Frequently Asked Questions Concerning
FAA TDWR – SPG Products

Updated 8/23/11

1) What are some basic facts about the FAA's Terminal Doppler Weather Radar (TDWR)?

RESPONSE:

a) Beam Width: 0.55 degrees
b) Transmitter Frequency – C-band (5.3 cm wavelength)
c) Range: Reflectivity-460km; Velocity: 90km
d) Polarization: Linear Horizontal
e) Data Resolution: Ref. – 150m (to 135km), 300m (135km - 460km); Vel. -- 150m
f) Scan Strategy: site specific; antenna elevation can vary from 0 to 60 degrees

See January 2009 Family of Services (FOS) Meeting Briefing and AMS papers on this web page for more information.

2) How are the TDWR products produced?

RESPONSE: A T1 link from the FAA RDA shelter to the nearby NWS WFO carries the TDWR Level II data. NWS Supplemental Product Generators (SPG) running software emulating a WSR-88D Radar Product Generator generates the products.

3) What is a Supplemental Product Generator?

RESPONSE: The Supplemental Product Generator (SPG) system is analogous to the RPG component of the WSR-88D system. However, the SPG receives base radar data from the FAA Terminal Doppler Weather Radar (TDWR). The TDWR SPG is used to gather weather information to be distributed to the National Weather Service (NWS), the Federal Aviation Administration (FAA), the Department of Defense (DOD), and the general public. The SPG is located at the NWS Weather Forecast Office and receives base data from the TDWR RDA through a wideband communication link. It is responsible for Base Data Ingest, Product Generation, Product Storage, Hydrometeorological Processing, Product Distribution, and Base Data Distribution.

4) What products are available and at what frequency?

RESPONSE: The list of products produced every volume scan, is available at: http://www.nws.noaa.gov/tg/rpccds.html.

5) Is the TDWR product format "compatible" with WSR-88D products?

RESPONSE: Yes. However, differences documented in the "SPG Class 1 ICD" (available on this web page) include:

a) different product codes are used for the base products since they are provided at a different resolution and maximum range than the WSR-88D,
b) different VCP numbers are used (80 or 90) and the elevation angle varies from site to site, and
c) volume scan time stamps vary within each volume scan number.

6) What is the TDWR-SPG product availability goal at the Radar Product Central Collection Dissemination Service (RPCCDS)?

RESPONSE: The goal is to meet the same product availability requirement of the WSR-88D (95%). However, while the NWS does not maintain or operate the TDWR radars, the availability of TDWR SPG products has averaged over 94% during the past year.

7) Are TDWR products available via NOAAPORT? Which products?

RESPONSE: Yes, TDWR products are available on NOAAPORT. Check the WSR-88D product and TDWR product lists at http://www.nws.noaa.gov/tg/rpccds.html.

8) How do external users receive TDWR products?

RESPONSE: Same methods as WSR-88D products (from the NWS Radar Product Central Collection Dissemination System (RPCCDS) and NOAAPORT).

9) Are TDWR products archived at NCDC? Does the NCDC have viewer software available to display these products as they do WSR-88D products?

RESPONSES: Yes, the TDWR archive product inventory/ordering page is in the same location as the WSR-88D product archives (http://www.ncdc.noaa.gov/nexradinv/choosesite.jsp). Yes, the NCDC viewer, Weather and Climate Toolkit (http://www.ncdc.noaa.gov/oa/wct/), displays the TDWR products.

10) What is being done to improve the reliability of TDWR Level II data flow to the associated WFO and SPG?

RESPONSE: In 2010, the NWS replaced some communication components of the NWS connection to the TDWR (at the TDWR shelter). These components are usually responsible for stopping data flow when the TDWR is active. Engineering studies are underway to examine other possible modifications to further improve data delivery reliability.

11) Will TDWR Level II data be distributed and archived?

RESPONSE: While the NWS would like to provide this additional data set in real time and for archiving, funding limitations restrict this addition.

12) What is the cause of occasional missing "wedges" of TDWR data?

RESPONSE: The TDWR Level II data are distributed from the radar as UDP (User Datagram Protocol) broadcast packets. The UDP is an unreliable protocol and consequently, if any data packets are missed during the transmission they are lost and unrecoverable. To mitigate the impact of lost packets, the SPG detects the lost data and fills in the missing radials with "empty" ones, that is, radials with no data except for a solid band of colored bins (currently 5 bins) at the maximum range. By doing so, products that may otherwise not be available, can be generated and displayed.