




# The Iowa Floods of 2008: An Historical Perspective

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An aerial photograph showing a city with a river that has flooded the surrounding areas. The water is brown and murky, covering large sections of green space and residential areas. In the background, a city skyline is visible, including a prominent tall building. The sky is overcast with grey clouds.

# 2008 Iowa Floods

## Why So Bad?

Photo: Iowa National Guard

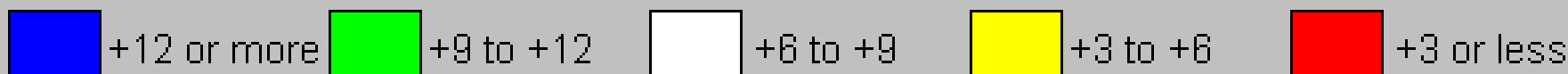
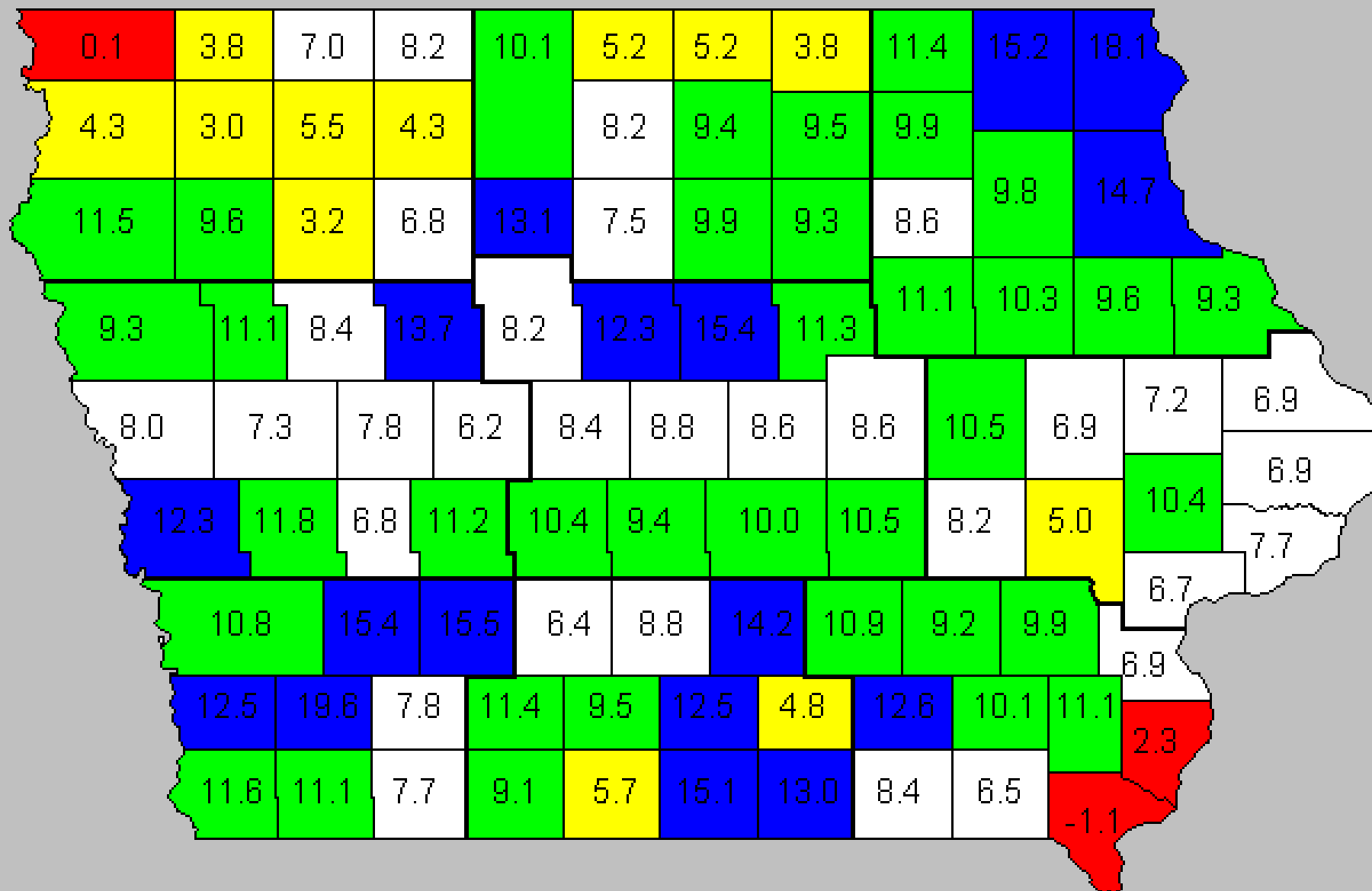
1. Iowa already saturated coming into 2008.

- Record wet August in 2007.
- 4<sup>th</sup> wettest October on record.
- 2<sup>nd</sup> wettest December ever.
- Overall 2<sup>nd</sup> wettest August thru December period among 135 years of records.

- **AUG: 19.05" rain at Rockwell City.**  
4.57" more than any other month in 111 yrs.
- **OCT: 11.26" rain at Red Oak.**  
Double the previous Oct. record at Red Oak.
- **DEC: 4.46" precipitation at Dubuque.**  
Wettest December in 155 yrs of record.
- **2007: 56.80" precipitation at Guthrie Ctr.**  
7.9" above previous annual record (99 yrs.)

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### COUNTY PRECIPITATION ESTIMATES, DEPARTURE FROM NORMAL, 2007 (inches)

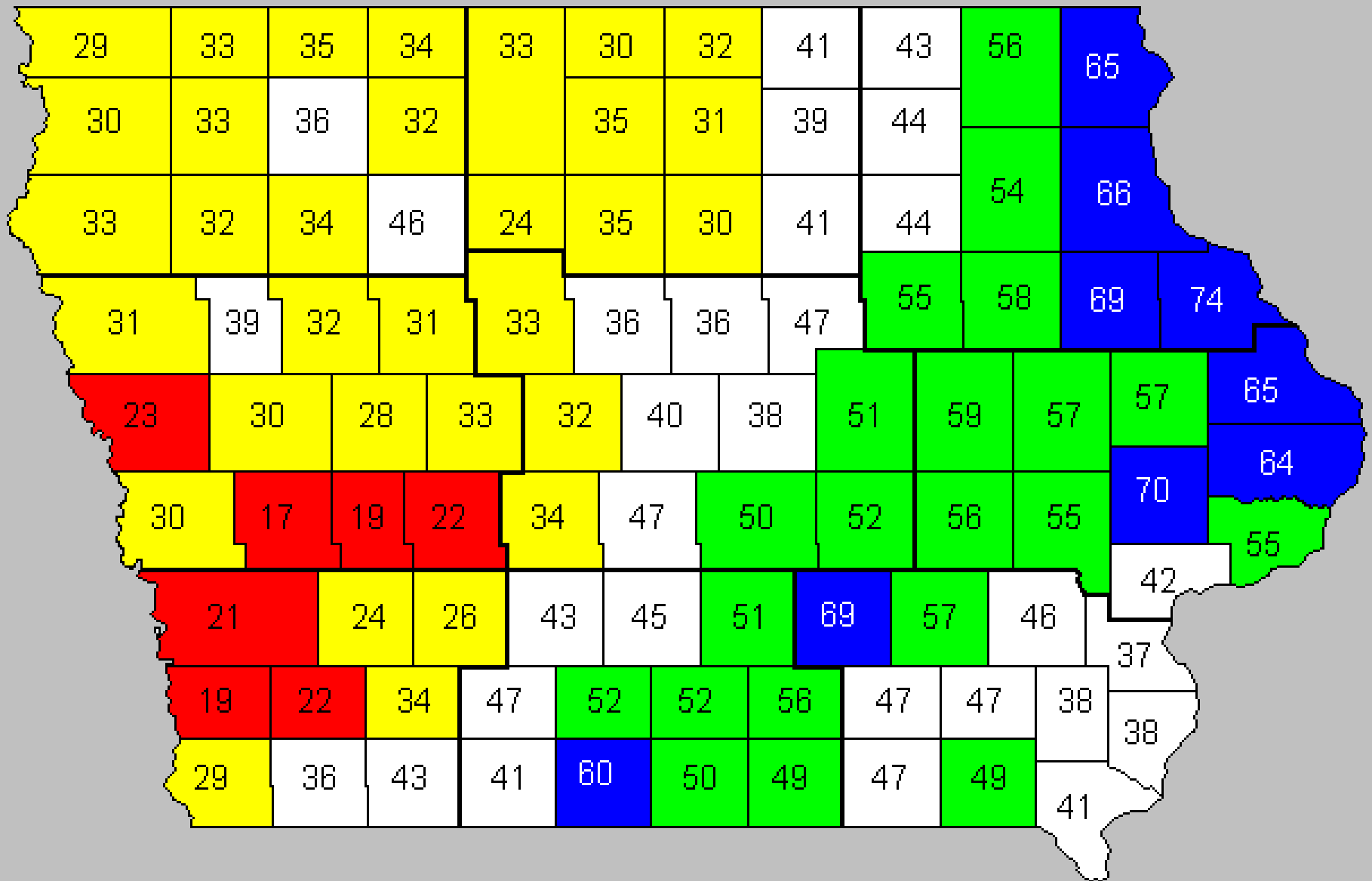


## 2. Snowy Winter in 2007-2008

- DEC: 6.1" more snow than normal.
- JAN: 1.7" more snow than normal.
- FEB: 9.5" more snow than normal.
  
- Snowiest winter in 7 years; 10<sup>th</sup> snowiest winter among 121 years of data.
- Also, 2 major ice storms in December.

- DEC: 27.6" snowfall at Lansing.
- DEC: 1.90" ice at Mount Ayr on 11<sup>th</sup>.
- JAN: Measurable precipitation in Iowa on 23 out of 31 days.
- FEB: 41.7" snowfall at Oskaloosa with 26 inches in only 6 days.
- FEB: Measurable snowfall in Iowa on 21 out of 29 days.
- SEASON: 87.6" snowfall at Dubuque.

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 PRELIMINARY SEASONAL SNOWFALL TOTALS, 2007-2008 (inches)





### 3. A Cold Winter for 2007-2008

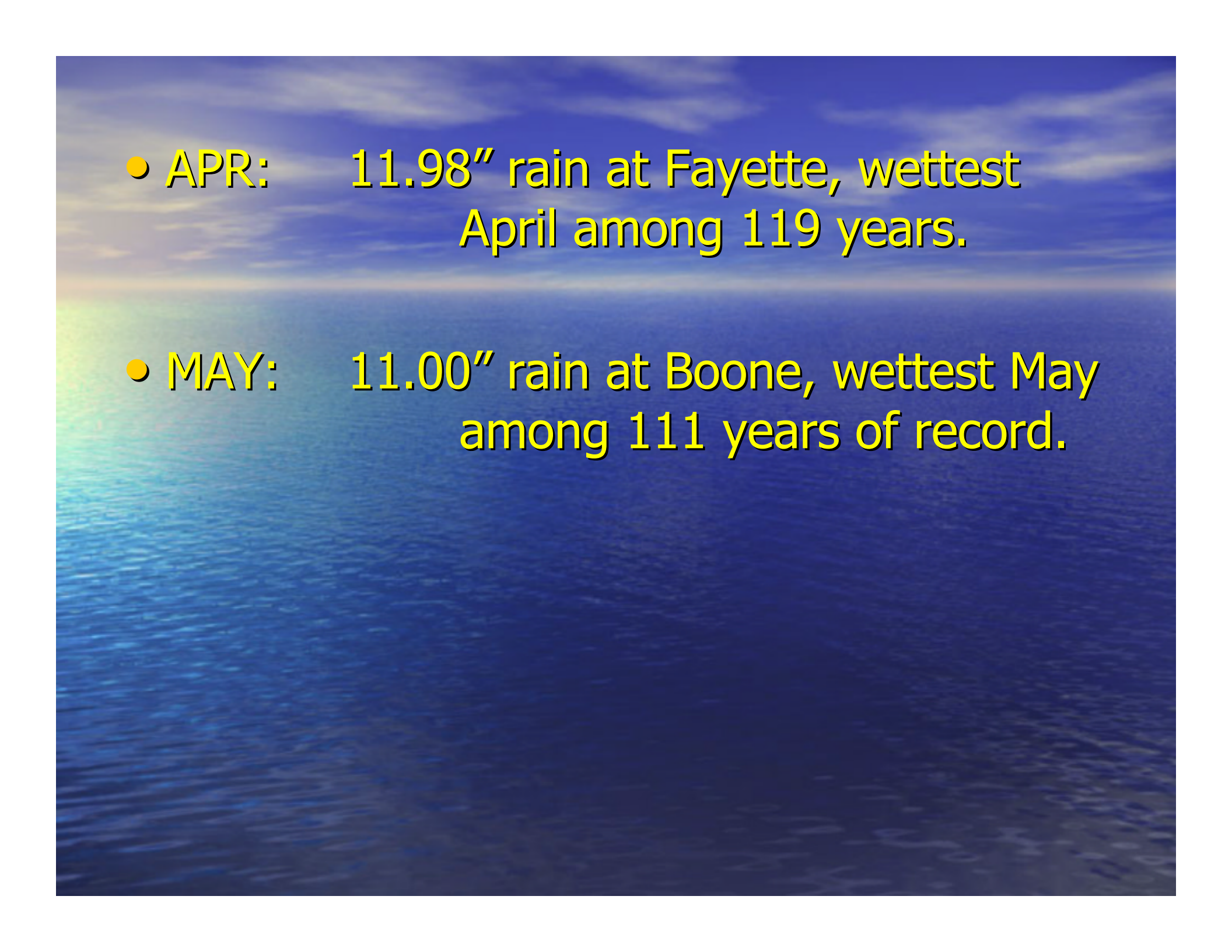
- DEC: 2.3F colder than normal.
- JAN: 1.5F colder than normal.
- FEB: 7.7F colder than normal.
  
- Coldest winter in 7 years
- 21<sup>st</sup> coldest winter among 135 years.
- Kept snow/ice cover from melting.

## 4. A Cold Spring in 2008

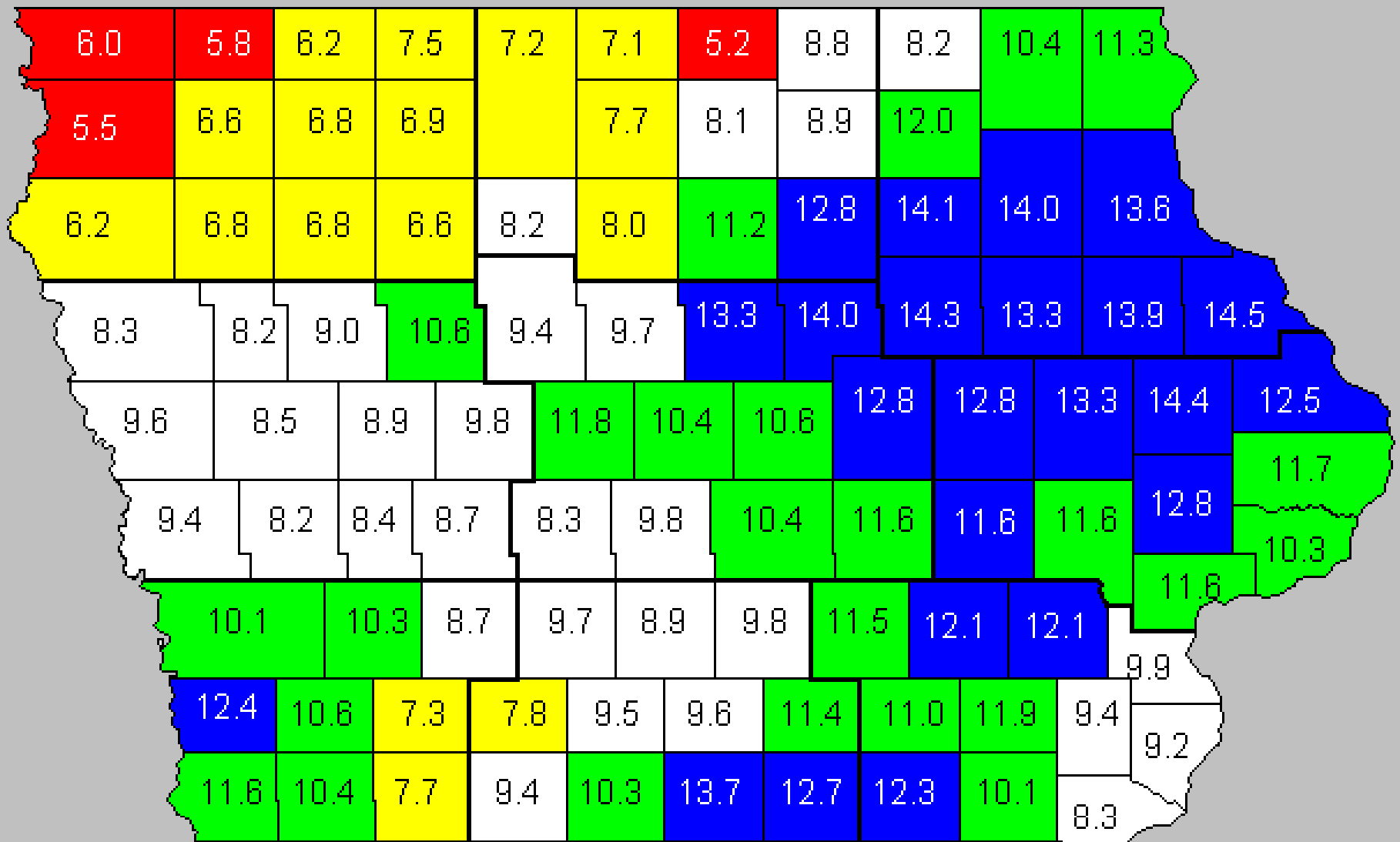
- MAR: 4.0F colder than normal.
- APR: 2.8F colder than normal.
- MAY: 2.7F colder than normal.
  
- Coolest spring in 12 years.
- 19<sup>th</sup> coolest spring among 136 years.
- Cool weather slows rate of drying.

## 5. A Wet Spring in 2008

- MAR: Less rain than usual, but major snowmelt during month.
- APR: 2<sup>nd</sup> wettest April on record.
- MAY: 24<sup>th</sup> wettest May.
- 12<sup>th</sup> wettest Spring among 136 years.

- 
- APR: 11.98" rain at Fayette, wettest April among 119 years.
  - MAY: 11.00" rain at Boone, wettest May among 111 years of record.

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 COUNTY PRECIPITATION ESTIMATES, MARCH 26 TO MAY 28, 2008 (inches)



Normal precipitation for period is 6.6" NW to 8.1" SE.

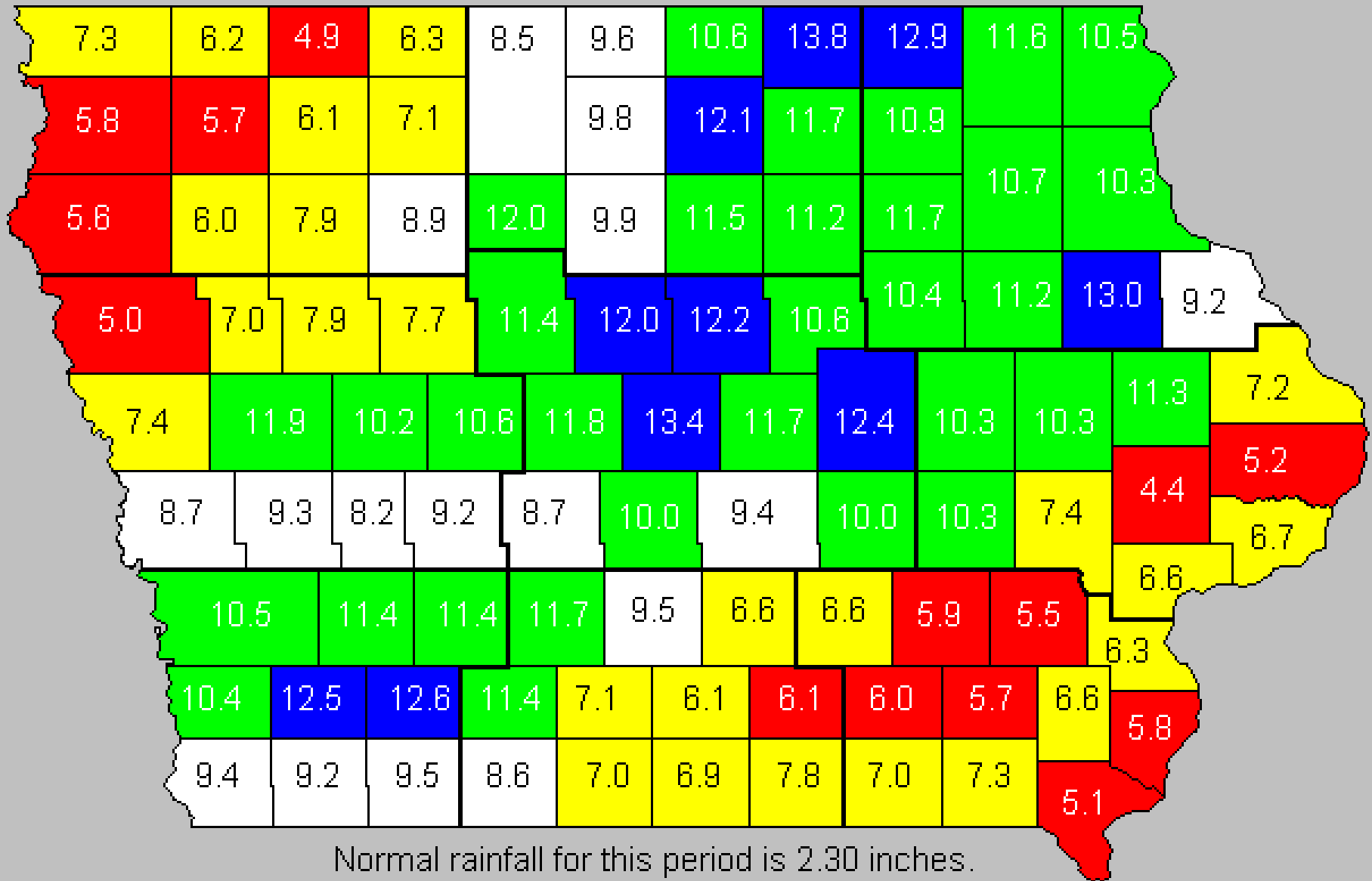


## 6. Then it Really Rained!

- May 29 through June 12: A statewide average of 9.03 inches of rain falls in just 15 days (normal = 2.30 inches).

The wettest 15 day period in 1993 brought a statewide average of 7.81" from June 29 to July 13.

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 COUNTY PRECIPITATION ESTIMATES, MAY 29 - JUNE 12, 2008 (inches)



# Factors in 2008 Flooding

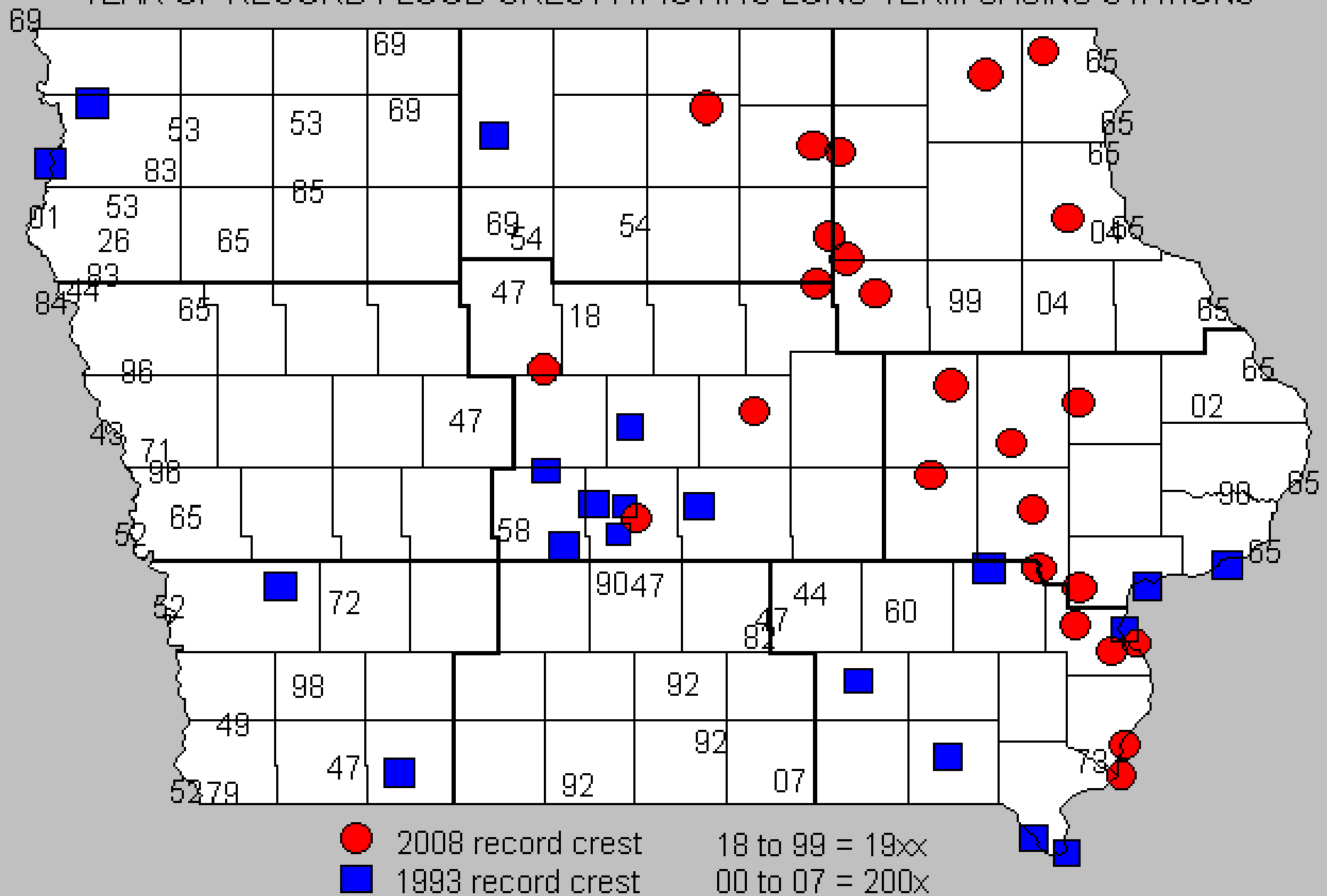
- Iowa saturated coming into 2008.
- A wet, snowy winter.
- A cold winter, snowmelt delayed until March.
- A cold spring slowing rate of drying.
- A wet spring adds still more water.
- Tremendous widespread rain from May 29 to June 12.



# 2008 versus 1993

- The 6 factors in 2008 flooding were all present to varying degrees in 1993.
- Heaviest rains in 2008 came earlier and more quickly than in 1993.
- Wet weather was more persistent in 1993.
- Growing season was more favorable for agriculture in 2008.

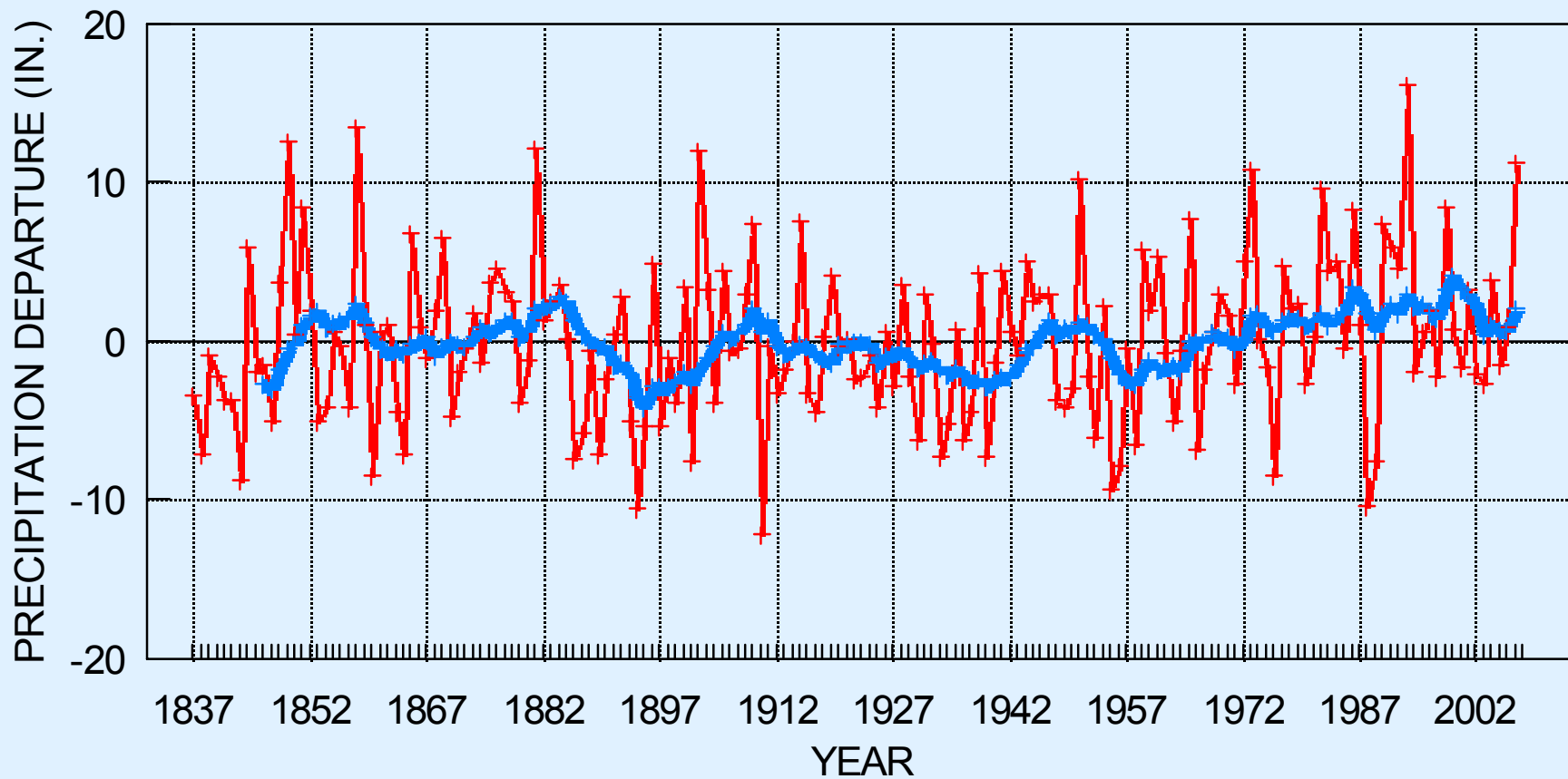
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 YEAR OF RECORD FLOOD CREST AT IOWA'S LONG-TERM GAGING STATIONS





# IOWA ANNUAL PRECIPITATION

1837 - 2007 (32.11" AVERAGE)

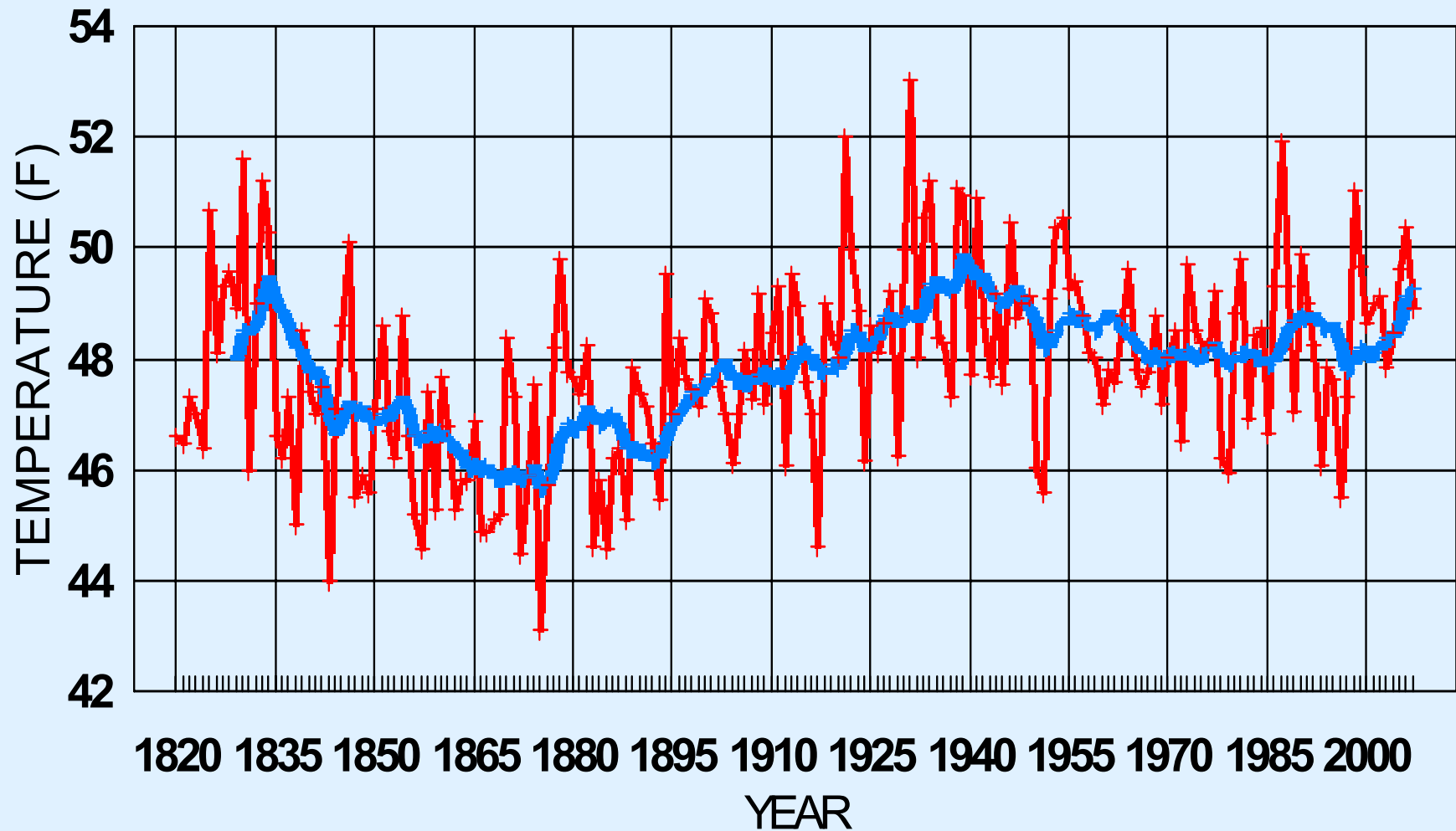


# Historical Precipitation Trends

- Annual precipitation higher over past 50 years, but similar to mid 1800's.
- All of increase coming in Spring & Summer.
- Autumns recently drier.
- No trend in Winter precipitation.

# IOWA ANNUAL TEMPERATURE

1820-2007 (AVERAGE = 47.9)



# Iowa Temperature Trends

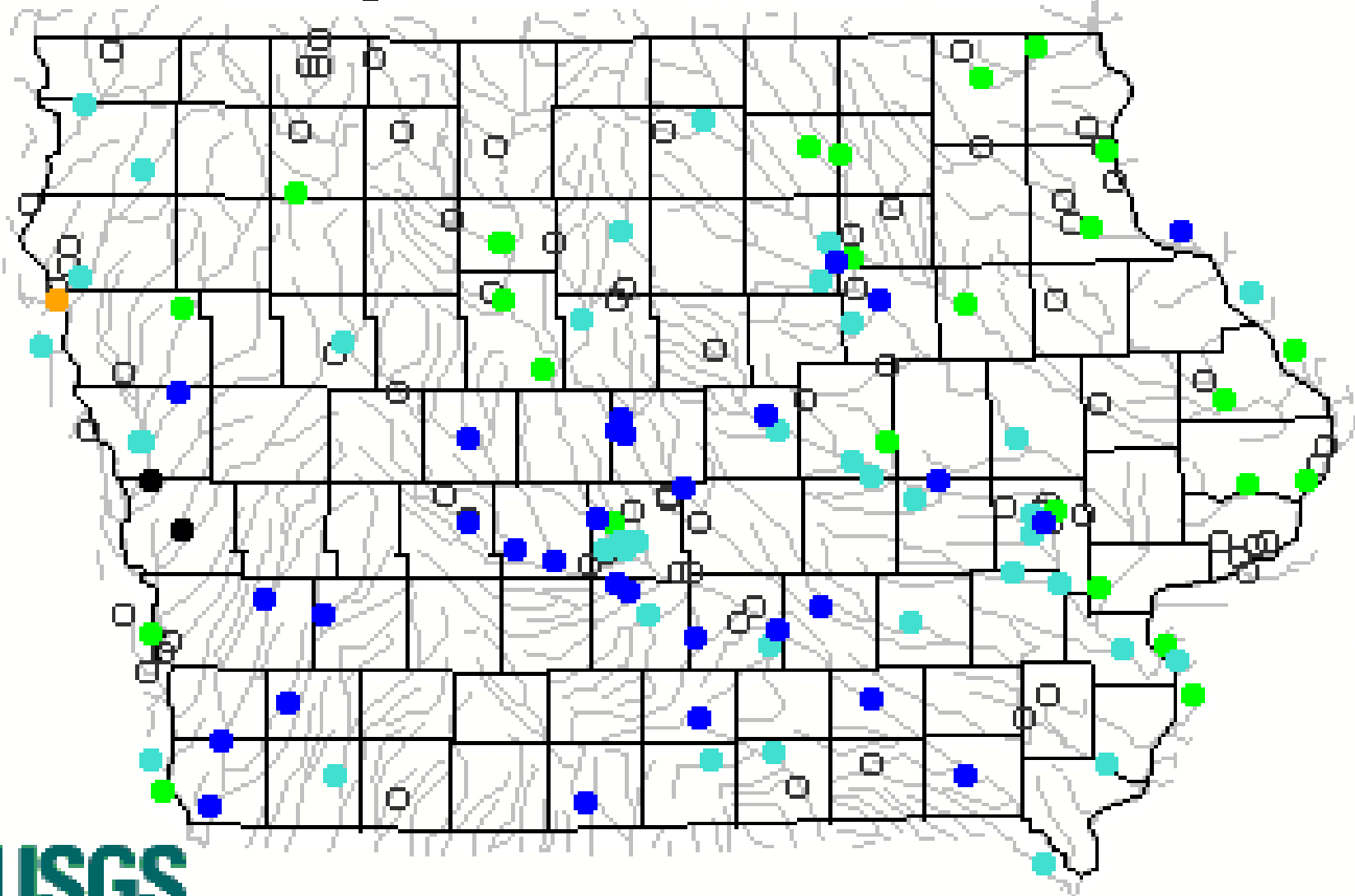
- Winters and springs generally warmer.
- Extreme summer heat less frequent.
- Recent Annual temperatures higher than much of historical record, but similar to 1830's & 1930's.

# A quick Iowa water cycle

• Type of Year	Precip.	Evap.	Runoff
• Normal	32"	24"	8"
• Wet	40"	24"	16"
• Very Wet	48"	24"	24"



Monday, November 17, 2008 16:30ET



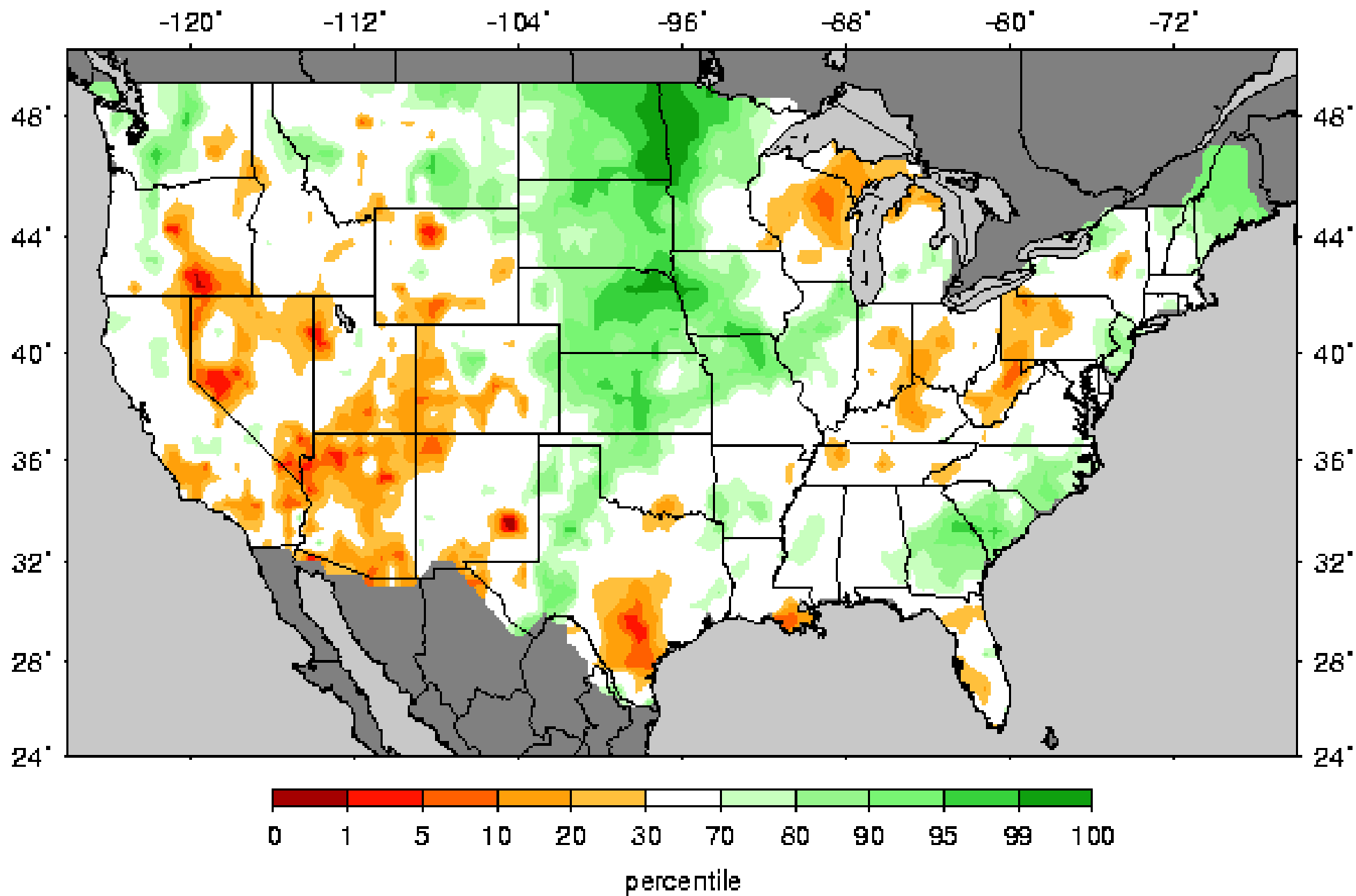
Dry

Normal

Wet



Soil Moisture Percentiles (wrt/ 1915-2003)  
20081116



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