More floods, more often

IT only takes a glance at this year's precipitation map of the United States to identify the region of abnormal wetness. The record-setting floods of 2008 in Iowa and the flooding in other Midwest states are no surprise, considering the amount of precipitation.

"If it seems that high water years in the Midwest are increasingly common since about 1970, they are," says Iowa State University Extension climatologist Elwynn Taylor.

The 2008 floods arrived earlier than the floods of 1993 — and, in many cases, the record-high flood levels of 1993 have been surpassed. Also, the 2008 flooding was more widespread in the Midwest.

The 1993 floods became serious in July and continued into August, past the date when corn develops extensive root systems. The 1993 flooding resulted in greatly reduced corn yield in every county in Iowa; only three reached 100 bushels per acre or greater.

The Midwest now gets about 10% more annual precipitation than was received before 1970, says Taylor. This increase has effectively doubled the annual stream flow in much of the region. Rivers are more often over their banks. In the 40 years up to 1970, there were two "high" water years. In the subsequent 40 years, there have been 12.

Key Points

- This year's excessive rainfall in Iowa is a sign that the climate has changed.
- Because of these changes, flooding now occurs more often than it did previously.
- The Midwest now gets 10% more annual precipitation than it received before 1970.

He said it

"If you study the weather data, you see that flooding is occurring more frequently since about 1970."

Elwynn Taylor, *ISU Extension climatologist*

Climate has indeed changed

A flood event that might have been expected once every 200 years in the past is expected every 33 years or so in current climate conditions. Rivers across the western Corn Belt have responded to the changing climate.

Studying what causes storm systems, Taylor says the Bermuda High is a consistent, persistent feature of summer. It is the primary force moving moisture into the Midwest. Should the Bermuda High fail to develop, widespread drought is the result.

In 2008, an "early arriving" Bermuda High together with a Colorado Low resulted in a much stronger than usual flow of moist air into the Midwest. The jet stream associated with the Low system, also not a typical spring resident of the High Plains, provided the impetus for extensive storms to develop.

For the past couple of weeks, there has been a gradual migration of the Low toward a more typical summer location in Canada. The extreme storms in the Midwest will likely diminish when the Low pressure system moves north.

Similar conditions existed in 1947 — a year with many record flood reports followed by severe drought in the Corn Belt. In Iowa, 1983 was similar to 1947 with a very wet spring and harsh dry summer. The chance of changing to drought this year is about 25%. Chance of going to the warm and dry side of usual, sufficient to reduce Corn Belt yields to below trend, is about 62%.

Indications are 2008 may be an extreme year, he says. The U.S. corn yield is most likely to average 148 bushels per acre, and chance of widespread drought remains higher than average at slightly less than one chance in three.

Source: Iowa State University

Catch Elwynn on the Web

ELWYNN Taylor's presentation "Floods 2008" explains why Iowa is experiencing this weather pattern, offers his forecast for 2008 crop season and discusses what impact weather is having on yields. To listen to Taylor's presentation and his latest forecast, visit *www.extension.iastate.edu/weather.*