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Mary S.

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Girl Friday
(and Monday,
Tuesday....)*

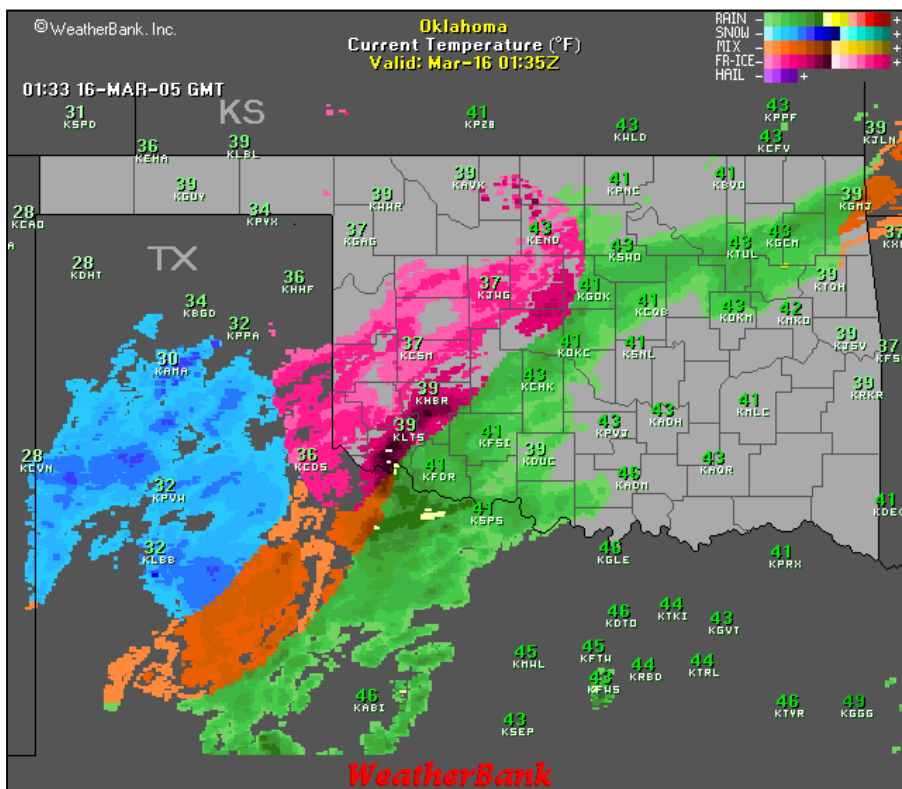
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What is DOPPLER Radar?

Thursday, August 20, 2009

Have you ever wondered about the Doppler Radar that meteorologists love to talk about? Well, the truth about Doppler is that its applications are much broader than just the weather.

The technique that is used in weather forecasting is actually a pulse-Doppler device and is used to examine the motion of precipitation. It's just one tool in a vast set of tools used to forecast the weather that impacts our daily lives. (The "motion of precipitation," by the way, will tell us where it's going and usually when it will get there. Good stuff to know if it's going to change your daily routine!) However, if you're like me, having a general understanding of how something works makes the whole subject more interesting. So let's take an "everyman's" look at Doppler.



All forms of this type of radar originated from the Doppler Effect, which is named after Christian Doppler, an Austrian physicist. Back in 1842 he determined that there is a change in the frequency of a wave that we perceive as we move relative to the source of the waves. A well-known analogy is that of a train whistle that sounds higher as it approaches a platform and then a lower in pitch as it moves away.

The Doppler radar we use today works much in the same way; waves are emitted by the radar and are perceived with an increase in frequency (a blue shift) if it is moving toward an object.

If the object is moving away from us, it will be shifted toward the red end of the spectrum and have a lower frequency. Doppler radar sends out radio waves that bounce off objects in the air, such as raindrops or snow crystals, and then measures how much the frequency changes in returning radio waves to better determine the direction and speed of the precipitation.

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It was actually back in World War II when the Defense Department began using this principle (in the hopes of discovering incoming enemy planes) that they discovered the waves would bounce off of various forms of precipitation. And thus, the meteorological application was born!

So the next time you hear your local meteorologist speak of Doppler radar, you can say to your friends or family, "Hey guys, wanna know how that works?"

A couple of other applications of the Doppler that you might find interesting are the radar gun used by police and highway patrolmen to determine if you are speeding and also the hand held radar used in various sports, especially baseball, to track the speed of a human or an object.

Keep checking our Wx Blog for more interesting information about the weather and how it effects your life!