Better Radar = Better Tornado Tracking

AccuWeather Enterprise Solutions Uses Improved Radar to Track Devastating Tornado Within Days of it Coming Available

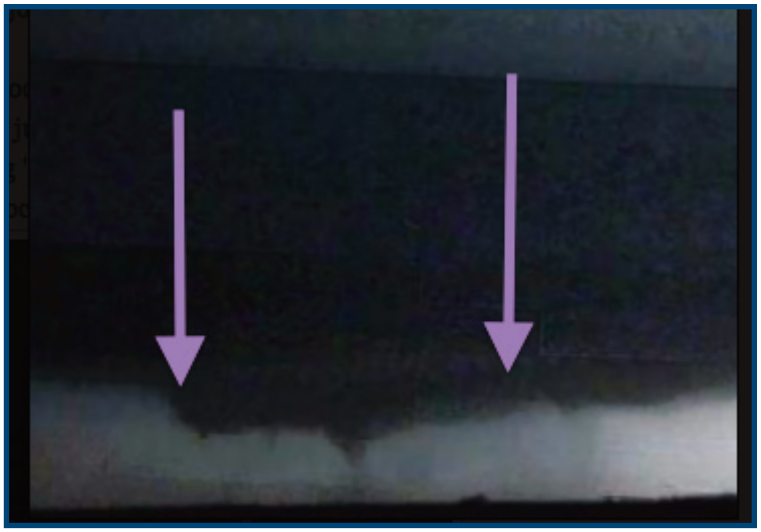
Often companies use the words, "new" and "better" for things that don't really matter to their customers. During the week of April 9, 2012, AccuWeather Enterprise Solutions used an improved radar to save lives.

The Doppler radar of the 1990s was a tremendous step forward in the tracking and warning of tornadoes. Those radars can see "mesocyclones" in thunderstorms from which major tornadoes form. The problem is that most mesocyclones do not produce tornadoes which means there can be too many false alarms. The other issue with the conventional Doppler radars is that their data is available – at best – every four minutes. Tornadoes often form and die in less time.

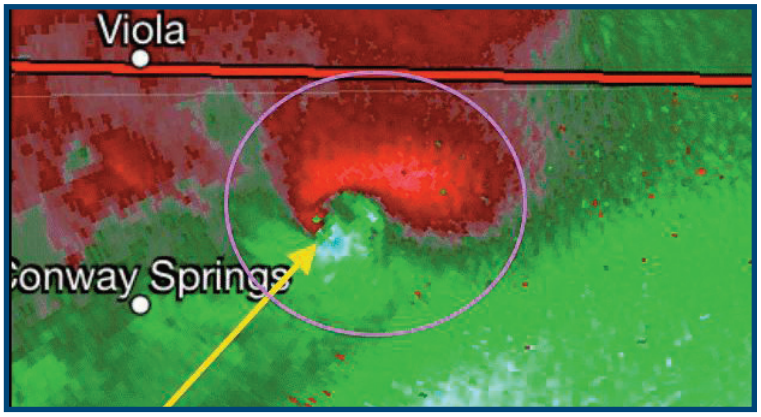
Starting April 9, 2012, 44 high-resolution Doppler radars, that report at one-minute intervals, became available. Just five days later, AES meteorologists used that data to directly track a strong mesocyclone that approached Wichita – as well as the tornado and its 150 mph winds – within it.

Supercells, such as the one near Wichita, produce "families" of tornadoes. The photo by Scott Pelz shows the tornado in the series immediately before Wichita's tornado and is the one directly depicted on the TDWR radar at the same time as the radar was measuring it. The purple arrows point to the "wall cloud" which is the visual manifestation of the "mesocyclone" The amount of detail this radar can give is really amazing and very useful in creating more accurate storm warnings.

Because AES had this data, we were able to more precisely track the threat than other meteorologists and better warning our clientele.



Storm observer Drew Pelz got this screen capture of the tornado approaching Wichita in the darkness (it was illuminated by lightning). The visual manifestation of the mesocyclone is called a "wall cloud" which is a rotating lowering of the cloud base. It is denoted by the arrows.



The much higher velocity resolution of the TDWR enables the tornado(location of the tornado highlighted by the arrow)itself to be seen within the mesocyclone. The green pixel inside the red pixels just on the northwest side of the tornado is an unfolded velocity of just over 150 mph!

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