Minot WSR-88D Radar to Receive Dual Polarization Upgrade

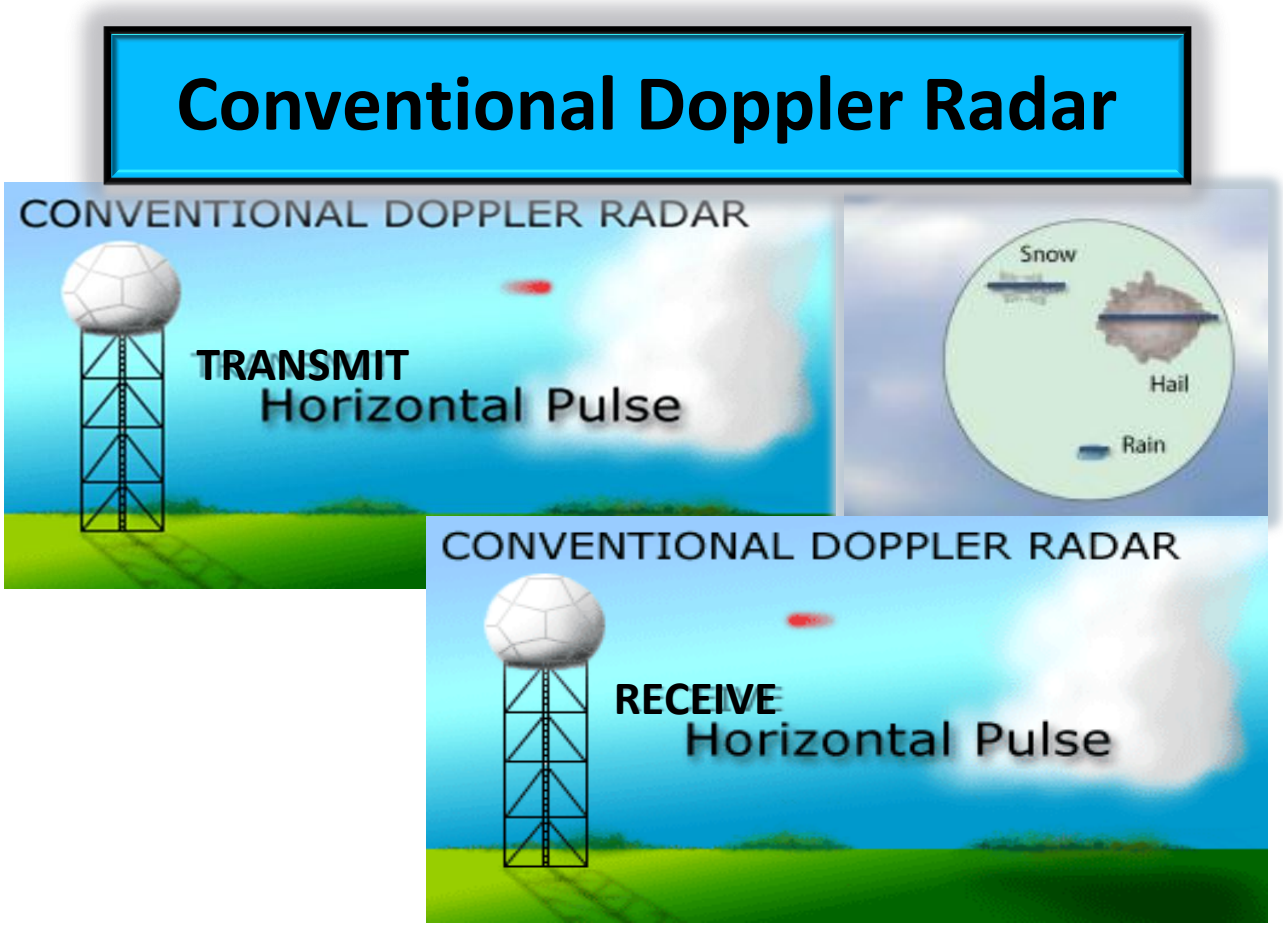
During the first half of June 2012, the Minot Doppler Radar will undergo an upgrade to Dual Polarization (Dual-Pol). This is an existing radar upgrade, and not a radar replacement. This is being done to all government Doppler Radars across the country. During the upgrade, the Minot radar will be offline. Neighboring Doppler radars are Bismarck ND, Glasgow MT, Rapid City SD, Aberdeen SD, and Mayville ND.

The mission of NOAA's National Weather Service is to protect life and property, and enhance the national economy. Dual-Pol technology will allow National Weather Service meteorologists to move forward in building a WEATHER READY NATION, where communities take a proactive approach to improve hazardous weather operations. You can be assured that Dual-Pol will enhance the warning decision making process National Weather Service meteorologists utilize 24/7, 365 days a year.

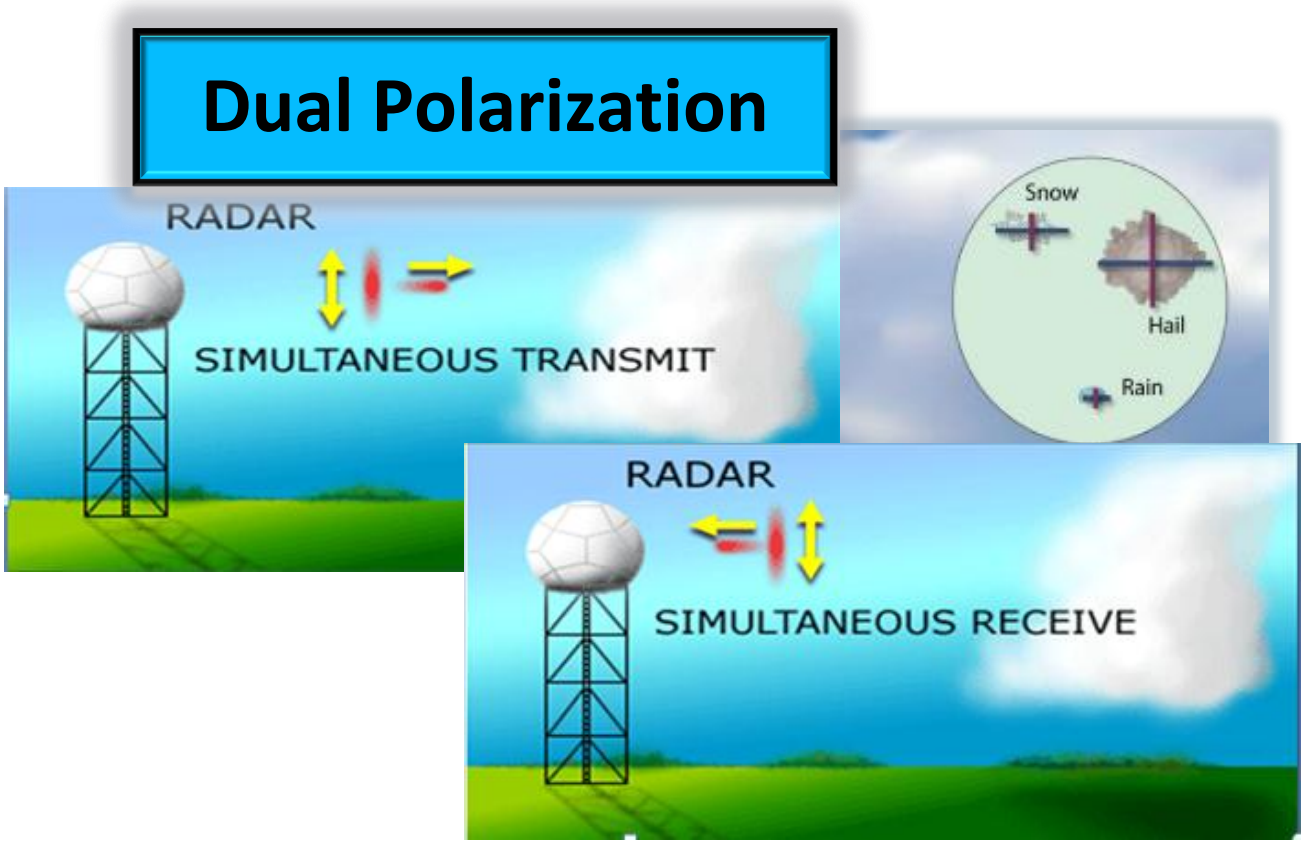
What is Dual Polarization?

Dual Polarization is a modification or an upgrade to the Doppler Weather Radars (WSR-88D) that were installed across the country in the early to mid-1990s. Two Doppler Radars are located in central North Dakota, and a third in eastern North Dakota. The Minot Doppler Radar (KMBX) is located about 20 miles northeast of Minot, near Deering North Dakota, in McHenry County. The Bismarck Doppler Radar (KBIS) is located on the airport property in south Bismarck. The Mayville Doppler Radar (KMVX) is located near Mayville North Dakota, in Traill County. The conventional or

current Doppler Radar sends out a horizontal pulse of energy which gathers information about thunderstorms and precipitation. This data is converted into images that are then analyzed by meteorologists for the possible issuance of statements and warnings. These radar images are the same that broadcast meteorologists show you during their weathercast. (See Description Below)



With Dual-Pol the signal will be split. A horizontal and vertical pulse of energy will be emitted at the same time to gather information. This more detailed and accurate picture of what is occurring in the clouds allows for a more comprehensive interrogation of storms. (See Description Below)



Graphics: Radar Operation Center/Warning Decision Training Branch

Benefits of Dual-Pol Radar

- Much better estimation of the size and shape of hydrometeors, such as drizzle, raindrops, hailstones, and snowflakes. This will result in improved ability to classify precipitation type.

- Much improved ability to identify:
  - updraft location in thunderstorms,
  - hail detection,
  - tornado debris in certain situations,
  - heavy rain areas,
  - precipitation types (hail, rain, sleet, snow).

- Significant improvement in rainfall estimation, enhancing the accuracy of flood and flash flood warnings.

- Improved detection of non-weather elements such as birds, insects, wind turbines, and smoke plumes.

To Learn More About Dual-Pol

- Dual-Polarization Training is available here
  http://wdtb.noaa.gov/courses/dualpol/Outreach/index.html#nonmets

- National Severe Storms Laboratory Dual-Pol
  http://www.nssl.noaa.gov/dualpol/

- National Severe Storms Laboratory Dual-Pol FAQ Page
  http://www.cimms.ou.edu/~schuur/radar.html