

# TDWR Level-III Products

## Technical Information Notice

The FAA Terminal Doppler Weather Radar (TDWR) data are now processed by the NWS Supplemental Product Generator (SPG) to create Level-III Products. There are 45 TDWR sites in the United States, providing data in real-time at approximately 5 minute intervals. For more information refer to:

Site ID and Location list: - See Below -

Real-Time data instructions: - See Below -

Historical data: <http://www.ncdc.noaa.gov/nexradinv/choosesite.jsp>

FAQ: [TDWR FAQ](#)

Below is the the Technical Information Notice with details:

NOUS41 KWBC 161915  
PNSWSH

TECHNICAL IMPLEMENTATION NOTICE 08-85  
NATIONAL WEATHER SERVICE HEADQUARTERS WASHINGTON DC  
315 PM EST THU OCT 16 2008

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

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

SUBJECT: ADDITION OF PRODUCTS DERIVED FROM FAA TERMINAL DOPPLER  
WEATHER RADAR TO SBN/NOAAPORT AND RPCCDS: EFFECTIVE  
NOVEMBER 18 2008

EFFECTIVE TUESDAY NOVEMBER 18 2008...AT APPROXIMATELY 1500  
COORDINATED UNIVERSAL TIME /UTC/...NWS WILL BEGIN A BETA TEST  
OF DISSEMINATING RADAR PRODUCTS GENERATED BY THE NWS SUPPLEMENTAL  
PRODUCT GENERATOR /SPG/ USING DATA FROM THE FEDERAL AVIATION  
ADMINISTRATION /FAA/ TERMINAL DOPPLER WEATHER RADAR /TDWR/.  
THESE PRODUCTS WILL BE PROVIDED VIA THE RADAR PRODUCT CENTRAL  
COLLECTION DISSEMINATION SERVICE /RPCCDS/. A SUB-SET WILL BE  
PROVIDED VIA NOAAPORT.

BETWEEN NOVEMBER 18 2008 AND JANUARY 2009...PRODUCT DISSEMINATION  
WILL BE PROVIDED FROM UP TO EIGHT BETA TEST SITES. THE REMAINING  
SITES WILL BE GRADUALLY ADDED BETWEEN FEBRUARY AND JUNE 2009.

TDWR SPG PRODUCTS CONSIST OF A SET OF BASE AND ALGORITHM DERIVED PRODUCTS AND CORRESPONDING PARAMETERS LISTED BELOW IN TABLE 1. ANALOGOUS TO WSR-88D PRODUCTS ALREADY PROVIDED VIA RPCCDS AND NOAAPORT...THESE NEW TDWR SPG PRODUCTS ARE ALSO INTENDED FOR DISTRIBUTION IN NEAR REAL-TIME. THE TDWR DATA ARE PROCESSED BY THE NWS SPG...WHICH EVOLVED FROM THE WSR-88D RADAR PRODUCTS GENERATOR /RPG/. THUS TDWR SPG PRODUCTS ARE FORMATTED SIMILAR TO WSR-88D RPG PRODUCTS. THE TDWR SPG BASE PRODUCTS WILL BE PROVIDED AT 150 METER /M/ RANGE RESOLUTION...AND 300M RESOLUTION FOR THE LONG RANGE REFLECTIVITY PRODUCT. ALGORITHM DERIVED PRODUCTS WILL BE PROVIDED AT THE SAME RESOLUTION AS THE CORRESPONDING WSR-88D PRODUCT.

AS AN EXAMPLE WORLD METEOROLOGICAL ORGANIZATION /WMO/ PRODUCT HEADERS LISTED IN TABLE 1 CORRESPOND TO THE DENVER TDWR /DEN/ WHERE SPG PRODUCTS WILL ORIGINATE FROM THE BOULDER /BOU/ WEATHER FORECAST OFFICE /WFO/. THE LIST OF 45 TDWR RADARS AND 34 WFOS RESPONSIBLE FOR SENDING SPG PRODUCTS ARE LISTED IN TABLE 2. THREE TDWR IDS WERE MODIFIED /CLE TO LVE...IND TO IDS... ICT TO ICH/ SO THAT WMO HEADERS WOULD BE DISTINCT FROM WSR-88D HEADERS. FOR THE GENERAL STATUS MESSAGE /GSM/ EXAMPLE...THE FULL RANGE OF WFOS...STATE CROSS-REFERENCE NUMBER...AND TDWR SPG ARE REFLECTED IN THIS TABLE.

EXCEPT FOR STATUS AND THE FREE TEXT MESSAGES...THE NWS WILL DISSEMINATE ONE OF EACH OF THESE TABLE 1 TDWR SPG PRODUCTS EVERY SIX MINUTE VOLUME SCAN FROM EACH TDWR SPG. THE HEADER OF EACH PRODUCT WILL HAVE A VALID TIME CORRESPONDING TO THE DAY OF MONTH AND THE HOUR AND MINUTE OF THE DATA /E.G. 100754 MEANS 0754 UTC ON THE TENTH DAY OF THE MONTH/. THE TDWR SPG PRODUCTS WILL BE DISSEMINATED VIA RPCCDS AND NOAAPORT AND AVAILABLE ON THE TELECOMMUNICATION OPERATIONS CENTER /TOC/ FTP SERVER WITHIN 60 SECONDS AFTER THE VALID TIME.

AVAILABILITY OF TDWR SPG PRODUCTS MAY BE LESS THAN THAT OF THE WSR-88D. THE FAA ASSUMES NO LIABILITY FOR THE ACCURACY OR TIMELINESS OF THE TDWR DATA TRANSFERRED TO THE NWS. THE TDWR WILL BE CALIBRATED IN ACCORDANCE WITH STANDARD FAA ORDERS AND REPAIRED ACCORDING TO FAA NORMAL MAINTENANCE AND RESTORATION SCHEDULES.

FOR EACH RADAR THE AVERAGE HOURLY DATA VOLUME VIA RPCCDS WILL BE APPROXIMATELY 3.9 MEGABYTES /MB/ AND THE DAILY VOLUME WILL BE APPROXIMATELY 92.9 MB. WHEN FULLY IMPLEMENTED THE AVERAGE DAILY VOLUME FOR ALL 45 TDWR RADARS WILL BE 4.1 GIGABYTES /GB/. SINCE PRODUCTS VIA NOAAPORT ARE FURTHER COMPRESSED...THE ESTIMATED DAILY VOLUME FOR ALL TDWR SPG PRODUCTS IS 2.4 GB.

ALL OF THE PRODUCTS WILL BE PROVIDED BY THE RPCCDS AND WILL BE AVAILABLE FROM THE NWS TOC FTP SERVER. EXCEPT FOR STI...HI... TVS...AND SPD...ALL PRODUCTS WILL BE CARRIED ON NOAAPORT. EVERY 10 SECONDS THE RPCCDS WILL AGGREGATE AND DISSEMINATE BUNDLES OF RADAR PRODUCTS /BUNDLES WILL INCLUDE BOTH WSR-88D AND TDWR SPG PRODUCTS/.

TABLE 1: WMO HEADINGS ASSIGNED TO THE TDWR SPG RADAR PRODUCTS

#	TTUSII	CCCC	NNNXXX	SPG	PRODUCT CODE AND DESCRIPTION
1	NXUS65	KBOU	GSM	DEN	GENERAL STATUS MESSAGE /GSM/
2	NOUS65	KBOU	FTM	DEN	FREE TEXT MESSAGE /FTM/
3	SDUS45	KBOU	RSL	DEN	ARCHIVE STATUS PRODUCT /ASP/
4	SDUS55	KBOU	TZL	DEN	REFLECTIVITY /Z/ - 0.6 DEG. LONG RANGE
5	SDUS55	KBOU	TR0	DEN	REFLECTIVITY /Z/ - BASE ELEVATION
6	SDUS25	KBOU	TR1	DEN	REFLECTIVITY /Z/ - 1.0 DEG. ELEVATION
7	SDUS25	KBOU	TR2	DEN	REFLECTIVITY /Z/ - THIRD ELEVATION
8	SDUS55	KBOU	TV0	DEN	VELOCITY /V/ - BASE ELEVATION
9	SDUS75	KBOU	TV1	DEN	VELOCITY /V/ - 1.0 DEG. ELEVATION
10	SDUS75	KBOU	TV2	DEN	VELOCITY /V/ - THIRD ELEVATION
11	SDUS55	KBOU	NCR	DEN	COMPOSITE REF /CZ/
12	SDUS75	KBOU	NET	DEN	ECHO TOPS /ET/
13	SDUS35	KBOU	NVW	DEN	VAD WIND PROFILE /VWP/
14	SDUS55	KBOU	NVL	DEN	VERT INTEG LIQ /VIL/
15	SDUS65	KBOU	NST	DEN	STORM TRACKING INFORMATION /STI/
16	SDUS65	KBOU	NHI	DEN	HAIL INDEX /HI/
17	SDUS65	KBOU	NTV	DEN	TORNADIC VORTEX SIGNATURE /TVS/
18	SDUS35	KBOU	N1P	DEN	ONE HOUR PRECIP /OHP/
19	SDUS55	KBOU	NTP	DEN	STORM TOTAL PRECIP /STP/
20	SDUS85	KBOU	DPAD	DEN	DIGITAL PRECIP ARRAY /DPA/
21	SDUS65	KBOU	SPDD	DEN	SUPPLEMENTAL PRECIPITATION DATA /SPD/
22	SDUS55	KBOU	DHR	DEN	DIGITAL HYBRID SCAN REFL /DHR/
23	SDUS55	KBOU	DSP	DEN	DIGITAL STORM TOTAL PRECIP /STP/
24	SDUS35	KBOU	NMDD	DEN	MESOCYCLONE /MD/

TABLE 2: WMO HEADING...TDWR SITES

#	TTUSI	I	CCCC	NNN	XXX	TDWR FAA SITE NAME
1	NXUS6	5	KBOU	GSM	DEN	DENVER /DEN/
2	NXUS6	1	KBOX	GSM	BOS	BOSTON /BOS/
3	NXUS6	1	KCLE	GSM	LVE	CLEVELAND OH /CLE/
4	NXUS6	3	KDTX	GSM	DTW	DETROIT /DTW/
5	NXUS6	3	KEAX	GSM	MCI	KANSAS CITY /MCI/
6	NXUS6	2	KFFC	GSM	ATL	ATLANTA /ATL/
7	NXUS6	4	KFWD	GSM	DAL	DALLAS LOVE FIELD /DAL/
8	NXUS6	4	KFWD	GSM	DFW	DALLAS/FT. WORTH /DFW/
9	NXUS6	2	KGSP	GSM	CLT	CHARLOTTE /CLT/
10	NXUS6	4	KHGX	GSM	HOU	HOUSTON HOBBY /HOU/
11	NXUS6	4	KHGX	GSM	IAH	HOUSTON INTERNATIONAL /IAH/
12	NXUS6	3	KICT	GSM	ICH	WICHITA /ICT/
13	NXUS6	1	KILN	GSM	CMH	COLUMBUS OH /CMH/
14	NXUS6	1	KILN	GSM	CVG	COVINGTON /CVG/
15	NXUS6	1	KILN	GSM	DAY	DAYTON /DAY/
16	NXUS6	3	KIND	GSM	IDS	INDIANAPOLIS /IND/
17	NXUS6	4	KLIX	GSM	MSY	NEW ORLEANS /MSY/
18	NXUS6	3	KLMK	GSM	SDF	LOUISVILLE KY /SDF/
19	NXUS6	3	KLOT	GSM	MDW	CHICAGO MIDWAY /MDW/
20	NXUS6	3	KLOT	GSM	ORD	CHICAGO O'HARE /ORD/
21	NXUS6	3	KLSX	GSM	STL	ST. LOUIS /STL/
22	NXUS6	1	KLWX	GSM	ADW	ANDREWS AIR FORCE BASE /ADW/
23	NXUS6	1	KLWX	GSD	BWI	BALTIMORE/WASH /BWI/
24	NXUS6	1	KLWX	GSM	DCA	WASHINGTON NATIONAL /DCA/
25	NXUS6	1	KLWX	GSM	IAD	DULLES /IAD/
26	NXUS6	4	KMEG	GSM	MEM	MEMPHIS /MEM/
27	NXUS6	2	KMFL	GSM	FLL	FORT LAUDERDALE /FLL/
28	NXUS6	2	KMFL	GSM	MIA	MIAMI /MIA/

29	NXUS6	2	KMFL	GSM	PBI	WEST PALM BEACH /PBI/
30	NXUS6	2	KMLB	GSM	MCO	ORLANDO INTERNATIONAL /MCO/
31	NXUS6	3	KMKX	GSM	MKE	MILWAUKEE /MKE/
32	NXUS6	3	KMPX	GSM	MSP	MINNEAPOLIS /MSP/
33	NXUS6	4	KOHX	GSM	BNA	NASHVILLE /BNA/
34	NXUS6	1	KOKX	GSM	EWR	NEWARK /EWR/
35	NXUS6	1	KOKX	GSM	JFK	NEW YORK CITY /JFK/
36	NXUS6	4	KOUN	GSM	OKC	OKLAHOMA CITY /OKC/
37	NXUS6	1	KPBZ	GSM	PIT	PITTSBURGH /PIT/
38	NXUS6	1	KPHI	GSM	PHL	PHILADELPHIA /PHL/
39	NXUS6	5	KPSR	GSM	PHX	PHOENIX /PHX/
40	NXUS6	2	KRAH	GSM	RDU	RALEIGH DURHAM /RDU/
41	NXUS6	5	KSLC	GSM	SLC	SALT LAKE CITY /SLC/
42	NXUS6	2	KTBW	GSM	TPA	TAMPA BAY /TPA/
43	NXUS6	4	KTSA	GSM	TUL	TULSA /TUL/
44	NXUS6	5	KVEF	GSM	LAS	LAS VEGAS /LAS/
45	NXUS6	2	TJSJ	GSM	SJU	SAN JUAN /SJU/

WITHIN THE TOC FTP SERVER...TDWR SPG PRODUCTS WILL BE PLACED IN SUBDIRECTORIES BELOW THE FOLLOWING DIRECTORY:

FTP://TGFTP.NWS.NOAA.GOV/SL.US008001/DF.OF/DC.RADAR/

PRODUCT FILES WILL BE PLACED IN SITE NAMED SUBDIRECTORIES AS LISTED IN TABLE 4 BENEATH THE PRODUCT NAMED SUBDIRECTORIES LISTED IN TABLE 3. NOTE THAT TDWR SITE NAMED DIRECTORIES ARE EASILY IDENTIFIED BY THE T PREFIX TO THE XXX SPG SITE ID.

FOR SPG PRODUCTS WHICH HAVE A WSR-88D COUNTERPART... PRODUCTS WILL BE PLACED IN TDWR SPG SITE NAMED SUBDIRECTORIES BENEATH EXISTING WSR-88D PRODUCT NAMED DIRECTORIES. ERRONEOUS WSR-88D PRODUCT NAMED SUBDIRECTORIES WILL BE CORRECTED BY THE TECHNOLOGY REFRESHED RPCCDS /E.G. DS.00NMD BECOMES DS.141MD/. WITHIN EACH SITE NAMED SUBDIRECTORY...RADAR PRODUCT FILES FOR THE CURRENT VOLUME SCAN AND THE PREVIOUS 250 VOLUME SCANS WILL BE STORED. THE FILES IN EACH RADAR SITE SUBDIRECTORY WILL BE SEQUENTIALLY NAMED SN.0000 THROUGH SN.0250...AND SN.LAST. EACH VOLUME SCAN...NEW FILES WILL BE WRITTEN TO THE CURRENT FILE NAME SN.LAST AND THE NEXT SEQUENTIALLY NUMBERED FILE...OVERWRITING THE FILE CORRESPONDING TO THE PREVIOUSLY CURRENT PRODUCT AND THE OLDEST FILE IN THE DIRECTORY /USE LOWER CASE LETTERS FOR ALL FILE NAMES/. THE RESIDENCE TIME OF TDWR SPG FILES WILL BE APPROXIMATELY ONE DAY.

TABLE 3: TOC FTP DIRECTORIES ASSIGNED THE TDWR SPG PRODUCTS

#	DIRECTORY	SPG PRODUCT CODE AND DESCRIPTION
1	/DS.P2GSM/	2 GENERAL STATUS MESSAGE /GSM/
2	/DS.75FTM/	75 FREE TEXT MESSAGE /FTM/
3	/DS.152RS/	152 ARCHIVE STATUS PRODUCT /ASP/
4	/DS.186ZL/	186 REFLECTIVITY /Z/ - 0.6 DEG. LONG RANGE
5	/DS.181R0/	181 REFLECTIVITY /Z/ - BASE ELEVATION
6	/DS.181R1/	181 REFLECTIVITY /Z/ - 1.0 DEG. ELEVATION
7	/DS.181R2/	181 REFLECTIVITY /Z/ - THIRD ELEVATION
8	/DS.182V0/	182 VELOCITY /V/ - BASE ELEVATION
9	/DS.182V1/	182 VELOCITY /V/ - 1.0 DEG. ELEVATION
10	/DS.182V2/	182 VELOCITY /V/ - THIRD ELEVATION
11	/DS.P37CR/	37 COMPOSITE REF /CZ/

12 /DS.P41ET/	41 ECHO TOPS /ET/
13 /DS.48VWP/	48 VAD WIND PROFILE /VWP/
14 /DS.57VIL/	57 VERT INTEG LIQ /VIL/
15 /DS.58STI/	58 STORM TRACKING INFORMATION /STI/
16 /DS.P59HI/	59 HAIL INDEX /HI/
17 /DS.61TVS/	61 TORNADIC VORTEX SIGNATURE /TVS/
18 /DS.78OHP/	78 ONE HOUR PRECIP /OHP/
19 /DS.80STP/	80 STORM TOTAL PRECIP /STP/
20 /DS.81DPR/	81 DIGITAL PRECIP ARRAY /DPA/
21 /DS.82SPD/	82 SUPPLEMENTAL PRECIPITATION DATA /SPD/
22 /DS.32DHR/	32 DIGITAL HYBRID SCAN REFL /DHR/
23 /DS.138DP/	138 DIGITAL STORM TOTAL PRECIP /STP/
24 /DS.141MD/	141 MESOCYCLONE /MD/

TABLE 4: TOC FTP DIRECTORIES ASSIGNED THE TDWR SPG SITES

#	DIRECTORY	SPG ID	TDWR FAA SITE NAME
1	/SI.TDEN/	3013	DENVER /DEN/
2	/SI.TBOS/	3004	BOSTON /BOS/
3	/SI.TLVE/	3006	CLEVELAND OH /CLE/
4	/SI.TDTW/	3015	DETROIT /DTW/
5	/SI.TMCI/	3025	KANSAS CITY /MCI/
6	/SI.TATL/	3002	ATLANTA /ATL/
7	/SI.TDAL/	3010	DALLAS LOVE FIELD /DAL/
8	/SI.TDFW/	3014	DALLAS/FT. WORTH /DFW/
9	/SI.TCLT/	3007	CHARLOTTE /CLT/
10	/SI.THOU/	3018	HOUSTON HOBBY /HOU/
11	/SI.TIAH/	3020	HOUSTON INTERNATIONAL /IAH/
12	/SI.TICH/	3021	WICHITA /ICT/
13	/SI.TCMH/	3008	COLUMBUS OH /CMH/
14	/SI.TCVG/	3009	COVINGTON /CVG/
15	/SI.TDAY/	3011	DAYTON /DAY/
16	/SI.TIDS/	3022	INDIANAPOLIS /IND/
17	/SI.TMSY/	3032	NEW ORLEANS /MSY/
18	/SI.TSDF/	3040	LOUISVILLE KY /SDF/
19	/SI.TMDW/	3027	CHICAGO MIDWAY /MDW/
20	/SI.TORD/	3034	CHICAGO O'HARE /ORD/
21	/SI.TSTL/	3043	ST. LOUIS /STL/
22	/SI.TADW/	3001	ANDREWS AIR FORCE BASE /ADW/
23	/SI.TBWI/	3005	BALTIMORE/WASH /BWI/
24	/SI.TDCA/	3012	WASHINGTON NATIONAL /DCA/
25	/SI.TIAD/	3019	DULLES /IAD/
26	/SI.TMEM/	3028	MEMPHIS /MEM/
27	/SI.TFLL/	3017	FORT LAUDERDALE /FLL/
28	/SI.TMIA/	3029	MIAMI /MIA/
29	/SI.TPBI/	3035	WEST PALM BEACH /PBI/
30	/SI.TMKE/	3030	MILWAUKEE /MKE/
31	/SI.TMCO/	3026	ORLANDO INTERNATIONAL /MCO/
32	/SI.TMSP/	3031	MINNEAPOLIS /MSP/
33	/SI.TBNA/	3003	NASHVILLE /BNA/
34	/SI.TEWR/	3016	NEWARK /EWR/
35	/SI.TJFK/	3023	NEW YORK CITY /JFK/
36	/SI.TOKC/	3033	OKLAHOMA CITY /OKC/
37	/SI.TPIT/	3038	PITTSBURGH /PIT/
38	/SI.TPHL/	3036	PHILADELPHIA /PHL/
39	/SI.TPHX/	3037	PHOENIX /PHX/
40	/SI.TRDU/	3039	RALEIGH DURHAM /RDU/

41 /SI.TSLC/ 3042 SALT LAKE CITY /SLC/  
42 /SI.TTPA/ 3044 TAMPA BAY /TPA/  
43 /SI.TTUL/ 3045 TULSA /TUL/  
44 /SI.TLAS/ 3024 LAS VEGAS /LAS/  
45 /SI.TSJU/ 3041 SAN JUAN /SJU/

THE NWS HAS ESTABLISHED THE FOLLOWING FTP SITE TO PROVIDE PROJECT  
PLANS AND STATUS...ADDITIONAL INFORMATION...AND FOR PREVIEWING  
SAMPLE TDWR SPG PRODUCTS:

FTP://FTP.ROC.NOAA.GOV/PUB/TDWR\_SPG\_INFO/

BEGINNING ON A DATE TO BE ANNOUNCED...THE INFORMATION WILL MOVE TO:

HTTP://WWW.ROC.NOAA.GOV/

IF YOU HAVE QUESTIONS ABOUT THE TECHNICAL CONTENT OR GENERATION  
OF THESE PRODUCTS...PLEASE CONTACT:

MICHAEL ISTOK  
NWS...OFFICE OF SCIENCE AND TECHNOLOGY  
SILVER SPRING MARYLAND  
301 713 0763 EXT 103  
MICHAEL.ISTOK@NOAA.GOV

ALTERNATE  
TIM.D.CRUM@NOAA.GOV

IF YOU HAVE QUESTIONS ABOUT THE NOAAPORT ACTIVATION OR DATA FLOW  
OF THESE PRODUCTS...PLEASE CONTACT:

BRIAN GOCKEL  
NWS...OFFICE OF SCIENCE AND TECHNOLOGY  
SILVER SPRING...MARYLAND  
301 713 0304 EXT 158  
BRIAN.GOCKEL@NOAA.GOV

THE CENTRALLY COLLECTED TDWR SPG PRODUCTS WILL BE ARCHIVED AT THE  
NATIONAL CLIMATIC DATA CENTER /NCDC/ JUST AS THE WSR-88D PRODUCTS  
ARE. THE INVENTORY OF THE ARCHIVED PRODUCTS WILL BE AT:

HTTP://HURRICANE.NCDC.NOAA.GOV/PLS/PLHAS/HAS.DSSELECT

THE TDWR LEVEL II DATA WILL NOT BE COLLECTED... DISTRIBUTED OR  
ARCHIVED AT THIS TIME.

NWS TECHNICAL IMPLEMENTATION NOTICES ARE ONLINE AT /USE LOWER CASE/:

HTTP://WWW.WEATHER.GOV/OS/NOTIF.HTM

\$\$  
NNNN