Update on NOAA's National Weather Service (NWS)
WSR-88D Level II Data Collection, Distribution, and Archive Network

Updated 30 July 2012

PURPOSE: Update real time and archive users of Weather Surveillance Radar-1988 Doppler (WSR-88D) Level II data of changes that may impact Level II data format, reliability and quality.

CURRENT STATUS:
- There are 140 operational WSR-88Ds connected to the Level II Data Collection, Distribution, and Archive Network. The List of Connected and Planned Network Sites is at: http://www.roc.noaa.gov/WSR88D/Level_II/Level2Info.aspx. The NWS plans to add the remaining 8 Air Force CONUS WSR-88D sites to the network in the first half of 2013. The connections will be made after Build 13.1, routers, and the required expanded communications capability are installed at the sites.
    - Two non-operational WSR-88Ds also transmit data on the network to support interface testing and archival of test data as described below. **Please note: Sporadic Level 2 data in real time and in the NCDC archives are labeled (DAN1, DOP1, FOP1, NOP4, and ROP4) are from the Radar Operations Center (ROC) test bed WSR-88D KCRI. Level 2 data labeled "NOP3" are from the ROC test bed WSR-88D KOUN. The data may contain experimental volume scans, hardware and/or software that are under test. These data should not be used operationally**. **Data from KCRI and KOUN could be transmitted in real-time and archived simultaneously.**
- Dual Polarization Technology. The Dual Polarization modification has been completed at over 80 operational WSR-88D sites. All 160 operational sites will be retrofitted by the end of summer 2013. The retrofit schedule, status updates and other information on the Dual Pol Project are available at: http://www.roc.noaa.gov/WSR88D/DualPol/Default.aspx.
- Message 31 continues to be the Level II data format as we transition to dual polarization technology.
- Build 13
    - Deployment
        - The shipment of RPG Build 13 software has begun and will continue through September. The software has been installed at 37 field sites.
        - Shipment of RDA Build 13 software to Dual Polarized sites will occur in August and September 2012. For other sites, RDA Build 13 will be shipped within 30 days their Dual Polarization modification is completed. The software is in Beta Test at four sites (Tucson, AZ; Amarillo, TX; Vance AFB, OK; and Melbourne, FL).
    - Major RDA Build 13 changes.
        - There are no changes to the Level II data format. However, some users may notice the Level II data in range gates above 70,000 ft MSL will be truncated. This change corrects a software error that enabled the range gates to extend to the maximum ranges of the radar.
        - The Automated Volume Scan Evaluation and Termination (AVSET) function returns to sites when they install RDA Build 13. The AVSET function terminates a volume scan after the radar has scanned all the elevations with significant reflectivity returns.

Then a new volume scan is started. Each volume scan is "dynamic" – the number of elevation angles scanned can change scan-to-scan. The net effect of AVSET is that lower elevations are scanned more frequently. The time savings achieved by AVSET depends on the active volume coverage pattern (VCP) in use, and the areal coverage of and location of significant returns. The Build 13 version of AVSET includes a new threshold to account for small convective cells.

- The return of the CMD function in RDA Build 13 software will not affect the Level II data. The CMD algorithm outputs are not included in the Level II data.
- Improved spectrum width estimates will be possible through the use of new software in Build 13.
- There are no Level II data format changes in Build 13.

PLANNED CHANGES:

- Build 13.1
  - Beta Test. The Beta Test of RPG and RDA Build 13.1 software at ~5 field sites is scheduled to begin in late October 2012.
  - Deployment. The shipment of RPG and RDA Build 13.1 software to field sites is scheduled to begin in mid-January 2013.
  - Major Build 13.1 changes
    - There are no Level II data format changes in Build 13.1.
    - The Build 13.1 implementation of the Two-Dimensional Velocity Dealiasing (2D VDEAL) algorithm is the biggest improvement in reducing WSR-88D velocity dealiasing errors to date, but the Level II data will remain the same, with no dealiasing applied.
- Build 14. The projected Build 14 Beta Test start is August 2013. The start of software deployment is scheduled for the fall of 2013. The major build contents are being finalized, but no change to the Level II data format is expected.

ADDITIONAL INFORMATION:

- The configuration control requests included in Build 13 and Build 13.1 (RDA and RPG) are listed at: http://www.roc.noaa.gov/WSR88D/BuildInfo/SWBuildsList.aspx.
- Additional information on AVSET and 2D VDEAL is at: http://www.roc.noaa.gov/WSR88D/NewRadarTechnology/NewTechDefault.aspx.
- Warning Decision Training Branch (WDTB) materials:
  - For NEXRAD agency operators/all users for Build 13 RDA/RPG software are at: http://www.wdtb.noaa.gov/buildTraining/Build13/index.html.
  - A Dual Polarization training module for external users is at: http://www.wdtb.noaa.gov/courses/dualpol/index.html.
- Build 13.0 RPG software is available. The NWS has a LINUX version of the WSR-88D RPG software called "The Common Operations and Development Environment" (CODE). The Build 13.0 software is available at: http://www.weather.gov/code88d/.
- Family of Service (FOS) Presentations. The slides presented in the radar portion of the June 2012 FOS meeting are at: http://www.roc.noaa.gov/WSR88D/Level_III/Level3Info.aspx.
- The ROC has a URL (https://ssm.roc.noaa.gov/hotline/main_ie.asp) for users to obtain:

- A list of sites and which RPG and RDA software build the site is using,
- A list of sites and which volume coverage pattern the site is using, during the last automated hourly ROC call to the RPG.
- Other related information.
- An updated version of FMH-11, Part A, is being reviewed by the NEXRAD agencies. The update is primarily for changes in Build 13 and Build 13.1. A near-final version of Part A should be available by early August 2012 and will be posted on the ROC web site. Its posting will be announced in the "News & Information" section of the front page of the ROC web site. The final version of the updated Part A will be posted on the Office of the Federal Coordinator for Meteorology web site.
- The ROC Applications Branch has a new webpage for Multimedia Briefings. The page is linked from the Applications section of the homepage and can be found at: http://www.roc.noaa.gov/WSR88D/Applications/Presentations.aspx . Currently, two presentations are posted:

  - 2D VDEAL
  - Dual Pol Winter Weather & Impacts to Aviation

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