



Precipitation in the Land of Lincoln

By Jim Angel, State Climatologist

Illinois lies midway between the Continental Divide and the Atlantic Ocean, and the state's southern tip is 500 miles north of the Gulf of Mexico. Illinois' climate is typically continental with cold winters, warm summers, and frequent short fluctuations in temperature, humidity, cloudiness, and wind direction. Many consider the more moderate temperatures of spring and fall to be the most pleasant.

Weather systems create the wide variety of weather conditions that occur almost daily as a result of varying air masses and passing storm systems. The polar jet stream often is located near or over Illinois, especially in fall, winter, and spring, and is the focal point for the creation and movement of low-pressure storm systems characterized by clouds, winds, and precipitation. The settled weather associated with high-pressure systems is generally ended every few days by the passage of low-pressure systems.

Topography, urban areas, and Lake Michigan are the three local influences with effects on Illinois climate. The Shawnee Hills extend across southern Illinois and have elevations 500 to 900 feet higher than the surrounding terrain. This change in elevation is enough to increase annual precipitation by about 10 to 15 percent.

The second local feature is the urban climate found in many cities. Buildings, parking lots, roads, and industrial activities make the urban climate noticeably different than that of surrounding rural areas. Urban areas also enhance summertime precipitation downwind of the city and cause changes in humidity, cloudiness, wind speeds and directions.

Lake Michigan influences the climate of northeastern Illinois, especially Chicago. The lake tends to increase cloudiness in the area and suppress summer precipitation. Winter precipitation is enhanced by lake-effect snows that occur when winds blow from the north or northeast. These winds allow air to pass over the relatively warm lake, boosting storm system energy and water content, and leading to increased snowfall.

Average precipitation exceeds 48 inches a year in southern Illinois, compared to less than 32 inches in northern Illinois. Snowfall distribution is just the opposite, with averages of 36 inches a year in the north to less than 10 inches in extreme southern Illinois. Winter snowfall is heaviest in the Chicago area, enhanced by lake-effect snows from Lake Michigan.

The following is a list of precipitation records for Illinois. The greatest 24-hour rainfall was 16.94 inches at Aurora on July 17-18, 1996. The greatest one-year precipitation was 74.58 inches at New Burnside in 1950. The greatest 24-hour snowfall was 37.8 inches at Astoria on February 27-28, 1900. The greatest winter snowfall was 105.1 inches at Antioch in 1978-1979.

The Illinois State Climatologist Office (SCO) is located in Champaign, Illinois, at the Illinois State Water Survey (ISWS) on the campus of the University of Illinois. More information on the climate of Illinois can be found on the website: <http://www.isws.illinois.edu/atmos/statecli/>