

**Who We Are :** The National Weather Service (NWS) is part of the U.S. federal government. We are under the Department of Commerce and the National Oceanic and Atmospheric Administration (NOAA). The NWS costs each citizen roughly \$4 per year. There are 121 weather forecast offices (WFOs) across the U.S. and its territories.

**NWS Louisville History :** A Weather Bureau presence was first established in Louisville, Kentucky on September 11, 1871 in the Customs House and Post Office Building at Third and Green Streets. Observations were started on that date by U.S. Army Personnel. On February 23, 1993, the office moved from the International Airport, where it had been since 1947, to where it is today in the southern suburbs of Louisville.

**Area of Responsibility :** The Louisville WFO provides primary forecast and warning responsibility for 59 counties in central Kentucky and south central Indiana, which is the area highlighted in green. This area covers three time zones, five television media markets, and a total population of 2.53 million people as of the most recent census. The highest elevation in our forecast area lies in eastern Clinton County, Kentucky at roughly 1680 feet above sea level, while the lowest is approximately 370 feet in Hancock County along the Ohio River.



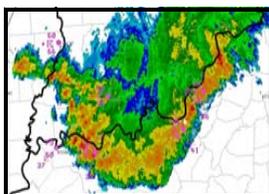
**Who Works Here :** A staff of 24 full-time people work at the Louisville forecast office situated in a 5700 square foot building. Our management team is noted in purple. The group highlighted in orange work rotating shifts, which are 8 or 9 hours a day. The office is staffed 24 hours a day, every day of the year. During severe weather situations, even in the middle of the night, there can be as many as 8 to 10 people working. Here is a listing of brief job descriptions in our office:

- **Meteorologist in Charge** - the "boss".
- **Science & Operations Officer** - conducts training and research.
- **Warning Coordination Meteorologist** - primary public-relations person.
- **Data Acquisition Program Manager** - oversees data collection program.
- **Electronic System Analyst** - oversees electronics program.
- **Information Technology Officer** - computer programming and maintenance.

- **5 Senior Forecasters** - in charge of operations on their shift.
- **5 General Forecasters** - forecasts weather while on shift.
- **4 Hydrometeorological Technicians** - data collection and quality control, interact with cooperative observers.
- **Service Hydrologist** - watches over rivers and hydrology program.
- **2 Electronics Technicians** - perform maintenance on critical radar and observing systems.
- **Administrative Support Assistant** - performs many administrative tasks.

**Big Storms to Affect the Area :** The Ohio Valley seems to have its fair share of significant storms. Here is a listing of some recent events to impact the region:

**22-23 December 2004 Winter Storm :** Bands of heavy snow, sleet, and freezing rain occurred across much of the Ohio Valley. Snowfall amounts up to 32 inches were measured in southern Indiana where thundersnow was observed, sleet up to 6 inches in north central Kentucky, and up to 1½ inches of ice in parts of central Kentucky.

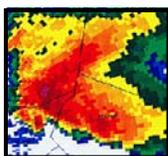


**13 July 2004 Derecho :** A line of severe thunderstorms formed into what is called a *derecho*, and rapidly moved across the region, producing widespread wind damage and gusts in excess of 80 MPH. Power outages and old-growth tree damage was significant in the Louisville area.

**15-16 February 2003 Ice Storm :** A slow moving winter storm system produced up to 1½" of ice over much of central Kentucky, with the hardest hit area in and around Lexington. Power outages lasting many days occurred.



**1-7 March 1997 Flooding :** The most significant flooding episode in recent memory occurred during this period. 10.48 inches of rain fell on a single day in Louisville on the 1st, with 5.56 inches in Lexington, which precipitated prolonged river flooding. Many counties along the Ohio River were declared federal disaster areas, with rivers reaching their highest level in 50 years.

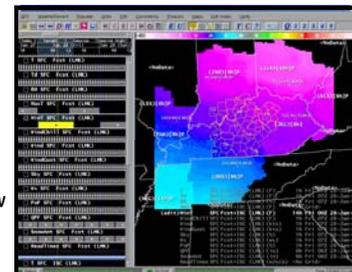


**28 May 1996 Tornadoes :** Associated with large supercell thunderstorms, tornadoes developed over southern Indiana and north central Kentucky. One large tornado stayed on the ground for 30 miles and reached F4 intensity in Bullitt and Spencer Counties.

**NWS Technology :** We use several state-of-the-art systems:

**AWIPS:** The primary interface that forecasters use to visualize data and issue forecasts and warnings. We have five Advanced Weather Information Processing System workstations, each with four 19" flat-panel monitors.

**GFE :** Forecasters in today's NWS issue forecast via the Graphical Forecast Editor. Meteorologists basically draw on a map what they think is going to happen and then click a few buttons to generate a text forecast. The system allows forecasters to spend more time thinking about the forecast and coordinating with surrounding offices, rather than hand typing a lengthy forecast.



**NEXRAD:** Our radar is located near Ft. Knox, and is the cornerstone of warning operations. The radar allows meteorologists to visualize wind patterns in the atmosphere which can lead to tornadoes or other damaging winds. The radar tower is roughly 135 feet tall with a 28 foot diameter azimuthally and vertically moving dish inside. When the radar transmits, it uses up to 750,000 watts of power. However, the radar is transmitting only 5% of the time, and is listening for return echoes the remaining 95%. The radar range is 248 nautical miles but forecasters use also radars from surrounding offices.

**Many Others Who Help Us :** Part of the NWS mission is to interact directly with the public. Here are some specific partners we work with:

- **Law Enforcement and Emergency Managers** : provide information on damage or other impacts during severe weather events in their area, along with formulating preparedness plans for severe weather in conjunction with the NWS.
- **Media** : effectively communicate NWS warnings to the public.
- **Cooperative Observers** : take daily weather observations (such as high, low, rainfall, snowfall, etc.) that are fed into a national climate database.
- **Spotters** : trained spotters are our "eyes and ears" out in the field and help us identify threatening weather in conjunction with our radar and other data. Training sessions are usually offered in the late Winter or early Spring and are free/open to the public. Contact the office for more information.
- **Amateur Radio Operators** : provide invaluable instant communications during severe weather events.

**Products We Issue :** Below is a listing of the core products that we issue. See our website, under the "Products We Issue" section, to view recent text products.

### Severe and Winter Weather

→Watches for severe thunderstorms, tornadoes, flooding, and winter storms. Watches are issued when conditions are *favorable* for that type of phenomena.

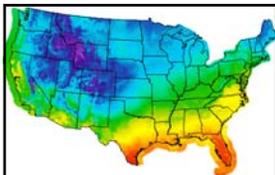
**Warning Fact:** Over about the past decade, the Louisville office has issued on average **534** warnings per year, including severe thunderstorm, tornado, and flash flood.

→Warnings for severe thunderstorms, tornadoes, flash floods, river floods, and winter storms. Warnings are issued when the type of phenomena is imminent or occurring.

→Warnings and advisories are issued for dense fog, high winds, low wind chills, and high heat indices.

→Hazardous Weather Outlook: brief overview of threatening weather forecast during the next seven days...issued at least once each day by 6 AM...updated as needed thereafter.

### Routine Public



→Using the GFE described in the *Technology* section, we issue forecasts in gridded form via the National Digital Forecast Database (NDFD). What this means is that you can get a unique forecast for a specific point anywhere in the U.S. that offers features such as hourly temperature and precipitation

forecasts. In addition, private companies can use this NDFD data to view weather parameters that are important to them; an example would be transportation companies interested in the weather along a certain Interstate. We also issue text forecasts for a specific area (called the zone forecast product)...issued by 4 AM and PM eastern time each day, and updated as needed.

→Area forecast discussion...a technical summary/discussion of the forecasters thoughts on upcoming weather...normally issued by 3 AM and PM each day, and updated as needed.

→Short-term forecast...detailed information about the next 3-6 hours...issued as needed.

→River products...river stages and forecasts.

### Climate and Air Quality

→Daily climate summaries issued for Louisville, Lexington, and Bowling Green...normally issued by 230 AM and 430 PM each day.

→Record statements sent when precipitation or temperatures records have been tied or broken.

→Air quality outlooks for the Louisville area sent several times daily.

### Fire Weather

→Daily fire weather planning forecasts containing trends in relative humidity, winds, and mixing that are used by state and federal forestry services...normally issued by 5 AM each day with an update around 330 PM during the fire weather season.

→Red flag warnings issued when weather conditions may promote

rapid wildfire spread.

### Aviation

→Terminal Aerodrome Forecasts (TAFs) are issued for three sites: Louisville International (SDF), Lexington (LEX), and Bowling Green (BWG). TAFs forecast weather elements critical to pilots, such as cloud height and visibility, and are issued at least four times daily.

**Criteria :** When we issue warnings, we expect that significant weather will reach certain thresholds. Below are the criteria for some of our more common weather warnings and advisories:

•**Tornado Warning :** a tornado touching down.

•**Severe Thunderstorm Warning :** thunderstorm wind gusts exceeding 58 MPH and/or hail penny size or larger. Hailstone size estimates are noted by the gray circles in the background; from top to bottom: pea (.25"), penny (.75"), quarter (1"), golf ball (1.75"), and tennis ball (2.5").

•**Flash Flood Warning :** flooding that presents an *immediate* danger to life or property.

•**Winter Storm Warning :** four inches or more of snow and/or one-quarter inch of ice and/or sleet in a twelve hour period. These are events which could present life threatening hazards.

•**Winter Weather Advisory :** snowfall amounts between one and three inches and/or less than one-quarter inch of ice and/or sleet in a twelve hour period. These events are less intense than warning-level storms, however they still can cause travel hazards.

•**Dense Fog Advisory :** dense fog with visibilities less than one-quarter mile, which is hazardous to travel.

•**Wind Chill Warning :** wind chill indices less than -10° F with winds at or above 10 MPH for a period of a few hours or more.

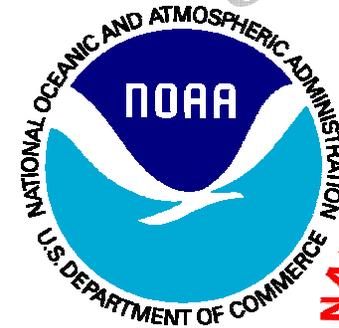
•**Excessive Heat Warning :** daytime heat indices above 105° F with nighttime values not falling below 80° F.

**NOAA All-Hazards Radio :** This is the official voice of the National Weather Service. How would you get alerted to severe weather while asleep in the middle of the night? A weather radio with SAME technology can do that for you, at a cost of roughly \$25 to 50 for most receivers. For transmitter frequencies and counties covered by a certain transmitter, please call our office or visit the weather radio website at

<http://www.nws.noaa.gov/nwr/>



# Louisville Weather Forecast Office



**Mission Statement:** The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters, and ocean areas, *for the protection of life and property* and the enhancement of the national economy.



### Talk to Us - Contact Information

**Telephone:** 502.969.8842 or 502.968.2676 (Mon. - Fri. only)

**Mail:** 6201 Theiler Lane, Louisville, KY 40229

**Email:** [w-lmk.webmaster@noaa.gov](mailto:w-lmk.webmaster@noaa.gov)

**Website:** <http://www.crh.noaa.gov/lmk>

**Louisville Area Forecast:** 502.968.6025

**Lexington/Frankfort Area Forecast:** 859.281.8131

