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TECHNICAL IMPLEMENTATION NOTICE 10-22  
NATIONAL WEATHER SERVICE HEADQUARTERS WASHINGTON DC  
342 PM EST FRI MAY 14 2010

TO: SUBSCRIBERS  
-FAMILY OF SERVICES  
-NOAA WEATHER WIRE SERVICE  
-EMERGENCY MANAGERS WEATHER INFORMATION NETWORK  
-NOAAPORT  
-OTHER NWS USERS... PARTNERS AND EMPLOYEES

FROM: RICHARD J. VOGT  
DIRECTOR... WSR-88D RADAR OPERATIONS CENTER

SUBJECT: IMPLEMENTATION OF WSR-88D DUAL POLARIZATION LEVEL II  
DATA: EFFECTIVE NOVEMBER 17 2010 WITH DUAL POLARIZATION  
BETA TEST

THE NWS...USAF AND FAA WSR-88D SYSTEMS PRODUCE LEVEL II DATA...  
THE HIGHEST RESOLUTION DIGITAL RADAR DATA AVAILABLE. THESE DATA  
CONTAIN REFLECTIVITY...RADIAL VELOCITY AND SPECTRUM WIDTH DATA  
FROM ALL RADAR SCANS. LEVEL II DATA ARE COLLECTED... DISTRIBUTED  
AND ARCHIVED IN REAL TIME FROM 139 WSR-88D SYSTEMS VIA THE NWS  
WSR-88D LEVEL II DATA COLLECTION AND DISTRIBUTION NETWORK.

THE CONTENT OF LEVEL II DATA WILL CHANGE WHEN RADARS ARE  
MODIFIED TO DUAL POLARIZATION: BEGINNING WITH WSR-88D BETA TEST  
/NOVEMBER 17 2010/ AND CONTINUING UNTIL DEPLOYMENT COMPLETES AT  
THE END OF 2012.

THE CONTENT IS CHANGING TO REPORT NEW STATUS AND ALARM  
INFORMATION AND TO INCLUDE THE FOLLOWING DUAL POLARIZATION DATA  
FIELDS: DIFFERENTIAL REFLECTIVITY... CORRELATION COEFFICIENT...  
AND DIFFERENTIAL PHASE.

IN ADDITION REFLECTIVITY DATA WILL BE PROVIDED AT 250 METER  
RANGE RESOLUTION AND THE MAXIMUM COVERAGE RANGE OF DOPPLER DATA  
/RADIAL VELOCITY AND SPECTRUM WIDTH/ WILL BE 300 KILOMETERS ON  
ALL ELEVATION ANGLES. DEPENDING ON COMMUNICATIONS BANDWIDTH  
CONSTRAINTS... LEVEL II DATA FROM SOME RADARS WILL BE PROVIDED  
AT REDUCED RESOLUTION OR CONTENT WHICH WILL BE IDENTIFIED BY A  
VERSION NUMBER ASSOCIATED WITH KEY DATA CHARACTERISTICS.

THE DATA STREAM WILL INCREASE IN SIZE DUE TO THE ADDED DATA  
FIELDS AND THE INCREASE IN SPATIAL RESOLUTION AND COVERAGE AREA.  
DATA THROUGHPUT LEVELS VARIES BETWEEN 20 TO 180 KILOBITS PER  
SECOND /KBPS/ PER RADAR AND 0.7 TO 7.1 MEGABITS PER SECOND  
/MBPS/ FOR 139 RADARS WILL INCREASE BY A FACTOR OF 2.3 TO RANGE  
FROM 45 TO 415 KBPS PER RADAR AND 1.8 TO 18.1 MBPS /BASED ON 147  
RADARS WITH 142 SENDING FULL RESOLUTION AND CONTENT/. SINCE

DEPLOYMENT OF DUAL POLARIZATION WILL OCCUR OVER A TWO YEAR PERIOD AND PEAK LOADING GENERALLY OCCURS DURING SUMMER EVENINGS...NETWORK LOADING MAY NOT REACH MAXIMUM ESTIMATED LEVELS UNTIL 2013.

TO SUPPORT LEVEL II DATA USERS ADAPTING TO DUAL POLARIZATION DATA...THE NWS IS POSTING PROJECT STATUS... SAMPLE DATA... AND TOOLS AT THE FOLLOWING WEB SITES /USE LOWERCASE/:

1. DRAFT INTERFACE CONTROL DOCUMENTS... SAMPLE DATA... BACKGROUND AND PROJECT INFORMATION... IS AVAILABLE AT:

[HTTP://WWW.ROC.NOAA.GOV/WSR88D/DUALPOL/DEFAULT.ASPX](http://www.roc.noaa.gov/WSR88D/DUALPOL/DEFAULT.ASPX)

2. DURING FUTURE PHASES OF WSR-88D DUAL POLARIZATION TESTING... LEVEL II DATA WILL BE MADE AVAILABLE VIA THE LEVEL II DATA DISTRIBUTION NETWORK BEGINNING AROUND JUNE 8 2010. INFORMATION REGARDING THIS DATA STREAM CAN BE OBTAINED FROM THE DUAL-POL WEB PAGE ABOVE. THE NATIONAL CLIMATIC DATA CENTER WILL BE ARCHIVING DUAL POLARIZATION LEVEL II DATA AND WILL MAKE IT AVAILABLE AT:

[HTTP://WWW.NCDC.NOAA.GOV/NEXRADINV/CHOOSEDAY.JSP?ID=KOUN](http://www.ncdc.noaa.gov/nexradinv/chooseday.jsp?id=koun)

3. AN EARLY VERSION OF BUILD 12 SOFTWARE...EXECUTABLE AND SOURCE CODE...IS AVAILABLE FROM THE NWS COMMON OPERATIONS AND DEVELOPMENT ENVIRONMENT /CODE/ WEBSITE /USE LOWERCASE/:

[HTTP://WWW.WEATHER.GOV/CODE88D](http://www.weather.gov/code88d)

THIS SOFTWARE CONTAINS CODE TO READ AND PROCESS DUAL POLARIZATION LEVEL II DATA.

IF YOU HAVE QUESTIONS OR COMMENTS... PLEASE CONTACT:

TIM CRUM  
WSR-88D RADAR OPERATIONS CENTER  
1200 WESTHEIMER DRIVE  
NORMAN... OK 73069  
TIM.D.CRUM@NOAA.GOV

OR

MIKE ISTOK  
NWS... OFFICE OF SCIENCE AND TECHNOLOGY  
SILVER SPRING... MARYLAND  
MICHAEL.ISTOK@NOAA.GOV

NWS TECHNICAL IMPLEMENTATION NOTICES ARE ONLINE AT /USE LOWERCASE/:

[HTTP://WWW.NWS.NOAA.GOV/OM/NOTIF.HTM](http://www.nws.noaa.gov/om/notif.htm)

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