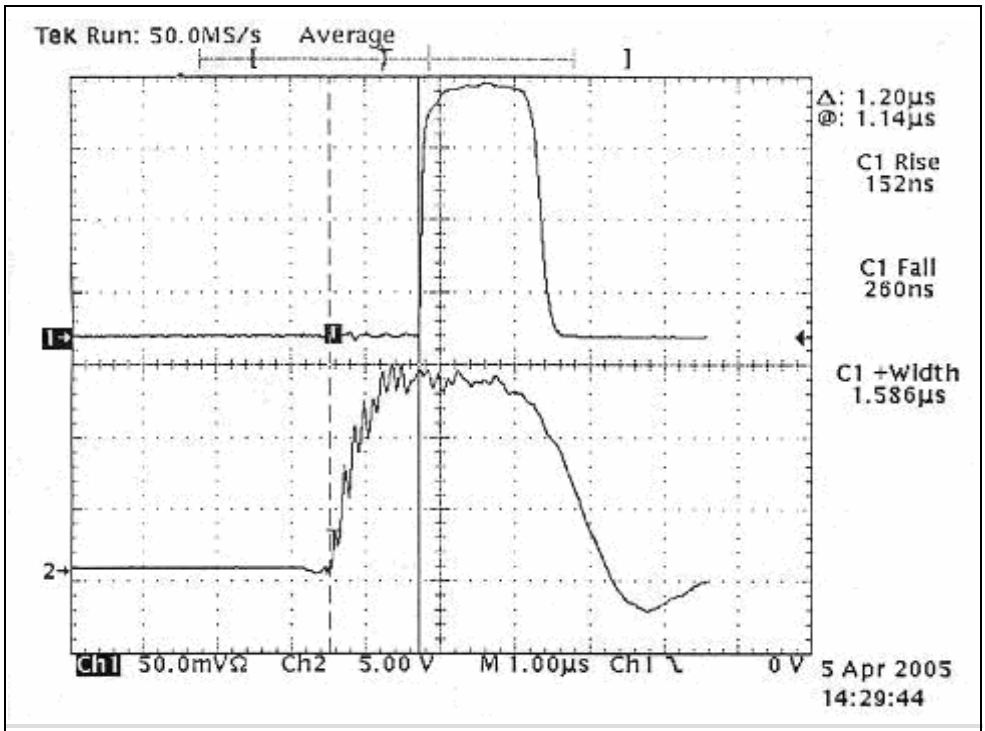


**Figure 2:** Detected pulse with cavity 4 at optimum setting.

# Transmitter Tuning *(Cont.)*

*(Continued from page 3)*

14.5 Mhz and a FULL -80dBc bandwidth of 145 Mhz. These requirements are met with the proposed tuning procedure. Symmetry of requirements about the center frequency is no longer required.

**Summary**

Revision 2 of the transmitter technical manual will contain the above described tuning changes, which takes into account the legacy, as well as the ORDA system environment. The proposed procedure more closely emulates the tuning procedure used by the manufacturers and should reduce tuning correlation difficulties. ROC Engineering estimates the incorporation of these changes will reduce the amount of time required to accomplish tuning and provide more consistent results; reduce the amount of training required; and provide a significant reduction in field rejection of viable tubes.

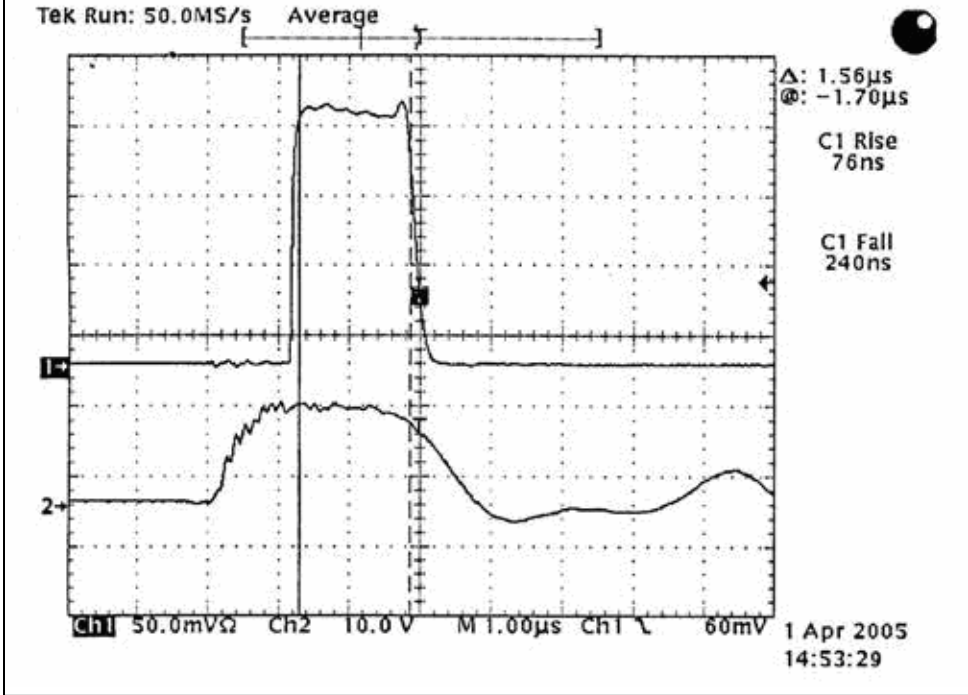


**Figure 3:** Detected pulse with cavity 4 set too low.

William Urell
ROC Engineering Branch

# Level II Data Collection *(Cont.)*

*(Continued from page 1)*

check the status of the Level II data flow during normal station checks. The Level II data flow can be checked at: http://weather.noaa.gov/monitor/radar2/. If the TOC notifies a WFO of a Level II data flow problem or the problem is discovered locally, the maintenance staff are contacted or other local procedures are used to attempt to restore the data flow. The WSR-88D Hotline is available to assist with Level II problems on the WSR-88D.

**Future**

The Environmental Modeling Center plans to begin operationally using Level II data in the North American Mesoscale Model (NAM) beginning next spring. Also, more government and private sector users will likely develop additional applications of real-time Level II data as the reliability of data delivery increases.

Tim Crum
ROC Director's Office

# NEXRAD OPS - *Hot Topics*

**Topic 1: Hotline Coverage**

The Hotline is staffed 24 hours a day by electronics maintenance technicians and from 7:00 am to 7:00 pm Central time, on business days, by meteorologists. Operations calls after hours, which cannot be resolved by the electronics maintenance specialist on duty, will be responded to by an operations specialist at the start of the next business day. If a site is experiencing an urgent need for operations assistance after hours (impending severe weather, etc.), be sure to inform whomever takes the call. When Radar Operations Center (ROC) managers determine the weather situation requires continuous meteorologist coverage, the Hotline will be so staffed. The meteorologists relocated to other branches and teams in the Radar Operations Center, are continuing to apply their unique knowledge, skills, and abilities related to radar meteorology and NEXRAD operations to benefit the Network.

**Topic 2: Unit Radar Committee (URC) Meetings**

The Field Support Team in the Operations Branch of the ROC participates via teleconference in NEXRAD unit radar committee meetings. To request our participation, please contact the Hotline at 800-643-3363 or the Field Support Team Leader at 405-573-8866. Alternatively, a request can be made via e-mail by writing to nexrad.hotline@noaa.gov. At the time of the request, please make known any particular interest or specific questions and the ROC participant will be prepared to discuss the items with the URC committee. Due to limited staffing, please provide as much lead time as possible. In return, we can provide update briefings on upcoming software builds and other topics based on the needs of the site's URC.

**Topic 3: Open RDA (ORDA)**

Installation of this major upgrade will require approximately three days of down time, a significant impact for both technicians and operators. What are the benefits? For operators, they include clutter suppression which is more intuitive and less cumbersome, using the new Gaussian Model Adaptive Processing (GMAP) technique. Also, an increase in quality of the base data will be evident, which will improve the quality of all downstream products. And finally, ORDA installation sets the groundwork for "super resolution products" and "dual polarization". For technicians, quite a bit of the receiver cabinet will be removed (the IF section) and there will also be a slick, new maintenance interface for easier calibration and troubleshooting. In preparation for the changeover, site technicians are asked to make sure all modification and software notes are up to date, and the radar is operating nominally, with no alarms. For dual thread sites, it is important that both channels be alarm free. More information, including tentative scheduling is available at: http://www.orda.roc.noaa.gov/ (this link can be accessed from ROC Home page as well). If there are problems, concerns, or questions, give the Hotline a call.

**Topic 4: Advanced Weather Interactive Processing System (AWIPS) Connectivity Support**

WSR-88D Hotline Field Support and a team of points of contact (POCs) with representation from FSL, NCF, SST, and OST have updated the site-specific AWIPS radar file help sheets to encompass changes relating to dual wide area network (WAN) one time requests (OTR) port access, dial access permissions changes resulting from the National Weather Service (NWS) Dial Reduction initiative, River Forecast Center (RFC) AWIPS connection upgrades from 14.4 Kbps to high speed TCP/IP, and AWIPS to Supplemental Product Generator/Terminal Doppler Weather Radar (SPG/TDWR) connectivity. Draft AWIPS Other Modification Notes (OMN) to convert the RFC AWIPS connections to TCP/IP and to connect AWIPS to the

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# Future WSR-88D Software Releases

During the recent deployment of Radar Product Generator (RPG) Software Build 7.0, ROC Engineering continued work on software Build 8.0, which is scheduled for release to field sites beginning April 10, 2006. The configuration change requests (CCRs) selected and approved for implementation in software builds can be viewed at: http://www.roc.noaa.gov/ssb/cm/sbuilds/. The major upcoming software changes are listed below.

- Changes to Support Open Radar Data Acquisition (ORDA) Development and Deployment. The software is required for the redundant version of ORDA.
- Changes to Support Federal Aviation Administration (FAA) Telecommunications Infrastructure. These changes support the FAA Weather and Radar Processor (WARP) migration to digital communications. The change will enable WARP to use high resolution products and ingest products produced from faster volume coverage patterns (VCPs).
- Storm Cell Identification and Tracking Algorithm (SCIT) Enhancement. Filtering the input data to SCIT algorithm will improve storm cell identification and tracking. Tests have shown fewer storms will be identified and large storms near the radar are less likely to be fragmented.
- Clear Air VCP Selection and Manual Override. This change includes an option for an automatic switch from a precipitation VCP to a clear air VCP.
- Radar Product Generator (RPG) – Advanced Weather Interactive Processing System (AWIPS) Interface Changes. These changes will increase the flexibility of AWIPS to receive data from adjoining radars: enable the addition of products to default generation for Class 2 users, provide an expansion to 128 kbps for Class 2 wide area network (WAN) ports from all RPGs, reduce port contention, and add ports for central product collection backup.
- Precipitation Algorithm Improvements. This software will replace the Precipitation Detection Function with an improved input that removes more clutter and anomalous propagation.
- Changes Required for RPG Refresh. These changes are part of the planned replacement of the RPG processor (LINUX based) coincident with the Build 9.0 software release (starting in April 2007).
- General Software Maintenance. Changes will be made as required to meet security requirements and correct significant issues that will improve radar operations.

In addition, the default precipitation VCP adaptation data sent to field sites with Build 8.0 will continue to be VCP 21. However, sites will be given the authority to change the default VCP to VCPs 11, 12, or 121 based on Unit Radar Committee agreement.

Tim Crum
ROC Director's Office

***NEXRAD Now*** is an informational publication of the WSR-88D Radar Operations Center (ROC).

We encourage our readers to submit articles for publication. Please e-mail all articles and comments to:

**ruth.e.jackson@noaa.gov**

All previous issues of *NEXRAD Now* can be viewed on the ROC Home Page at:

**http://www.roc.noaa.gov/nnow.asp**

Director.....Richard Vogt
Deputy Director.....Terry Clark
Editor.....Ruth Jackson

# On the Comms Front...

**RFC AWIPS Connections To Build 7.0 RPGs Can Be Upgraded To High Speed TCP/IP**

Radar Product Generators **(**RPG) Software Build 7.0 deployed with built-in TCP/IP support for co-located River Forecast Center **(**RFC) Advanced Weather Interactive Processing System (AWIPS) systems. All current AWIPS Builds support the transition. The RFC AWIPS TCP/IP connection will use the existing physical 10/100 Mbps local area network (LAN) connection between the Weather Forecast Office (WFO) AWIPS and RPG. No new cabling or hardware is required, only a minor change to a few RFC AWIPS configuration files! A procedure for the AWIPS conversion and accompanying updated site specific AWIPS radar file help sheets will deployed to all RFCs to support the transition by the WSR-88D Hotline Field Support Team.

**FAA Telecommunications Infrastructure (FTI)**

FTI is the target enterprise network for the Federal Aviation Administration **(**FAA) and will ultimately result in a transition of all FAA WSR-88D display systems (WARP, ITWS, MIAWS, MEARTS) telecommunication services. WSR-88D hardware engineering change proposal 0229 (ECP **0229** - *Development of the Digital NEXRAD to WARP Interface*) will provide the initial Weather and Radar Processor (WARP) transition from MCI LINCS analog to FTI digital telecommunication service. Initial RPG software support for the digital (frame relay) transition will be deployed with Build 8.0. FTI has identified 49 WSR-88D locations where existing MCI LINCS services will need to be transitioned to FTI analog through March 2006, and that number of locations could grow. The early analog transition to FTI is necessary because some of the backbone nodes need to be moved off of MCI LINCS well in advance of the MCI LINCS contract expiration. Additional details will be sent to all offices and more info about FTI is available from: http://www.faa.gov/programs/fti/overview.htm.

**Supplemental Product Generator(SPG) and Terminal Doppler Weather Radar (TDWR)**

SPG/TDWR connectivity to AWIPS is expected to begin deployment this summer. (See *NEXRAD Now,* Issue 14 for an excellent overview of the TDWR and advantages its data offers National Weather Service (NWS) operations.) In addition to six TDWR-to-NWS prototype connections that were slated to be transitioned to SPG/TDWR by the end of September, additional funding has been allocated to establish connectivity to five additional SPG/TDWRs at coastal locations in the south. The addition of the SPG/TDWR connections at southern coastal locations will augment existing WSR-88D data and potentially serve as a backup radar system in the event of the loss of a WSR-88D during a tropical system landfall. An AWIPS Other Modification Note for the addition of the SPG/TDWR connections to AWIPS has been drafted and submitted and updated site specific AWIPS radar file help sheets will also be deployed by the WSR-88D Hotline Field Support Team in parallel with the SPG/TDWR spin-ups.

**DoD WSR-88D to NWS AWIPS**

All Department of Defense **(**DoD) WSR-88D to NWS AWIPS dedicated connections in North America and Guam, *and all FAA WSR-88D to NWS AWIPS connections, have been converted to TCP/IP.* Secondary DoD and NWS WSR-88D-to-AWIPS TCP/IP connections were completed through the Fall of 2004 and the Summer of 2005. Eighty-eight new digital circuits were implemented, establishing a total of 56 RPG to AWIPS TCP/IP connections! All the new connections with the exception of Guam employ frame relay.

**ROC Managed Network**

The Radar Operations Center (ROC) managed network will build on the existing frame relay network infrastructure and establish new permanent

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# Comms Front *(Cont.)*

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virtual circuits (PVCs) between the ROC and the 55 RPGs now supporting frame relay. The primary objective of the managed network capability will initially focus on remote connectivity support. This change will permit the ROC to better assist with troubleshooting and support requirements. Later, capabilities may include ROC connectivity to all WSR-88D routers.

**Commercial Wideband Consolidation Initiative**

The commercial wideband consolidation initiative has been completed and 36 new T1 circuits were deployed as a result. Included with both the new frame relay and Radar Data Acquisition (RDA) to RPG T1 telecommunications are new Web based support tools that enable comprehensive support of those telecommunication services. The big gain from the Web based access has proven to be the ability to extract trouble ticket notes in near real-time from the telephone companies. The ability to establish Web based *site accounts* with MCI for an NWS field site has been demonstrated and in the near future Hotline Field Support hopes to deploy that capability to all offices supporting either MCI NEXRAD frame relay or RDA-RPG T1 circuits. Via the site account each office should be able to better support their circuits whenever circuit problems are encountered.

**Dual WAN OTR Port Access for AWIPS Priority Users**

AWIPS wide area network **(**WAN) one time request **(**OTR) access was initially assigned to one RPG WAN OTR port only. RPG WAN OTR ports are seen via the Product Distribution Comms Status screen lines 41 and 42. Access was initially limited to either Port 41 = the "Priority" port, or Port 42 = the "General Purpose" port.

Access to Port 41 was limited to no more than 10 users on every RPG. This measure was undertaken to ensure "priority users" would have fewer contention problems connecting to needed radars via WAN OTR. *Priority users are defined as the immediately adjacent WFO's, RFCs whose area of responsibility is covered by the radar, and select national centers.* All other non-associated users were aggregated on port 42 and could be considered "general purpose" users.

Despite attempts to minimize contention problems on the priority port, it was noted that during severe weather events priority users encountered data collision problems. It has therefore been decided, and supported by existing AWIPS and RPG software, to allow "priority users" to have access to both WAN OTR ports.

The way it works in a nutshell: orpgInfo.txt will now be populated with a data line for both the priority and general purpose port data line for those radars where the end user's system is considered to be a priority user.

The result of this change will be that when a WAN OTR is initiated (see AWIPS Other Modification Note 26 for more background) to the RPG where the end user system is considered a priority user, the AWIPS software will read the first radar data line it comes to in orpgInfo.txt for the selected RPG and attempt to access the priority port. If the initial attempt to connect fails for any reason, the software will read the next data line it encounters and attempt to establish a connection on the general purpose port. Updated AWIPS radar file help sheets enabling Dual WAN OTR access are being deployed NWS-wide by Hotline Field Support.

Users assigned to the general purpose port can look forward to RPG Build 7.0 to further mitigate the likelihood of data collisions by expanding the current flow control on both WAN OTR ports. The flow control on NWS Build 7.0 RPGs will be expanded from 14.4kbps to 64kbps and from 14.4kbps to 28.8kbps on DoD and FAA Build 7.0

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# Comms Front *(Cont.)*

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RPGs. Build 8.0 will go further by adding two addtional WAN OTR ports and employ aggregate flow control bandwidth up to 128kbps across all four ports!

**NWS Dial Reduction**

NWS dial reduction is well underway. With the advent of WAN OTR operations for non-associated AWIPS, the current complement of NWS funded dial-in lines on all RPGs will be reduced by half. Similarly, the number of AWIPS dial-out lines are being reduced to one dial-out line per AWIPS WFO and RFC system. The total number of lines targeted for reduction is 377. It is anticipated that all targeted lines will be disconnected around the end of summer 2005. In parallel with RPG dial line reductions, AWIPS dial access requires re-evaluation in order for X.25 dial access to remain a viable backup option. In order for X.25 dial to remain a viable option, recall that RPG dial ports continue to operate at only 14.4 Kbps, dial access has to be restricted to as few users as possible. The "priority user" and "port contention" concepts discussed with Dual WAN OTR access are equally applicable to dial ports. Consequently, X.25 dial backup access is being shifted so that only priority user will retain X.25 dial backup. First pass attempts at redistributing AWIPS dial access are being completed and provided to the NWS Regional Focal Points for review and final approval before fielding the resulting changes. The end results will be incorporated into updated AWIPS radar file help sheets and deployed with updates for Dual WAN OTR access by Hotline Field Support, NWS-wide.

**Navy Step Down**

As a result of WSR-88D product availability via the Internet, the Navy has indicated it will remove Navy funded dial lines on WSR-88D RPGs and eventually step out of the NEXRAD program entirely. The Marine Corps, however, will continue to support its weather units employing Open PUPs (OPUPs) and the OPUP dedicated telecoms. The Navy has promised a schedule for tracking the Navy OPUP shutdowns. As Navy systems are shutdown, or their dedicated circuits are discontinued, Hotline Field Support will update site communications documentation to reflect the change. Affected WSR-88D locations will then be sent a memo identifying the change and requesting the site download their updated communications documentation from the ROC Web page.

**RPG Moves**

The Key West, FL forecast office and KBYX RPG are projected to move into a new office in the Fall of 2005. The State College, PA forecast office and KCCX RPG are projected to move into a new office in the November to December 2005 time frame. The Norman, OK forecast office and KTLX RPG are projected to move into a new office in the Summer of 2006. The Sterling, VA WFO and KLWX RDA are projected to move in the late 2007 to mid 2008 time frame.

**NWS Private T1 Fiber Optic Project**

Two contract deployment teams began the week of July 18, 2005 on separate legs to work the fiber optic conversions for all NWS RDA-RPG private T1 links. There are 65 field site and 3 support location conversions in the continental United States (CONUS). Deployments are estimated to be complete in December 2005. Modification Note 88 addresses the fiber optic conversion and was released NWS-wide via EMRS on 07/18/05.

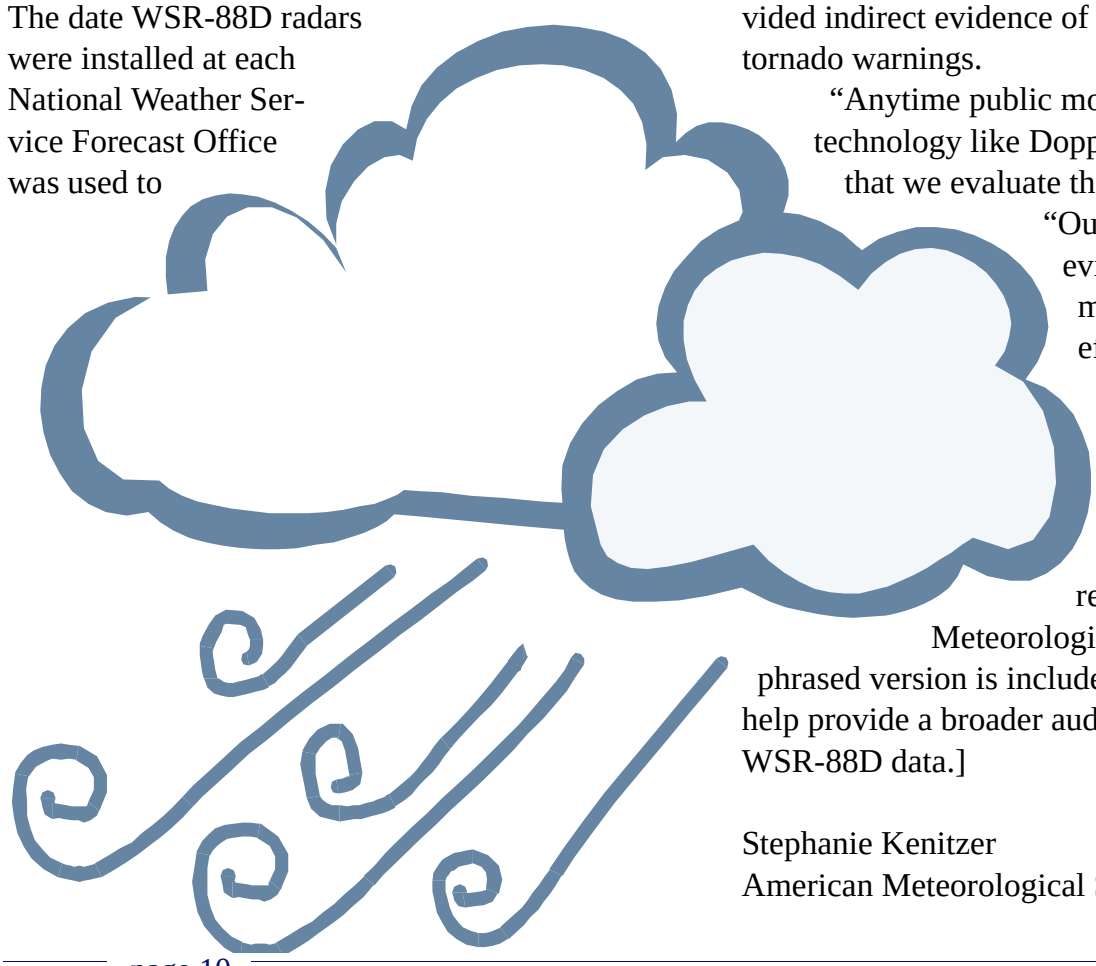
Questions about any of these initiatives can be directed to Mark Albertelly, WSR-88D Hotline Telecommunications & New Systems Interfacing POC, at (405) 573-8841.

Mark Albertelly
ROC Operations Branch

# Researchers Demonstrate WSR-88D Helps NWS Forecasters Save Lives

Tornado warnings have improved significantly and the number of tornado casualties has decreased by nearly half since the network of WSR-88D radars were installed nationwide by the National Oceanic and Atmospheric Administration's National Weather Service according to a study published in the June 2005 issue of *Weather and Forecasting*, a journal of the American Meteorological Society.

The researchers, Kevin Simmons from the Department of Economics and Business at Austin College in Sherman, Texas, and Daniel Sutter from the Department of Economics and Cooperative Institute for Mesoscale Meteorological Studies at the University of Oklahoma in Norman, Oklahoma analyzed a dataset of tornadoes that occurred in the contiguous United States between 1986 and 1999. The date WSR-88D radars were installed at each National Weather Service Forecast Office was used to divide the sample for comparison.



The percentage of tornadoes warned for almost doubled - from 35 percent before WSR-88D installation to 60 percent after installation. In addition, the mean lead time of warnings increased more than four minutes, from 5.3 to 9.5 minutes.

The researchers also conducted a regression analysis of tornado casualties, which revealed expected fatalities and expected injuries were 45 percent and 40 percent lower for tornadoes occurring after the WSR-88D radar was installed at NWS Weather Forecast Offices. Their analysis, which controlled for the characteristics of a tornado and its path, also found expected casualties were significantly lower for tornadoes occurring during the day or evening than late at night throughout the sample. This provided indirect evidence of the life saving effects of tornado warnings.

"Anytime public money is used to invest in a technology like Doppler radar, it is important that we evaluate the results," Simmons said. "Our study provides strong evidence that this investment has had a significant effect on reducing injuries and fatalities from these storms."

[Information in this article also appeared in a June 9, 2005 news release from the American Meteorological Society. This paraphrased version is included in *NEXRAD Now* to help provide a broader audience to all users of WSR-88D data.]

Stephanie Kenitzer
American Meteorological Society

# Award Winning Staff

The WSR-88D program is staffed by dedicated professionals around the world. Here at the ROC we are proud of our employees, many of whom have been recognized for their outstanding work and commitment to excellence.

The ROC Employee of the Quarter (EOQ) and Team Member of the Quarter (TMOQ) Awards were established for the ROC Awards Program to recognize people who:

- Demonstrate exceptional performance
- Exceed normal customer service
- Perform a worthy non-duty related act
- Accomplish a unique short-term project or special assignment
- Accomplish an office productivity and efficiency enhancement of procedures
- Produce an office morale enhancement through teamwork.

Winners of the ROC EOQ and TMOQ are presented with a framed certificate signed by the ROC Director and the winner's name is engraved on a plaque in the large conference room in the ROC South building and on a plaque in the lobby of the ROC North facility. Winners are also considered for NOAA Employee and Team Member of the Quarter and other awards.

The winner of the Employee of the Quarter for the second quarter fiscal year 2005 is **Kathe Schofield**, an IT Specialist in the Information Technology & Services section in the ROC Director's office, and the winner for the Team Member of the Quarter is **Art Bauer**, an RS Information Systems (RSIS) employee in the Program branch.

Staff in the ROC Engineering branch are recipients of both awards for the third quarter fiscal year 2005. **Zach Jing**, a Computer Scientist is winner of the Employee of the Quarter, and RSIS employee **Glenn Secrest** is Team Member of the Quarter.

Nancy Olson
ROC Administrative Officer

# OPS - *Hot Topics (Cont.)*

*(Continued from page 5)*

SPG/TDWR have been submitted for approval. Each of the OMN's work hand-in-hand with the updated radar file help sheets. AWIPS Operational Build 6 (OB6) will stratify WAN OTR and dedicated radar processes and require a substantial restructuring of the help sheets. The Team has already begun redesigning the help sheets to encompass the changes necessary for Operational Build 6.

The WSR-88D Hotline continues working closely with all Telco providers of WSR-88D telecommunication (telecomm) services. Those communication support synergies have recently expanded to include NEXRAD commercial wideband telecomms and DoD, FAA, and NWS Radar Product Generator (RPG) to AWIPS frame relay services. The Hotline now has the capability of monitoring commercial wideband and frame relay services in near real time and receives auto-notifications whenever a trouble ticket is opened on any one of the approximately 1,000 NEXRAD dial and dedicated circuits supported by the tri-agencies. By keeping abreast of potential telecomm problems, the Hotline is able to intercede and provide value added support whenever it appears that support will better serve the customer.

**Topic 5: Wind Farms**

Some radar sites now have wind farms within detection range. With the dramatic increase in the numbers of these farms being installed, more and more radar sites, especially (but not only) in the Plains, will be affected. The ROC is studying the impact of these wind farms on NEXRAD products, and is seeking ways to mitigate their impact on data quality.

Tony Ray
ROC Operations Branch