How to Obtain WSR-88D Dual-Pol Data

- Numerical weather prediction model output is used by wind energy companies to make day-ahead energy production forecasts
- NOAA’s National Center for Environmental Prediction (NCEP) assimilates WSR-88D Level II reflectivity data into the Rapid Refresh (RAP) Model to improve short-term forecasts
- Real-time radar data of winds, severe weather, winter weather (frozen/liquid)
- Radar data input for initialization of numerical weather prediction models
- Climatological Studies
- “Forensic” studies of weather events that affect wind farm operations/efficiency
- Real-time detection and forensic studies of Bird/Bat migration

WSR-88D Can Help Increase Wind Farm Production

- Anticipate “Ramp” Events
  - Real-time radar data of winds, severe weather, winter weather (frozen/liquid)
  - Day-Ahead Energy Production Forecasts
- Radar data input for initialization of numerical weather prediction models
- Climatological Studies
- “Forensic” studies of weather events that affect wind farm operations/efficiency
- Real-time detection and forensic studies of Bird/Bat migration

Real-Time Analysis of Ramp Events and 0-2 Hour Forecasts

The New Dual Polarization Variables

- CC: Correlation Coefficient
- ZDR: Differential Reflectivity (decibels)
- KDP: Specific Differential Phase (degrees/kilometer)

Detection of Wind Shift Boundaries

The WSR-88D can detect thunderstorm outflow boundaries. Comparing sequential reflectivity and velocity products, which are updated every 4 to 5 minutes, allows wind energy companies to estimate the onset of ramp events.

Improved Hail Detection and Hail Stone Size Determination

Dual Pol data provides forecasters and data users additional confidence of the occurrence, location and size of hail.

“Giant” (>2 in) hail case of Dual-Pol Z, ZDR, CC, and KDP products from KOUN WSR-88D on 10 May 2010. “Baseball” size hail at the ground was reported in the white circled areas.

3- to 12-Hour and Day-Ahead Forecasts

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Real-Time Data

- Real-time WSR-88D Level II data (3 legacy moments and 3 new Dual Pol variables) are available from 140 WSR-88Ds. NWS sends these data to three distribution nodes where private sector users can obtain the data:
  - Purdue University, Education and Research Consortium of the Western Carolinas, and the University of Oklahoma.
  - For more information visit: http://www.roc.noaa.gov/WSR88D/Level_II/Level2Info.aspx
- NWS sends real-time radar products (Level III) from 156 WSR-88D and 45 FAA Terminal Doppler Weather Radars; available at: http://www.wav.noaa.gov/tg/tpcds.html

How to Obtain WSR-88D Dual-Pol Data

- Aids short-term forecasts for wind farm operators and commercial weather forecasters
- Helps the wind-energy industry make better production decisions
- Important input to initializing numerical weather prediction models
- Provides thousands of virtual data points of weather information

Summary – What Dual-Pol WSR-88D Data Can Do For The Wind Industry

- Aids short-term forecasts for wind farm operators and commercial weather forecasters
- Helps the wind-energy industry make better production decisions
- Important input to initializing numerical weather prediction models
- Provides thousands of virtual data points of weather information

Author address: Dr. Tim Crum, WSR-88D Radar Operations Center, Norman, OK; Phone: 405-573-8888; e-mail: Tim.D.Crum@noaa.gov; NEXRAD Web site: http://www.nws.noaa.gov/WSR88D; ROC Wind Energy Team: wind.energy.matters@noaa.gov