



NEXRAD NOW

Issue 4

October, 1997

RECOATING THE RADOMES

Many of the WSR-88D radomes are starting to show the effects of several years exposure to the elements. In order to preserve the integrity of the fiberglass panels in the years to come, the radomes need to be recoated. The OSF has been conducting a coordinated effort to identify a suitable yet affordable coating.

Extensive testing was done for six months at the laboratories at Sacramento Air Logistics Center, McClellan AFB. A variety of types of coatings were tested on two actual radome panels for propagation loss (using a large anechoic chamber), ability to shed water, weatherability (resistance to UV radiation, wind and blowing dust or sand), adherability to the panel surface, environmental restrictions, and ease and cost of application.

The top coating candidates were identified and a three person radome team from McClellan AFB traveled to Miami and Melbourne in May to conduct the actual recoating. The team first sanded the entire radome, then scrubbed it with detergent and water, then applied the coating with rollers. By using four temporary 2' X 8' platforms and the four tower corner posts, the bottom 1/3 of the radome was easily accessible. By repelling from the top, the rest of the radome was reached.

The results were impressive. The first choice of coatings, Ameron PSX-700, a two part epoxy coating, covered the panels and seams with one layer, did not need a primer, and did not sag or run. This coating was used at both sites. By rolling it on, this coating can be used at all WSR-88D sites and be in compliance with environmental restrictions. By not requiring a high lift, the work procedures can also be used at all sites. No toxic wastes were produced by either the application or the cleaning up. Eleven test panel pieces had portions painted with the top two coatings and shipped to various sites around the CONUS, Alaska, and Hawaii. These 2' X 2' pieces were mounted on the towers and will provide additional exposure tests for the coatings.

Twenty-one sites have now been selected to be recoated in conjunction with the periodic depot preventive maintenance inspections this 1998 fiscal year. Sterling, VA, and State College, PA, will be the first two sites done starting this September, 1997. The Ameron coating has also been formulated into the five colors that the WSR-88D radomes require. The combined PMI, recoating, and panel repair schedule is available on the OSF Web page at http://www.osf.noaa.gov/ops/pmi_fy98.htm.

Russ Cook, Engineering Branch
Rich Rasmussen, Depot Level PMI Coordinator

Comparing Rawinsonde and WSR-88D Wind Profiles

Since nationwide deployment of the WSR-88D system began, the OSF has received reports from the field concerning Velocity Azimuth Display (VAD) Wind Profiles (VWP) which do not agree well with balloon-borne wind profiles. This potential problem has been investigated by personnel in the OSF Applications Branch. A project was initiated to determine the magnitude, extent, and cause of vertical wind profile disagreements among rawinsonde, profiler, and radar derived wind estimates.

A report describing the data analysis and comparison of result from sounding, radar, and wind profiler data collected from KAMX (Miami, FL), KMLB (Melbourne, FL), and KSC (Kennedy Space Center) from June 1994 through November 1995 is on the OSF Home Page http://www.osf.noaa.gov/app/app_BL3.htm.

Bob Lee,
Applications Branch



Director's Dialogue
James D. Belville, Director
WSR-88D Operational Support Facility

It's difficult to believe that the WSR-88D is nearing its 10th anniversary. In 1988, the first system was built and delivered to Norman, Oklahoma, with the Operational test and Evaluation (OT&E) occurring in 1989. Deployment of the operational systems began in 1990 and was completed this year. However, the real work has just begun.

One only has to think back to where computer technology was in the late 1980's to realize how outdated the present WSR-88D hardware really is. Since delivery of the first system, the scientific knowledge pertaining to radar meteorology, as well as that pertaining to the atmosphere, have increased significantly. Our ability to incorporate this knowledge into the WSR-88D for operational uses is greatly impaired by the present WSR-88D hardware. The NEXRAD Product Improvement effort currently underway at the OSF will greatly enhance the capabilities of the entire radar network. This includes the development on an Open System RPG (tri-agency), the Open PUP (DOD only), and the Open System RDA. Deployment will begin during the next two to three years.

Another addition to the WSR-88D system which operational units will soon see is the Transitional Power Source (TPS). A contract was recently awarded to Excide Electronics Corporation for this project. The TPS will serve a purpose of preventing a disruption in power from impacting operation of the WSR-88D. Delivery of the TPS will begin next spring. The OSF is presently constructing a delivery schedule based on priorities as submitted by the NWS Regions and Air Weather Service Major Commands.

The above mentioned projects are major components of the evolution of the WSR-88D. It is not hard to visualize that concepts for both operations and maintenance will also change. The processes for evolutionary change will continue for the life of the system.



Editor's Notes

Christina M. Smith
Managing Editor

For the past year and a half, I have thoroughly enjoyed serving as the Editor of NEXRAD Now. But now I'm off to the Omaha Forecast Office to assume the role of reader of NEXRAD Now.

NEXRAD Now was created with the intent to foster communications between the OSF and our customers. Based on the feedback we have received, that is being far exceeded. Everyone who has been involved with NEXRAD Now should be proud of its success. From those who write the articles, to those who read NEXRAD Now in the field; you are responsible for making it happen. I encourage you to continue the great work!

While a successor has not been named to serve as the Editor, I know that whoever assumes this role will strive to make this the best publication possible. I hope that you give this person the support and feedback you have given me. Should you have any questions or comments in the interim, please contact Daryl Covey, Field Support Section Chief, at (405)366-6510 Ext. 1232 or dcovey@osf.noaa.gov.

Best wishes to you always!

Resolving Archive Level II Failures

The National Reconditioning Center (NRC), WSR-88D Hotline, and OSF Engineering are embarking on a cooperative effort to compile and release to the field suggestions for resolving Archive Level II failures. We are sensitive to the fact that several sites have not returned data tapes to NCDC for several months. We are concerned that they are frustrated with the device and feel there is no way to end their frustrations. In the near future, either by a FAXBack from the Hotline or technical manual supplement, suggestions or tips for trouble shooting will be issued to all RDA sites.

In troubleshooting some of the Archive Level II problems, we have found that some sites did not have the backplane wired properly. AF TCTO number 31PI-4-108-519, WSR-88D Modification Note 10 and FAA XEEM-6460.2 CHG I for Archive Level II installation contains steps requiring the technicians to install jumpers on the concurrent computer backplane. For assistance in verifying the installation of the jumpers, the technicians should refer to AF TO 31P1-4-108-251, EHB 6560, and FAATI6460.1 V28, section 2-15, or they may call the Hotline.

At one time, the OSF found the 8mm tape drive cleaning tape to be ineffective. Technicians would indicate that they had performed the PMI by inserting the cleaning tape in the tape drive. Unfortunately the tape drive had difficulty recognizing the Perfect Data brand cleaning tape as a cleaning tape and would attempt to write data. The tape drive would reject the cleaning tape and the tape drive heads were not being cleaned. The NRC has purged these tapes from stock. The only cleaning tape currently authorized for field use is the Exabyte Premium Cleaning

Cartridge. If a site still has the Perfect Data cleaning tape, they -should order a replacement cleaning tape. Please note that the Exabyte 18C cleaning cartridge should only be used for 12 cleanings.

OSF engineers have found that some of the Archive Level II problems are not exhibited during routine diagnostics in the field or at NRC. With the deployment of Build 9.0, the OSF now has a way for the field to capture a failure in a data log and then retrieve the results. These results can be interpreted to pin point certain types of failures. If routine troubleshooting is not working, and you have replaced your recording device already, the Hotline can walk the technician through procedures to activate the data log and retrieve the results upon detection of the failure. The data log is not ordinarily used because the file size could quickly become excessive. The fog needs to be activated only in the event you are experiencing problems and there is a need to capture this data.

In order for the Archive II software to work properly, it is mandatory that when the record function is enabled a minimum of two (2) volume scans be recorded to tape before the Archive II device is shut-down or disabled. This ensures that the fast forward algorithm, which requires that there be at least one volume scan on the tape, will work.

On the bright side, Build 10 software, due to be released next year, will send a message to the operator telling him/her when the tape-heads need to be cleaned. Build 10 will also automatically check for the existence of at least one volume scan on the tape; if none exists, the tape is automatically re-initialized.

If you are using a degaussed tape, you may experience problems where the system still feels the tape is not blank. In such cases, the tape will need to be reinitialized. There are several ways to initialize an 8mm tape that has been previously used, but this is the simplest method:

- (1) Install the 8mm tape in the tape drive,
- (2) with the RDA application software not active (i.e. TERP FLOYD entered at the RDA console), at the system console for the RDA type:
STEP(1): *REW EXA: (R e w i n d s 8mm tape to load point)
STEP(2): *D T, EXA: (Writes a foreign header to the tape - A header unrecognizable by the software)
STEP(3): *REW EXA: (Rewinds the tape load point after step (2) is complete).

This tape is now ready to use for Archive Level II purposes. The software will write a new (and correct) label to the tape.

- (3) At this point you can bring the RDA application software up and enable Archive TT

Hopefully these helpful tips will assist you in keeping your Level II devices up and running. Call the WSR-88D Hotline if you need further troubleshooting assistance. We are here to help!

Deirdre Jones,
Engineering Branch

WSR-88D Graphical User Interface

Development Overview

If you have ever thought the WSR-88D Unit Control Position (UCP) could have been made a little more user-friendly, you'll be pleased to learn about a cooperative effort underway to redesign the UCP. Using methods from modern human performance engineering, a small working group, known as the GUI Team, is developing graphical user interface (GUI) prototypes to replace the UCP. This effort is being undertaken as part of the WSR-88D Open Systems RPG project.

There are several innovative methods being applied to developing the GUI prototypes. For example, each person on the GUI Team (composed of members from the OSF and National Severe Storms Laboratory) has some special WSR-88D knowledge and skill. This purposeful diversity allows different, but crucial, perspectives to be integrated into the design. A common problem in some development projects has been to allow a highly specialized group to control the "look and feel" of a system. For example, in computer systems, programmers may be pleased with the look and feel of a final product only to find out the system is not as intuitive or easily used by an operational user.

Nevertheless, a diverse group of experts does not guarantee a successful design. That is why the OSF is applying progressive development methods established by leaders in the commercial software industry. Tools that add usability include evaluations through: 1) human performance testing; 2) desktop reviews; 3) user feedback classification schemes that effectively help understand users and their tasks; and 4) basic testing. The GUI Team uses these methods and others to improve the interface.

Human performance tests of the evolving GUI design have given the team a way to study and refine the human computer interaction. Participants in one test performed identical tasks on the UCP and the graphical counterpart. Test results suggest profound operator support for the graphical format. Test measurements show the graphical version allowed tasks to be completed in less time, with less frustration, and with fewer errors. By reducing mental workload and memory requirements for users, many other cost-effective benefits exist.

Desktop reviews are a systematic comparison of guidelines and prototypes. The GUI Team has examined parts of the prototype

and then looked at guidelines to establish conformity. Also, broad design guidelines such as simplicity, consistency, and flexibility have been adopted.

Users are the real key to successful user interface design. The GUI Team has recognized the fundamental importance of user-centered design. They have gained user feedback through site visits, questionnaires and even a web page survey. The latest effort in this area was a field user review held at the OSF in late July. Experienced UCP operators were invited from the DOD, FAA, and each region of the NWS. The field users spent the day working on the GUI and providing feedback through questionnaires and free format. They also reviewed training options and provided comments.

The sessions were very successful and many suggestions have already been incorporated into the system. Focus was brought to areas that needed further optimization of design. Future plans include getting feedback from field electronics technician users as well as more operators. User reviews will continue as more functionality is added to the GUI.

Basic testing consists of an on-going process of informal testing, system improvements, and formal testing. Informal testing occurs as test procedures and plans are developed. The testers and developers work closely, preventing or detecting earlier, any defects. This process leads to well designed, thorough test plans and procedures which help to ensure a more robust product.

If you would like to learn more or help with the redesign of the UCP, visit and participate on the Internet at: <http://www.osf.noaa.gov/app/gui/index.htm>. Or you can send ideas and suggestions to:

Teresa Havel, GUI Team Leader

Teresa.M.Havel@noaa.gov
(405) 366-6520 Ext. 4240

Teresa Havel,
Open Systems Team

WHERE ARE YOUR SPARE PARTS AND DO THEY WORK????

If you have not had your spare parts installed in your system you don't know if they are in working order or not. Experience has shown us that even for the diligence of the technicians at NRC, there are still some bad parts out there on the shelves. NRC does not have the resources to check each part in the system for a week to see if it will fail, but you do. A little time invested now swapping your spares into your system will pay big dividends down the road. Finding out in the middle of the night that the spare you had on the shelf

does not work is indeed a frustrating experience.

It would behoove you, as time and weather permit, to swap your spares into your system one at a time every couple of days. Tag the known good part that you removed and you will know that when you need it, you have a good part on hand. For most of the spares this will not take a lot of downtime to accomplish. Although this procedure is not practical for some spares which require realignment of the system such as the

trigger amplifier or expendable items such as diodes, it is practical for most on-site spares. This will also ensure that boards that require strapping will be strapped correctly.

You are no doubt aware that systems have a bad habit of going down at the most inopportune times. You can save yourself a lot of grief and downtime by checking your spares in your system.

Bill Taylor,
Electronics Maintenance Section

EMI FILTER

Many field sites have been suffering from PMI (electromagnetic interference from other emitters). The OSF has been working on a solution to this problem (see the PMI Filter article in Issue 1 of NEXRAD Now), and is now nearly ready to start shipping retrofit kits. All sites will be receiving a preselect bandpass filter, mounting brackets, and connecting hardware required to install the bandpass filter between the receiver protector and the low noise amplifier in the pedestal.

This modification has been tested with excellent results in Houston, Mobile, and St Louis. It has also been tested with poor results at San Diego. If the interference is caused by an emitter on nearly the same frequency as the WSR-88D (within a few tens of Mhz) the filter may not be effective. The filter is designed to remove strong, out of band signals before they reach the low noise amplifier. The most common cause of this type of interference is the microwave TV transmission

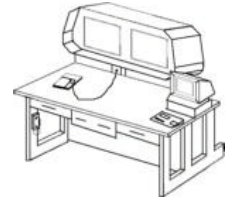
systems (wireless cable TV). These systems transmit up to two dozen channels at power levels from 50 watts to 200 watts per channel. When these strong out of band signals reach the LNA, they can saturate the amplifier, producing mixing products which may lie within the passband of the receiver. When this happens, a strobe appears in the reflectivity products (and sometimes the Doppler products).

All filters and mounting brackets have been procured. A reprourement of an interconnecting coaxial cable is required due to quality problems with the first vendor. When this is accomplished (approximately two months), kit-proof will be reaccomplished, and the kits will be shipped around November 1 997

Russ Cook,
Engineering Branch



WSR-88D
Operation Tips
prepared by the Hotline Staff
1-800-643-3363



Hotline Needs Beta Testers for New Self-Help Software

The OSF Hotline provides 24 hour a day assistance by telephone, fax, and e-mail. Additionally, we make "Tales from the Hotline and FAXBacks available in hard copy, on the Internet, and on a BBS. In our never ending quest to provide quality support to you, our customers, we are encapsulating some of our procedures and technical expertise in a new self-help software package called First Level Support for Windows® (FLS).

FLS stores knowledge in decision trees. If you have ever used the tree structure in Microsoft® Windows™ 3.1 File Manager, you will immediately feel at home. The decision tree talks the caller through a series of yes-no decisions. At each step it can provide text, graphics, movie loops, and sound. The two major strengths of FLS are its methodical approach to troubleshooting and its visual aids. So many times, we in the Hotline have wished we could reach through the telephone and point out the VME Reset button or the SOPS three prong circuit breaker. FLS now makes that possible.

For beta testing we have constructed a decision tree which troubleshoots outages on the dedicated line between the PUP and the RPG. If your APUP frequently loses the line to its RPG, then we'd like for you to volunteer for the beta test. You will need an IBM PC or 100% compatible machine with 4 megabytes of RAM and 8- 10 megabytes free disk space. For best performance we recommend a 486 processor with 8 megabytes of RAM.

To volunteer, please send an e-mail to Minnis.V.Mansur@noaa.gov or mmansur@osf.noaa.gov or call me at 405 366-6510 Ext. 1239. Please be sure to handle any internal coordination, permissions, etc. We have licenses for 10 beta testers. If you are selected, we will send both the software and user documentation. As always, you can call the Hotline for assistance with installing and using FLS.

Is the Hotline Your Last Resort?

Do you ever hesitate to call the WSR-88D Hotline for help with system problems? We know that in the field you are typically responsible for other weather systems in addition to the WSR-88D, and pressure is often plentiful while time is scarce. Our Hotliners, as expert specialists on the WSR-88D, are often able to quickly answer questions or resolve problems which would otherwise take much longer to research and resolve on your own. In fact, we consistently resolve 85-90% of the problems reported to us on the initial call! So calling us just may save you some of the time you need to do those other things!

Worried about getting a busy signal or finding no one available to help you? We have 6 incoming lines, so usually there's one open. If we're so busy we have to call you back, the Hotliners strive to do so as quickly as possible. Typically, our busiest call periods are mid morning and mid afternoon on weekdays, but even during those periods, don't hesitate to contact us if we can save you some time. We're here to serve you!

From OTB: Rumors of our Demise Have Been Greatly Exaggerated!

Contrary to popular belief, the end of the WSR-88D Operations residence course in Norman last April did not mean the end of the Operations Training Branch. In fact, the OTB is busier than ever developing and delivering training for the field forecaster. Here are just a few highlights of some of the projects we're working on:

Distance Learning Operations Course

The end of the WSR-88D Operations residence course left well over 200 forecasters still needing training on the system. During the last few months, the OTB has been retooling the Operations residence course to one suitable for a Distance Learning format. This Distance Learning Operations Course (DLOC) will take advantage of the growing technologies to deliver the course content of the former residence course to attendees, without them having to leave the office. OTB has worked hard to ensure the course objectives and exams remain basically intact. Only the delivery method will change, with attendees receiving the same certificate as their predecessors. Students will be able to use a combination of CD-ROM, web-based training or on-line training, and Teletraining to attain the same knowledge as those who previously had to leave home for 4 weeks. The recent NWS-wide purchase of the OPTEL Audiographics system will help facilitate the teletraining aspects of the course.

HMT Course Goes Nationwide

Another course has been ongoing at OTB, with the learning delivered almost exclusively via teletraining. The WSR-88D HMT Course was delivered to all HMTs in Western Region during the past several months. This modified version of the Operations Course focused on a number of aspects of the WSR-88D from radar principles, to product use, to optimization of adaptable parameters. The course was well received by Western Regions HMTs and will be delivered to the remaining 500+ HMTs beginning in early 1998.

Build 10 Documentation

Other projects ongoing at OTB include the development of operational documentation and training materials which must be included with each software release. This documentation and training, which focuses on the application and impact of build changes on the field user, is currently being developed for Build 10, which will be released in mid-1998. The first highlights will be delivered in a Build 10 Preview document, scheduled for release later this fall. More in-depth training materials will follow in the months to come.

Other Stuff

Advanced User Workshops will continue to be organized by OTB, with four workshops scheduled for next year. The workshops will be held at the COMET facilities in Boulder. Topics which have been discussed thus far include Warning Decision Making, Microbursts, and Quantitative Precipitation Estimation. In addition to these projects, OTB has ongoing projects which focus on the use of radar data, together with satellite data, lightning data, as well as other data fields, to produce operational useful techniques for use in forecasts and warnings.

So, now that you know we're still alive, don't be afraid to call us! We'd love to hear from you. As always, OTB information is available on the Internet at <http://www.osf.noaa.gov/otb/OTB.HTM>.

Liz Quoetone,
Operations Training Branch

Letters to the Editor



Lately I have been looking at products from several sites and noticed that, regardless of the meteorological situation, many of them have clutter suppression (usually HIGH) on all the time even on the 2.5 degree elevation angle and above.

I thought that forced clutter suppression should only be used in cases when anomalous propagation exists and then only applied to the affected elevation angles, which are usually just the lowest two elevations. I was wondering, doesn't clutter suppression reduce the reflectivity values from weather echoes and couldn't this lead to misinterpretation of products?

I would appreciate it if you could clear this up for me.

Steve Breuske. SOO. Charleston SC.

Inappropriate clutter suppression has a significant affect on weather echoes. The data bias due to inappropriate clutter suppression can and does lead to misinterpretation of products - routinely!

The effects of inappropriate clutter filtering on weather data can be dramatic. Let's look at HIGH suppression in VCP II for an example. For the lowest two elevations (Elevation Segment 1) the notch width selection for surveillance mode is 3.5 m/s. For Elevation Segment 2 the notch width selection is 4.25 m/s. On the surface this doesn't seem as if it would make much difference; however, the effective notch widths are much larger. The sampling characteristics of split cut mode for the lowest two tilts result in an effective notch width of approximately 6.0 m/s. For Batch cuts it is much worse. Due to antenna rotation rates and sampling limitations of Batch mode, the effective notch width of high suppression for elevations between 2.5 and 6.0 degrees is approximately 14 m/s not 4.25 m/s. This means high suppression (Notch Width Selection 3) applied to Elevation Segment 2 (all elevations above 2 degrees) will cause a 55 dB reduction in targets whose radial velocity is less than approximately +15 knots. This can have a major impact on the base reflectivity data which cascades through all reflectivity-based products. It can be argued that indiscriminate application of forced clutter suppression is as bad as no clutter suppression at all.

The bottom line is forced clutter suppression (Operator Select Code 2) should ONLY be invoked when AP is present and should ONLY be applied to the elevations where the AP return is apparent.

Joe N Chrisman, OSF/ENG

NOTE: A Change Request has been submitted to reduce the notch width definitions for VCPs 11 and 21 and thereby constrain the reflectivity bias in the Batch cuts to a level comparable to that for the split cuts.

Christina,

I am a big fan of "NEXRAD NOW" and congratulate the OSF's efforts to foster communication among NEXRAD users. I would like to make your readers aware of the NWS Western Region Headquarters home page which has many articles and a separate page on radar issues in the West. The URL is www.wrh.noaa.gov. Among the articles is an overview of the Western Region Radar Project which can be found as a 1996 Technical Attachment TA 96-26. I hope that your readers find this information useful and I welcome comments of all kinds.

Steve Vasiloff, Meteorologist
NSSL/NWS-WRH

Thanks for the e-mail, Steve. I have reviewed Western Region's Home Page, and continue to do so on a regular basis. The information that you provide on radar issues in the West is outstanding! Good job!

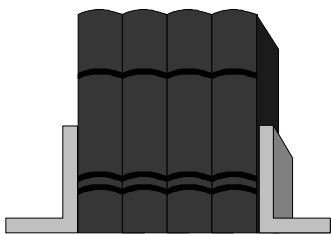
If you have a question that you want to submit to Letters to the Editor, send it to dcovey@osf.noaa.gov.

WSR-88D Technical Manuals on CD-ROM

The OSF is in the process of revising the EHB 6-530 PUP Maintenance Manual. This manual will be our test electronic manual for publishing and distribution on CD-ROM. We will also print and distribute hard copies of the manual as usual. This test is being accomplished to determine the feasibility of gradually transitioning to publishing and distributing most WSR-88D Technical Manuals on CD-ROM. When the EHB 6-530 revision is complete, we will issue a CD-ROM based EHB 6-530 to 100 tri-agency test sites for evaluation. These sites will be asked to utilize the manual for 180 days and then complete a survey form. The survey will be returned to the OSF for assessment and the CD-ROM will be sent out to another 100 sites.

We anticipate distributing the printed version to all sites in March 1998 and the CD-ROM based version to the first 100 test sites in April 1998. Our long term goal is to publish as many WSR-88D technical manuals on CD-ROM as possible to significantly reduce costs and paperwork.

Pete Grant,
System Documentation Section



DELTA SYSCAL = DATA QUALITY ?

Does delta SYSCAL equal data quality? The simple answer is no. However, in today's world very few answers are simple. So, the real answer is yes, with caveats. The delta SYSCAL can be an indication of the "goodness" of the reflectivity estimates. Let's try to shed some light on this ambiguous subject:

First, there are a couple of basic definitions you need to know:

Reflectivity estimates are determined by measuring returned power and accounting for the power loss due to the range to the target, atmospheric attenuation (Probert-Jones radar equation) and signal loss due to system calibration variables.

Baseline system calibration (SYSCAL) is determined by off-line measurements of signal path loss through the radar receiver front end.

Delta SYSCAL (or CALIB) is the calculated variation, or change, between the last off-line manual (baseline) system calibration and the latest on-line automatic system calibration.

Between each volume scan a test signal of known strength is generated and injected into the Receiver Signal Processor. From the generated test signal value an "expected" reflectivity is calculated, using the classical reflectivity equation. The test signal is processed by the Signal Processor, using the Probert-Jones equation plus SYSCAL, to calculate a "measured" reflectivity value. The "expected" reflectivity value is compared to the "measured" reflectivity value and the SYSCAL is adjusted to force the "measured" value to equal the "expected" value. This new SYSCAL will be used during the next volume scan to "correct" the weather data reflectivity values for current system loss/gain.

The delta SYSCAL, as reported at the PUP (CALIB at the UCP), is the difference between this new SYSCAL value and the baseline system calibration value. So, delta SYSCAL is a direct indicator that SYSCAL has changed from the last time that the off-line calibration was performed.

Assuming the off-line system calibration was done correctly, a low delta SYSCAL (-1.5 dB to +1.5 dB) is a good indicator that the reflectivity estimates are OK. If the delta SYSCAL value exceeds ± 1.5 dB, something has happened since the last off-line calibration and this problem should be investigated by maintenance technicians.

Even though the delta SYSCAL may indicate that the reflectivity estimates are OK, the reflectivity error is not absolutely known. A method for calculating the Reflectivity Error Estimate using RDA Performance data is contained in the latest RDA Maintenance Instructions technical manual (NWS EHB 6-510, AF TO 31PI4-108-152, FAA TI 6460.1 V7) paragraph 6-6.28.1.4. Adding the functionality that will automatically calculate and display the Reflectivity Error Estimate to the operational software is being considered.

Joe N. Chrisman and Bill Urell,
Engineering Branch

From the Field...

Fellow users of radar data:

Spring bird migration is winding down as of this writing (May 22), but migration will continue into June over parts of the country. Bird movements may be tough to recognize, however, since the "bird detection algorithm" for the 404-MHz wind profiler network was switched off ~ for the season on May 15th.

Migration is somewhat late this year due to the cool weather, and I've heard from colleagues on both coasts that birds are still appearing on their WSR-88D radars. And, migration movements normally continue as late as mid-June in the northern half of the country.

That means we must remain alert for bird contamination of profiler and WSR-88D data. This is imperative in south flow situations, when we may be fooled into thinking that the low-level jet is stronger than forecast and that moisture will be returning more rapidly than expected.

Just as a reminder, a vast majority of the bird migration occurs at night, when we least expect it! Biologists from Clemson University have been counting birds and relating their numbers to reflectivity returns from the WSR-88D. They estimate that 15-25 dBZ of return indicates 10,000-60,000 birds passing over one nautical mile of land per hour!

Evidence of bird migration contamination showed up on the central U.S. profiler network overnight on both May 21 and 22, 1997. Most of these birds were below the 800 mb or 2 km level. On the WSR-88D, watch for "blooming" of 15-30 dBZ reflectivity 45 minutes after sunset, and deepening and strengthening of the VAD wind profile when in clear air or precipitation mode when ND was previously displayed. Unlike AP, clutter suppression will have no effect on the bird returns, since they are obviously moving and can add 15-25 knots to the wind profile.

Any questions? I like to talk birds & weather.

Karl Jungbluth, Science and Operations Officer
National Weather Service

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515-270-4501 ext 766

NEXRAD Now Distribution

To avoid overwhelming printing costs, only two copies of NEXRAD Now are being mailed to each office. One copy is for the Operations Point of Contact (POC), while the other is for the Maintenance POC. Please keep in mind that NEXRAD Now is intended for everyone in the office to read and, perhaps, gain some useful information on the WSR-88D; therefore, I would like to stress that if you aren't already doing so, please distribute this among the entire staff in your office.

In addition, if your address is in error, please contact us so that we can make necessary corrections to the address database

Please also keep in mind that NEXRAD Now is a periodic information publication. This means that there is no set schedule, although we do our best to keep it to a quarterly publication cycle.

Any questions about NEXRAD Now or any of its features, should be addressed to Daryl Covey at (405)366-6510 Ext. 1232 or dcovey@osf.noaa.gov.

NEXRAD Now is a periodic information publication of the WSR-88D Operational Support Facility.

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