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## **Midwest Heavy Rain and Flooding is Compared to 1993 Flood**

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June 12, 2008

The recent heavy rain in the Midwest and flooding in Illinois, Indiana, Iowa, Wisconsin, Minnesota, and Missouri are drawing comparisons with the weather and events associated with the Great Flood of 1993 on the Mississippi River, according to Steve Hilberg, director of the National Oceanic and Atmospheric Administration (NOAA) Midwest Regional Climate Center (MRCC) at the Illinois State Water Survey. Climatologists there have compared 2008 weather events with what occurred in 1993 to place the current situation in perspective.

Precipitation levels since January 1 in the nine-state Midwest region are higher and cover a much larger area than for the same period in 1993. In 1993, the major rains occurred in June and July and the most significant flooding was later than what has occurred so far this year.

"In many locations in the Midwest, precipitation has accumulated faster than during the same period in 1993," says Mike Palecki, regional climatologist with the Climate Center.

In 1993, there were major levee breaks on the Missouri and Mississippi Rivers. The current flooding damages have been mainly on the tributaries of the Mississippi.

Waterloo, IA, in the core region of the 1993 floods, has experienced a faster accumulation of precipitation in 2008 than in 1993 (Fig. 1a), explaining the earlier timing

of flooding evident in Iowa this year. Even if normal rain rates return, the Waterloo accumulated precipitation total would remain above that of 1993 until late July.

Accumulated precipitation departures in Bloomington, IN, are much greater in 2008 than in 1993 (Fig. 1b). Palecki indicates that at both Waterloo and Bloomington, precipitation through June 11 has exceeded that total amount normally expected to fall through August.

Another difference between the situation in 1993 and that in 2008 relates to the amount of precipitation in the previous winter and fall. Precipitation amounts during the fall of 1992 (September-November) were 125 to 150 percent of normal from Missouri through Illinois and northern Indiana north through southern Minnesota, much of Wisconsin, and Michigan. Snowfall the winter before the 1993 Great Flood was near to above normal across most of the Midwest, with heavy snow in the upper Mississippi River basin in February 1993.

In the fall of 2007, the central Midwest received only 50 to 75 percent of normal rainfall. As a result, soils this spring were better able to handle the heavy rain that occurred. This past winter the heaviest snowfall was concentrated in an area from northwestern Missouri across the southeastern half of Iowa, southern Wisconsin, northern Illinois and Indiana, southern Michigan, and Ohio. Most of Minnesota received well below normal snowfall.

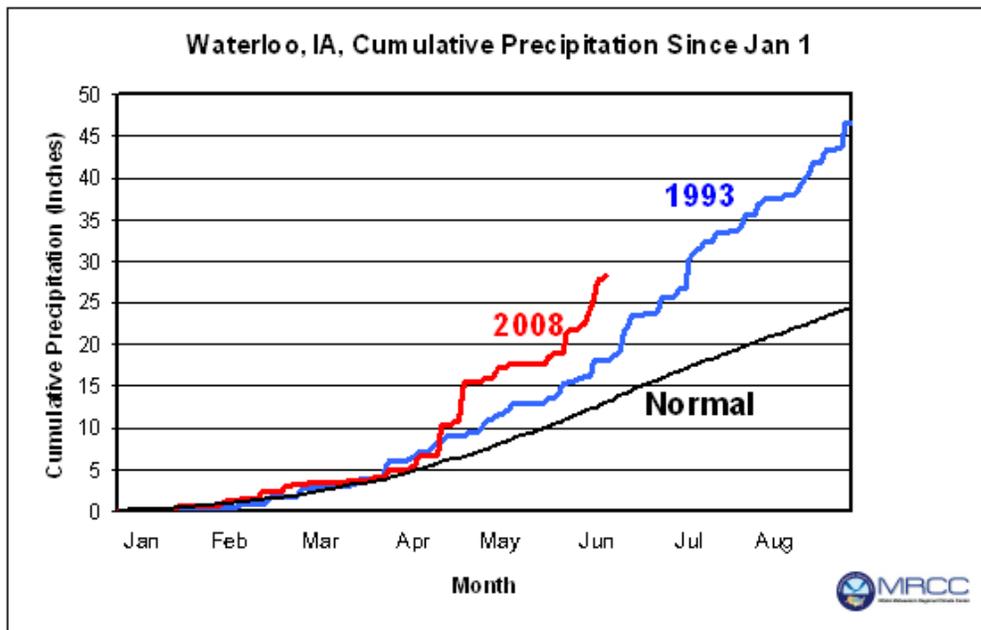
A comparison of the impacts from 1993 and this year shows both similarities and differences. Like this year, wet weather in the spring of 1993 led to wet soils and planting delays of corn and soybeans across the Corn Belt. While widespread flood damage has occurred already this year in Minnesota, Iowa, Missouri, Wisconsin, Illinois, and Indiana, crop damage in 1993 did not begin until mid-June. The most serious damages did not occur until later in July and August of that year as heavy rains continued across the region.

"We will continue to monitor this situation as it unfolds," concludes Hilberg.

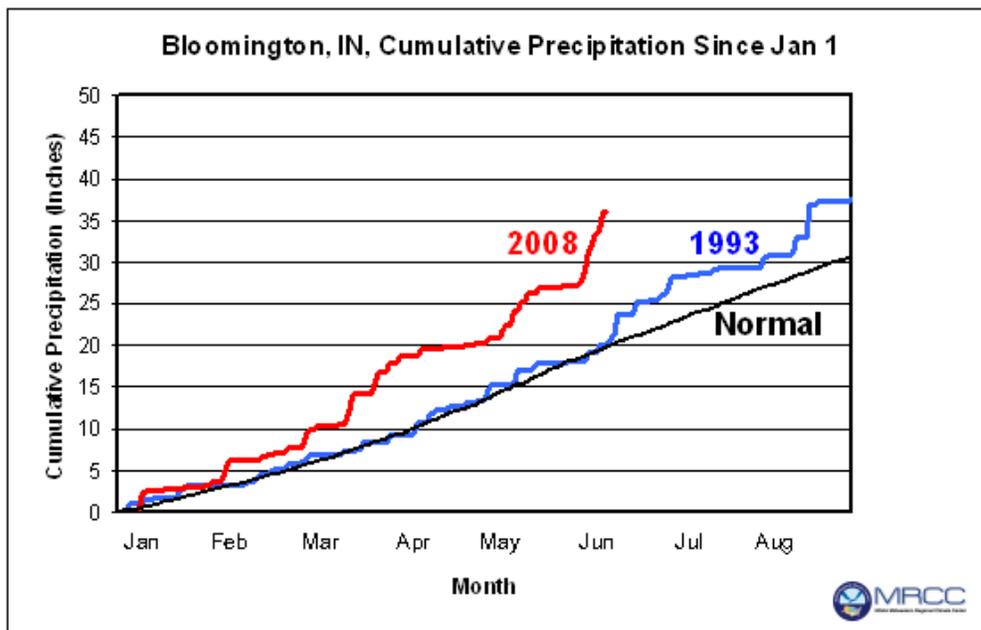
The current status of precipitation, temperature, and other climate conditions can be monitored on the MRCC's "Midwest Climate Watch" web page,

<http://mrcc.sws.uiuc.edu/cliwatch/watch.htm>

The Midwestern Regional Climate Center is a cooperative program of the Illinois State Water Survey and the National Climatic Data Center (National Oceanic and Atmospheric Administration, U.S, Department of Commerce).



a)



b)

Fig. 1. Cumulative precipitation from January 1, 2008 (red) and January 1, 1993 (blue), along with the normal precipitation accumulation from January 1 for 1971-2000 (black): a) Waterloo, IA; b) Bloomington, IN.