

Missouri and southern Illinois through the evening hours, producing only sporadic reports of straight-line wind damage. When WSR-88D 0.5°-elevation reflectivity (*Z*) from Paducah, Kentucky, (KPAH) is viewed temporally (See adjacent figure), a reflectivity tag is evident moving northeast along the west edge of the QLCS. This tag can be viewed in KPAH 0.5° *Z* and storm-relative velocity data more than an hour prior to tornadogenesis. By 0733 UTC, or 6 minutes prior to tornadogenesis, the tag has caught up to the LLSC. The process that produced this signature likely interacted with the

supercell and led to conditions that made the storm-scale environment more conducive to the formation of the tornado.

Although there remains some uncertainty as to the cause of these reflectivity tag or bulge signatures, there are similarities to previous studies describing the interaction of shear-induced gravity waves with convective systems. At the very least, these signatures are clues to a changing near-storm environment that may require close investigation by meteorologists monitoring the system. Further investigation into the underlying processes that are involved will be critical for assess-

ing the utility of this signature. It is hoped that the recognition of these features through the use of rapid looping and detailed mesoscale analysis may provide operational meteorologists with another valuable tool in the forecasting of severe local storms in these challenging environments.—LLOYD J. BARKER III, (NOAA/NWS WEATHER SERVICE, LINCOLN, ILLINOIS). “A Potentially Valuable WSR-88D Severe Storm Pre-cursor Signature in Highly Dynamic, Low CAPE, High Shear Environments,” presented at the 23rd Conference on Severe Local Storms, St. Louis, Missouri, 6–10 November 2006.

CHAPTER CHANNEL

HYDROLOGIC REMOTE SENSING CENTER OPERATIONS

Many industries such as agriculture, tourism, water supply, and transportation rely on accurate information about the current snowpack and the amount of water contained within it. In explaining the operations of the National Operational Hydrologic Remote Sensing Center (NOHRSC), Chris Bovitz noted in his presentation to the Twin Cities chapter in February that this is why collecting and providing snow information is important (on the order of billions of dollars annually).

Bovitz explained that NOHRSC runs a high-resolution, energy- and mass-balanced three-layer snow model to simulate the snow pack across the coterminous United States. There are three stages to each successful model run. First the data must be collected. NOHRSC takes in data in different ways. Surface snow observations are acquired from

more than 25,000 locations in the United States and Canada, including special and regular snow surveys from various water agencies. In addition, NOHRSC flies airborne snow surveys along numerous designated flight lines across 31 states and eight Canadian provinces. Finally, area and extent of snow coverage is calculated from satellite data and is used qualitatively.

After the point data are collected, they are ingested into the snow model along with 13-km meteorological RUC2 data scaled down to match the model’s 1-km horizontal grid. The snow model is run for six 1-h time steps, and output fields are created: snowfall, rainfall, snow water equivalent, snow depth, snowpack temperature, snowmelt, and sublimation/condensation, among others. When the modeled snow water amounts become too far away from observations, a data assimilation is performed

to nudge the model toward the observations.

Bovitz noted that these data are presented via their Web site (www.nohrsc.noaa.gov) in various formats: text, static graphics, interactive graphics, and KML files for three-dimensional visualization programs. Station plots are also created that contain a wide variety of meteorological and hydrological data. Other avenues of dissemination include FTP, AWIPS, and NOAAport. In all, more than 2,300 products are issued daily.

According to Bovitz, the office’s Web site has received more than 12 million hits per month, especially in months when extensive snowstorms occurred. Knowledge of the products has been increasing as word of their availability spreads and their usage is explained at a growing number of events and conferences.

—LORI BOVITZ
Twin Cities chapter