



Cindy Preszler has been the prime meteorologist for CBS affiliate WKYT-TV in Lexington since 1990. Before coming to Lexington, she worked as an on-camera meteorologist for The Weather Channel in Atlanta. Ms. Preszler also has worked for television stations in Savannah, Georgia, and Hastings, Nebraska.

She has both the American Meteorological Society and the National Weather Association seals of approval.

She earned a degree in mass communications from the University of South Dakota.

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Cindy Preszler, Meteorologist,
WKYT-TV, Lexington

WEATHER FORECASTING

I put together a tape for you that will be a nice remembrance of last winter. It is going to take you back six months and cool you off a little.

Here it is July and we are already thinking about winter. But, in only five short months, winter officially begins and we need to make plans now. Last January caught half the country by surprise with record cold temperatures and large snowfall totals. Maybe this year we will be a little better prepared.

Text of tape

"I would like to urge all Kentuckians to please stay off the roads unless it is an absolute necessity. There are many cars that are stranded on our interstates." It all began on Sunday night, January 16th. Freezing rain unexpectedly changed to a heavy, wet snow. The Louisville National Weather Service noticed warm air aloft on the computer models, which should mean sleet or freezing rain. The forecast called for just a few inches of snow.

Unfortunately, the warm air created a convective-type snow, a "thundersnow"--you are familiar with summertime thunderstorms, that was just a wintertime kind of thunderstorm. Instead of rain, it dumped a lot of snow in a very short period of time. So, instead of what we thought originally--the freezing rain and sleet--we got a lot more snow. Lexington

received 10.2 inches and much more fell in other areas. I-75 was closed to all traffic, stranding people on the highway and in temporary shelters.

It is kind of scary--you are afraid you will run out of gas or that the car will quit, and you don't know anybody. There were emergency vehicles going by, but they never even slowed down, or they were on the other side of the road. Then the temperature dropped to a record low of 20 degrees below zero on January 19th. Heating bills soared, pipes burst, and road crews were pushed to the limit. Even the salt supply became a big story. Time is our friend here, in two or three days this is all going to be much better, and patience is required sometimes when Mother Nature gets going. Mother Nature does remind us every once in a while that she really is in ultimate control!

So, where does that leave us? Besides hoping for a mild winter in '95?

Let's take a look at Kentucky's snowfall. The state varies greatly from the west to the east. The western counties only average 10 inches or less per season, while extreme southeastern counties average 35 or more inches. Lexington usually receives almost 19 inches.

Our snowfall records go back to 1887. The greatest single winter record goes to Benham in 1959 to 1960--108.2 inches fell. The greatest all-time snow depth is 31 inches in LaGrange in January 1978. In Lexington, the highest seasonal snowfall occurred in 1916 to 1917--53 inches. Kind of makes 1994 seem a little bit unimpressive.

Forecasting snowfall is extremely difficult as there are so many variables that come into play. The track of the low-pressure center for example--snow bands are generally only 100 to 200 miles wide and, if you are off by only 50 miles on the storm track, you can be off 100 miles on the heavy snow line. Some computer forecasting models aren't able to pick up snowfall trends, which can make it a hit-or-miss situation. Moisture and temperature make a big difference.

I guess the only good thing about winter storms is that they take several days to develop. But they also have a mind of their own when it comes to movement and intensity. There are several types of winter storms. The one we know the best here in Kentucky contains freezing rain or freezing drizzle. This occurs when surface temperatures are below freezing. Rain falls but freezes upon impact, resulting in a coating of ice or glaze on all exposed surfaces. This is called an *ice storm*. Lexington, in particular, experiences this due to its latitude and longitude. *Sleet* is frozen raindrops or ice pellets that bounce when hitting the ground. It doesn't stick to trees, but enough can cause hazardous driving conditions. Snow can be continuous, intermittent, flurries, or showers, and snow squalls. And last, but not least, the *blizzard*. This is the most dangerous since it involves low temperatures, strong winds, and heavy snow. Visibility can be cut to zero.

The best advice is be prepared for the worst and know what each warning or advisory means. A *winter storm watch* is issued by the National Weather Service when indications are that hazardous winter weather might develop or move into the area. A *winter storm warning* is issued when there is a higher degree of certainty that hazardous winter weather will develop or move into the area. A *snow advisory* means that snow amounts of 1 to 2, 1 to 3, 2 to 3, or around 3 inches of snow could fall. A *freezing rain advisory* means accumulations making roads, sidewalks, and other surfaces hazardous. A *wind chill advisory* is issued when the wind chill temperatures reach minus 30 to minus 35 degrees or below. The wind chill factor affects only exposed skin, not objects such as cars. The lower the temperature and the higher the wind speed, the colder the wind chill. Exposed skin can freeze within thirty seconds if the wind chill factor reached minus 76 degrees Fahrenheit. Brrrr.

A *dense fog advisory* is for visibilities at or below 1/4 mile. A *blizzard warning* means sustained winds of 35 miles per hour or greater, or frequent gusts of 35 miles per hour or greater. There is considerable falling or blowing snow reducing visibilities to 1/4 mile or less.

Now the big question: what is the future of snowfall forecasting? Improvements in technology are taking place every year and that means our ability to forecast is getting better and better. There are new models coming out and more information is becoming available. It is an improvement--it will probably never be exact. I would like it to be but, meteorology is based on mathematics and physics. These are exact sciences trying to forecast an inexact science; so, 2 plus 2 does not always equal four in meteorology.

Winter weather can be a lot of fun but, boy, can it be dangerous, too! Listen to the local media and the NOAA weather alert radio. Pay attention to Mother Nature--if a winter storm warning is issued, there is a good reason for it.

Thanks for allowing me to bring you a few winter weather facts, enjoy the rest of the conference.