

Ohio's Climate

THE COCORAHS 'STATE CLIMATES' SERIES

Ohio's New Era of Climate Extremes

Jeffrey Rogers, State Climatologist and Ohio CoCoRaHS co-coordinator (OH-FR2)

Ohio has a mid-latitude continental climate characterized by cold winters and warm summers. Most parts of the state receive at least two inches of precipitation per month due to continuous Gulf of Mexico moisture influx. Traveling winter cyclones bring Gulf moisture northward, and summer thunderstorms bring rain on humid days. Annual precipitation generally decreases from south to north, ranging from just over 43 inches around Cincinnati and along the Ohio River to about 33 inches west of Toledo. The major exception to the south to north decrease lies in the hilly northeastern counties, east of Cleveland and just south of Lake Erie. There the cooperative observer network station at Chardon receives about 108 inches of snow annually, forming the core of the Ohio lake-effect snowbelt and producing annual precipitation up to 47 inches. Snowfall then decreases toward western Ohio, and less than 25 inches falls southwest of Toledo while separately the southernmost counties have totals under 20 inches.

Ohio has been experiencing large precipitation extremes in recent decades. The state has had five severe summer droughts since 1988 (1988, 1993-94, 1999-2000, 2002, 2005), interspersed with some of the wettest years on record (1990, 2003, 2004, 2006, and 2008 are in the wettest 10% since 1895). Associated with this, Dayton, Columbus, and Cleveland now average nearly nine, eight, and seven days (respectively) per year with daily rainfalls exceeding an inch, an increase of 3-4 days annually since the early 1900s. Future Ohioans will likely be regaled with "winters of yore" tales that will refer to the current period since 2003 in which the state has experienced at least one major storm annually having widespread snow exceeding 12 inches. Enhanced precipitation extremes are thought by many scientists to be a ramification of global climate change, and the expanding Ohio CoCoRaHS network will continue to help monitor precipitation changes with time and regionally across the state.

Ohio has the climatological distinction of being one of the most active areas in the country for mid-summer thunderstorms producing severe winds exceeding 58 miles per hour. Wind was also the primary culprit in a most destructive, and unique, recent natural disaster when the remnants of Hurricane Ike passed over Ohio on September 14, 2008. Ike had maintained its upper atmospheric structure and winds as it entered the U.S., but the storm began collapsing as it approached Ohio, and the high winds aloft translated toward the ground with hardly any associated rainfall. Roaring gusty wind continually in excess of 50 mph pummeled large parts of the state for up to six hours, and many high wind gust records in the mid-70s mph were threatened. Ohio suffered \$1.25 billion in damage, and electric power was out in some places for up to ten days.

For more information on Ohio's climate, visit the Office of the State Climatologist for Ohio at: <http://www.geography.ohio-state.edu/faculty/rogers/statclim.html>