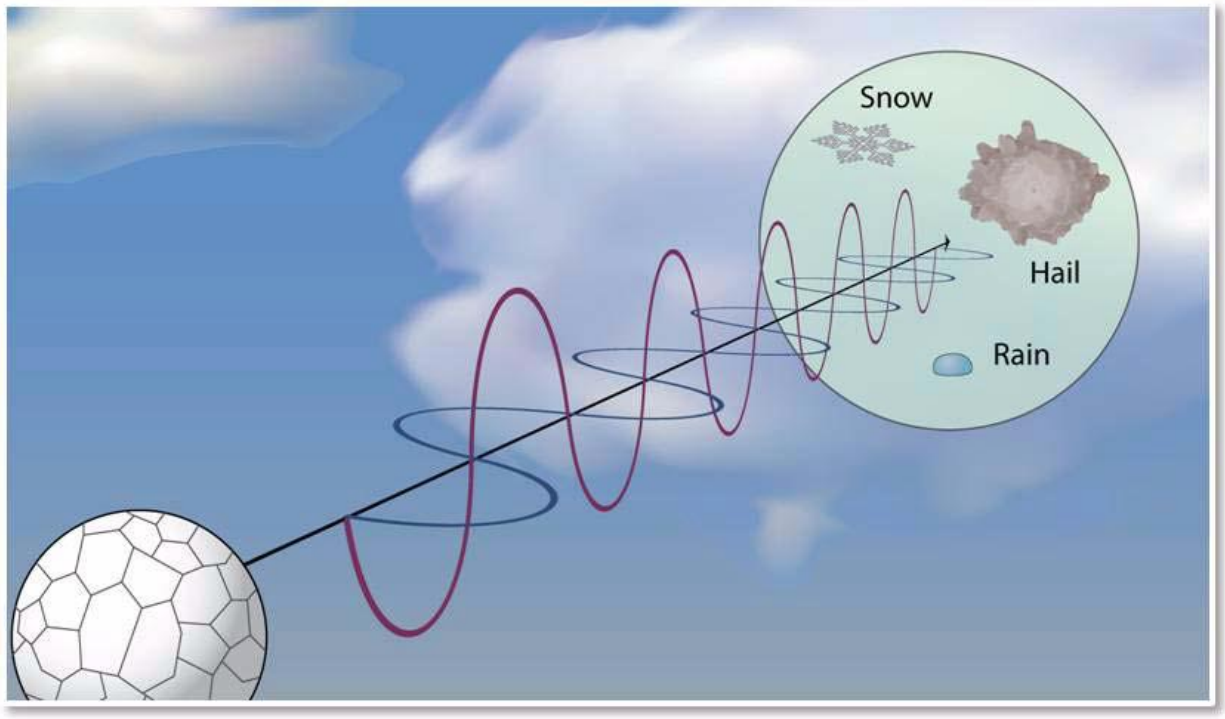
National Weather Service-NOAA
Weather Forecast Office – Baltimore/Washington DC
Q&A: Dual Polarization (Dual-Pol) Radar Upgrade

Q: What is dual polarization technology and how is it better than current radar?

A: Dual polarization technology (or simply "dual-pol") is a major upgrade to the network of existing National Weather Service (NWS) Weather Surveillance Radars (known as **WSR-88D** radars). In essence, dual-pol technology allows the radar to transmit and receive energy in both the horizontal and vertical planes (formerly only horizontal information was available). Having this two-dimensional view adds new information about the size and shape of objects like raindrops, hailstones, and snowflakes. This gives forecasters more confidence to accurately assess weather conditions because they know the type of precipitation falling.



Q: When will the Washington DC region see dual-pol radar?

A: The NWS Weather Forecast Office WSR-88D radar was upgraded to dual polarization technology in late February 2012. Dual-pol radar products began flowing on February 24, 2012.

Q: How does dual polarization technology improve flood forecasts?

A: A big advantage of dual polarization technology is its improved estimates of how much precipitation falls. Dual-pol radar-estimated rainfall amounts will be more accurate. Forecasters who examine dual-pol radar data are better able to pinpoint areas of heavy rainfall. Armed with this new information, forecasters are able to better detect flash floods much better than before and improve accuracy and lead time for flash flood warnings.

Q: Will dual polarization technology improve tornado warnings?

A: In some cases, dual-polarization radar technology can detect and identify the presence of tornado debris, giving the forecaster a high degree of confidence that a damaging tornado is on the ground. This helps to pinpoint and track the location of a tornado. This is especially helpful at night or with tornadoes that are rain-wrapped.

Q: Will the radar upgrade help forecast tornadoes in advance?

A: While dual-pol radar provides more specific information about the location of a tornado, it does not provide yet any added information about where a tornado will form ahead of time.

Q: How does dual polarization technology improve winter weather forecasts?

A: During winter, non dual-pol radars could not easily tell the difference between the types of winter precipitation. Dual-pol radars provide an improved ability to discriminate between rain, sleet and snow. This gives forecasters a better idea of what to expect on the ground.

Q: Does dual polarization technology improve what forecasters see?

A: Yes. Dual polarization radar can actually tell the difference between areas of weather (like rain, snow, hail) versus areas that might contain certain non-meteorological targets, such as birds, bats, and insects. Dual polarization radar data can correctly identify more than 99 percent of non-weather targets, enabling the automated removal of these non-weather targets and a much cleaner radar display, making it much easier to focus on the weather.

Q: Will dual polarization technology improve hail forecasts?

A: Dual polarization radars allow forecasters the ability to pinpoint where in the storm hail is falling. It also provides the ability to detect giant hail, roughly larger than golf balls.

Q: Will the radar look different?

A: Radar data displays you're used to seeing on TV or on the internet won't change. What you will get are new radar products based on the dual polarization technology that will provide new information about what's really out there. For more information about the new radar products available from the NWS, please visit http://www.wdtb.noaa.gov/courses/dualpol/outreach

Q: Is there information explaining dual polarization technology that is brief and simple to understand?

A: Yes, a short video produced by NOAA is available on YouTube that explains the basic benefits of dual polarization for the general public. Anyone can link to the video, which includes subtitles: http://www.youtube.com/watch?v=tX6LH_l3P3Y