

Harry J. Hillaker  
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Iowa Dept. of Agriculture & Land  
Stewardship

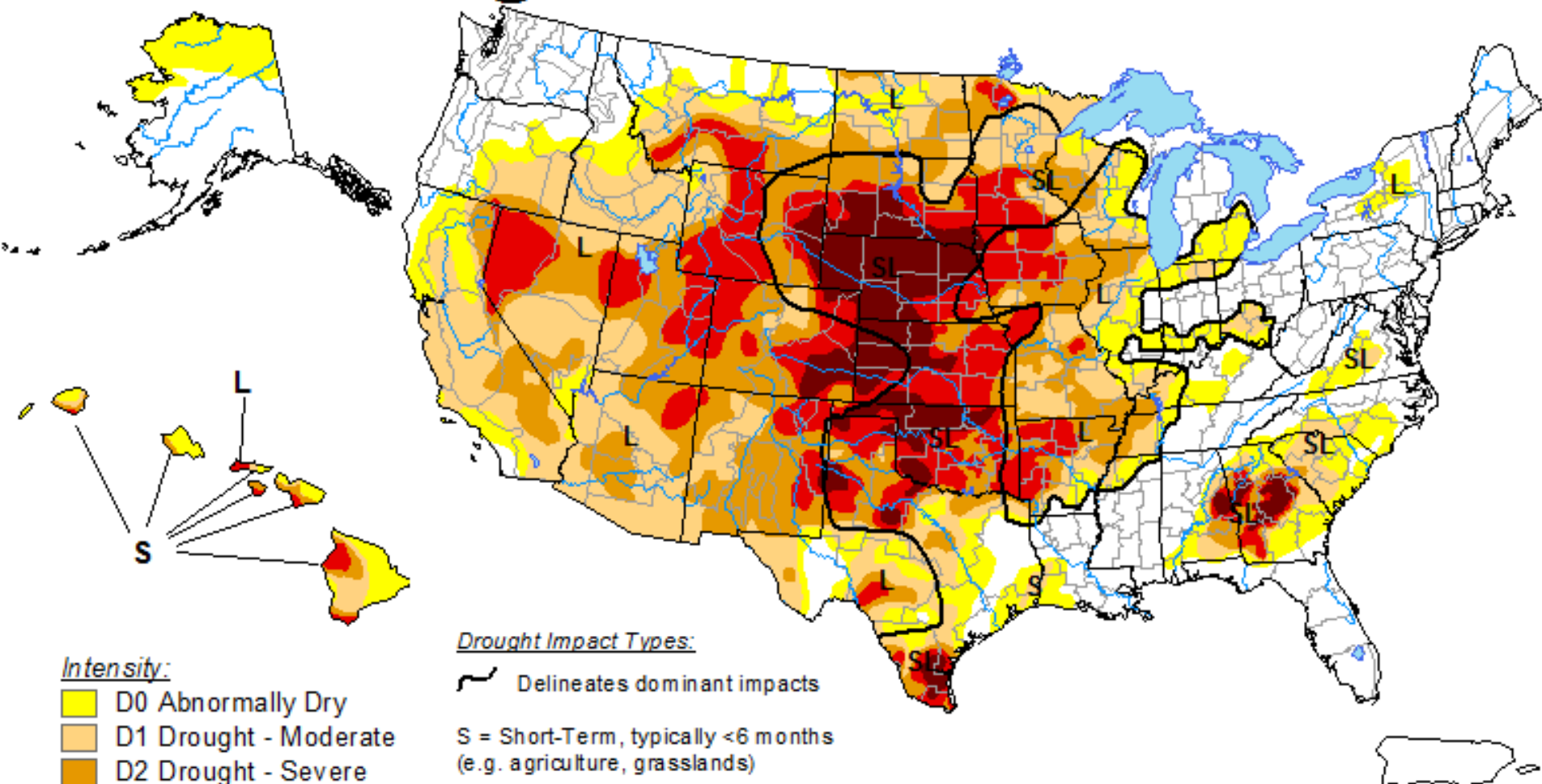
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# U.S. Drought Monitor

November 6, 2012

Valid 7 a.m. E ST



## Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

## Drought Impact Types:

Delineates dominant impacts

S = Short-Term, typically <6 months  
(e.g. agriculture, grasslands)

L = Long-Term, typically >6 months  
(e.g. hydrology, ecology)

*The Drought Monitor focuses on broad-scale conditions.  
Local conditions may vary. See accompanying text summary  
for forecast statements.*

<http://droughtmonitor.unl.edu/>

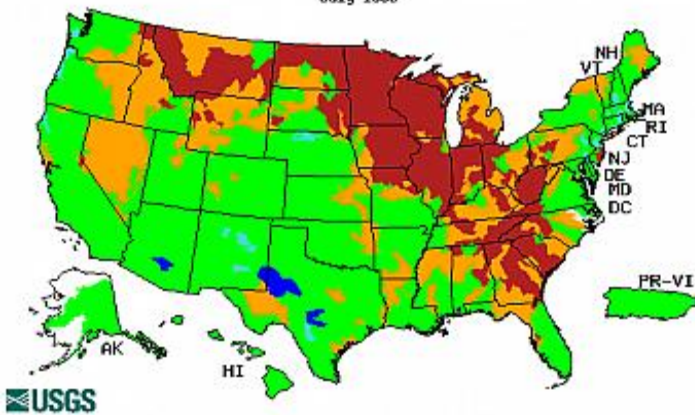


**Released Thursday, November 8, 2012**

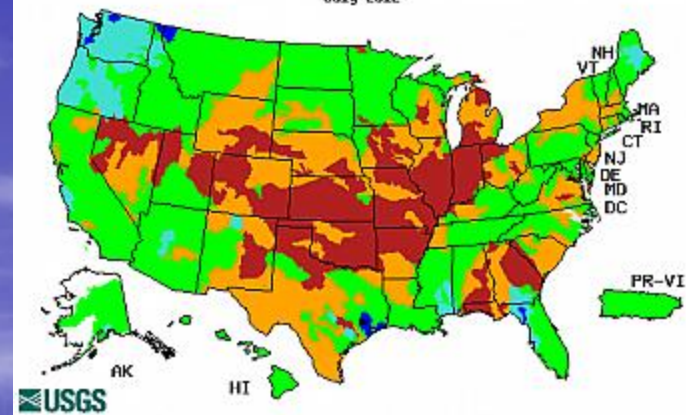
Author: David Miskus, NOAA/NWS/NCEP/CPC



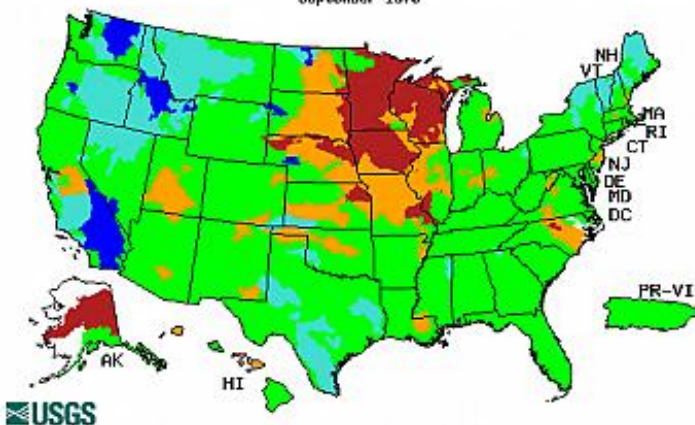
July 1988



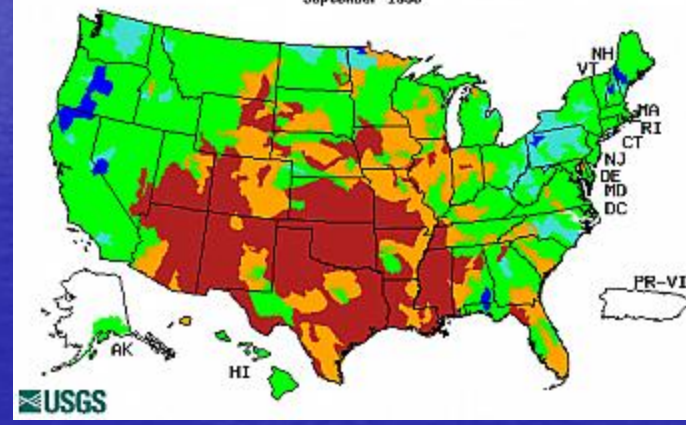
July 2012



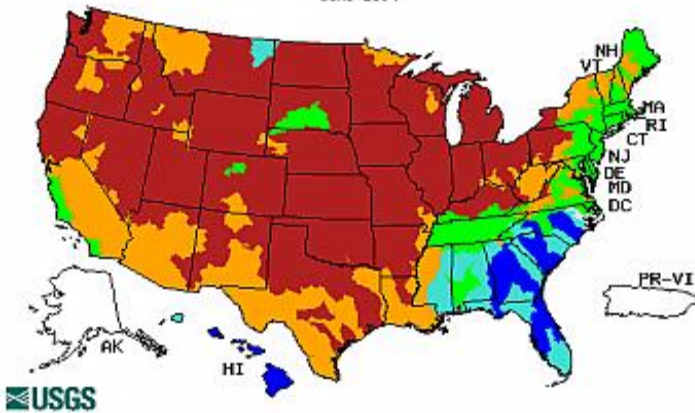
September 1976



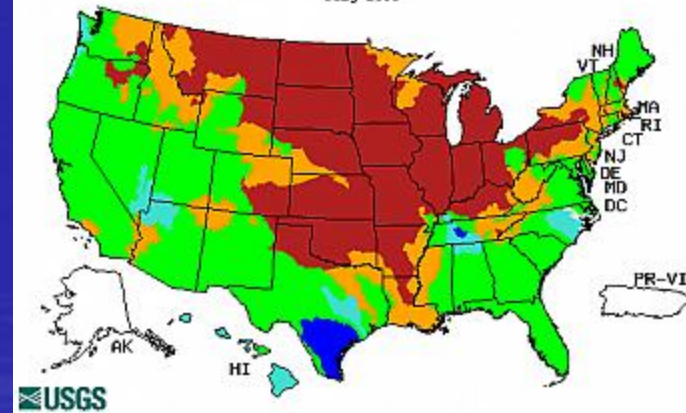
September 1956



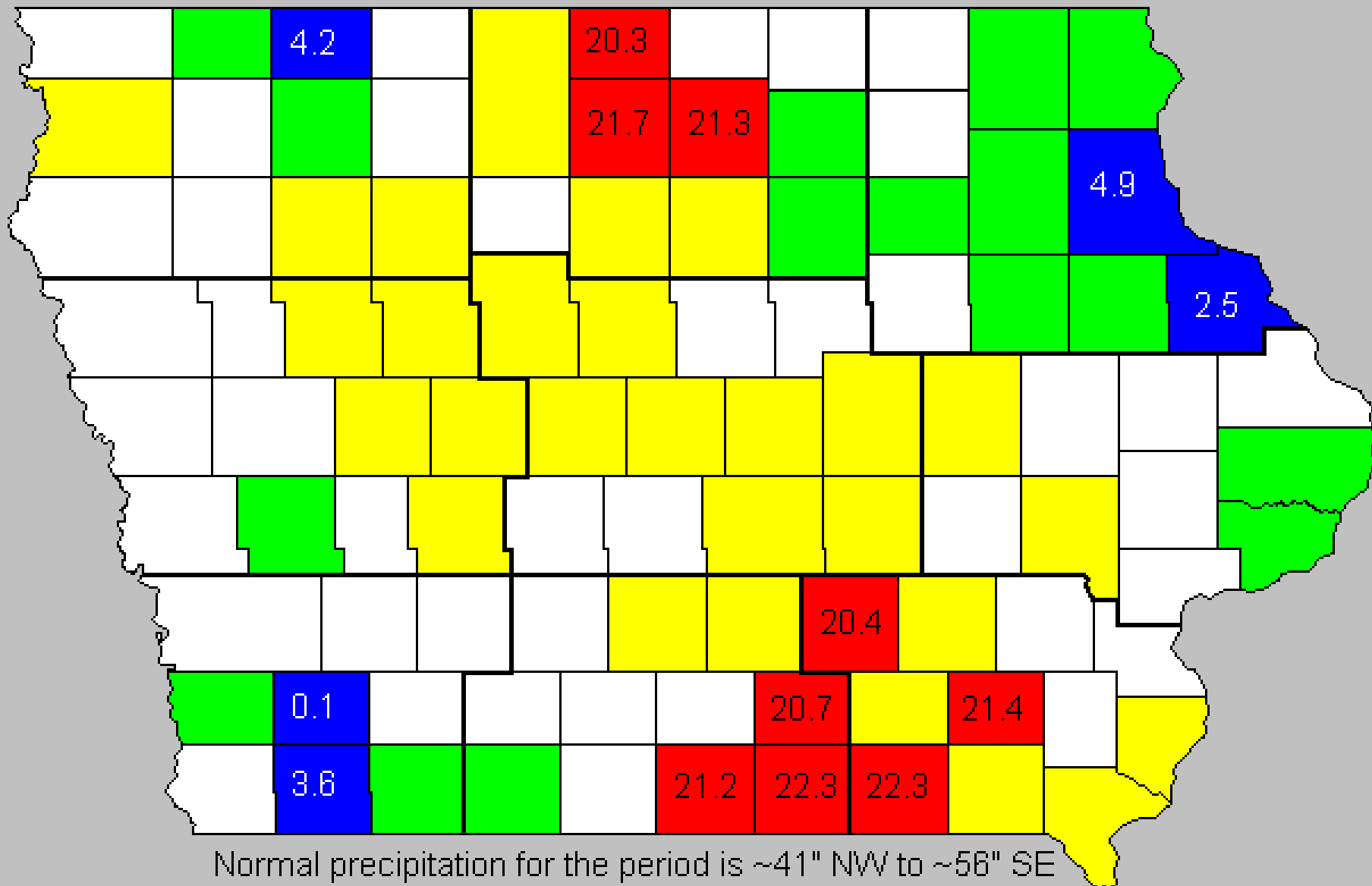
June 1934



July 1936



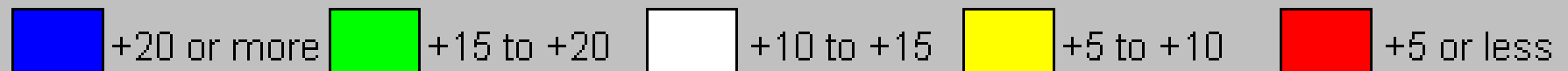
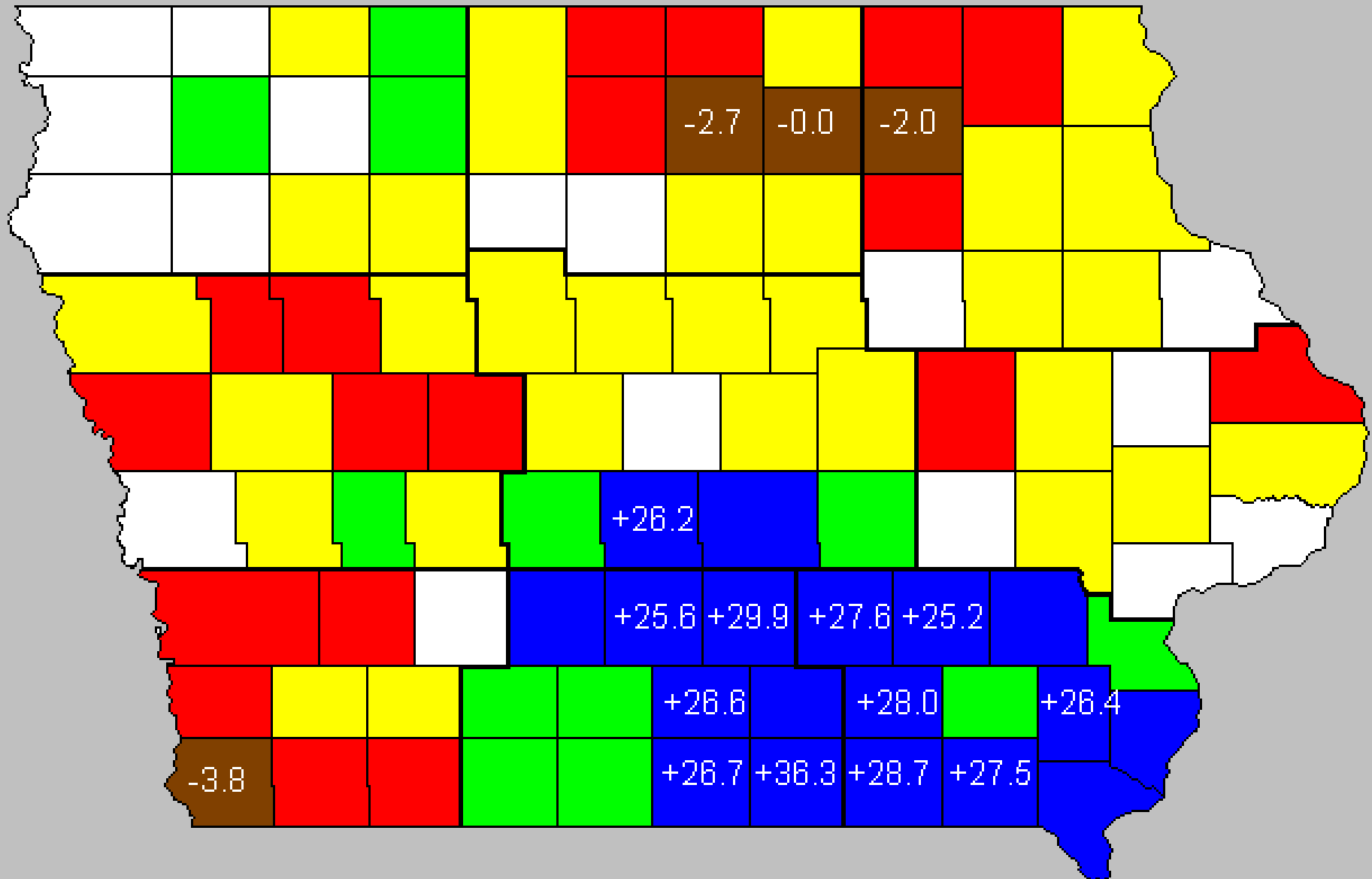
State Climatologist, Iowa Dept. of Agriculture & Land Stewardship  
PRECIPITATION DEFICIT, JULY 1, 2011 TO NOVEMBER 7, 2012 (inches)



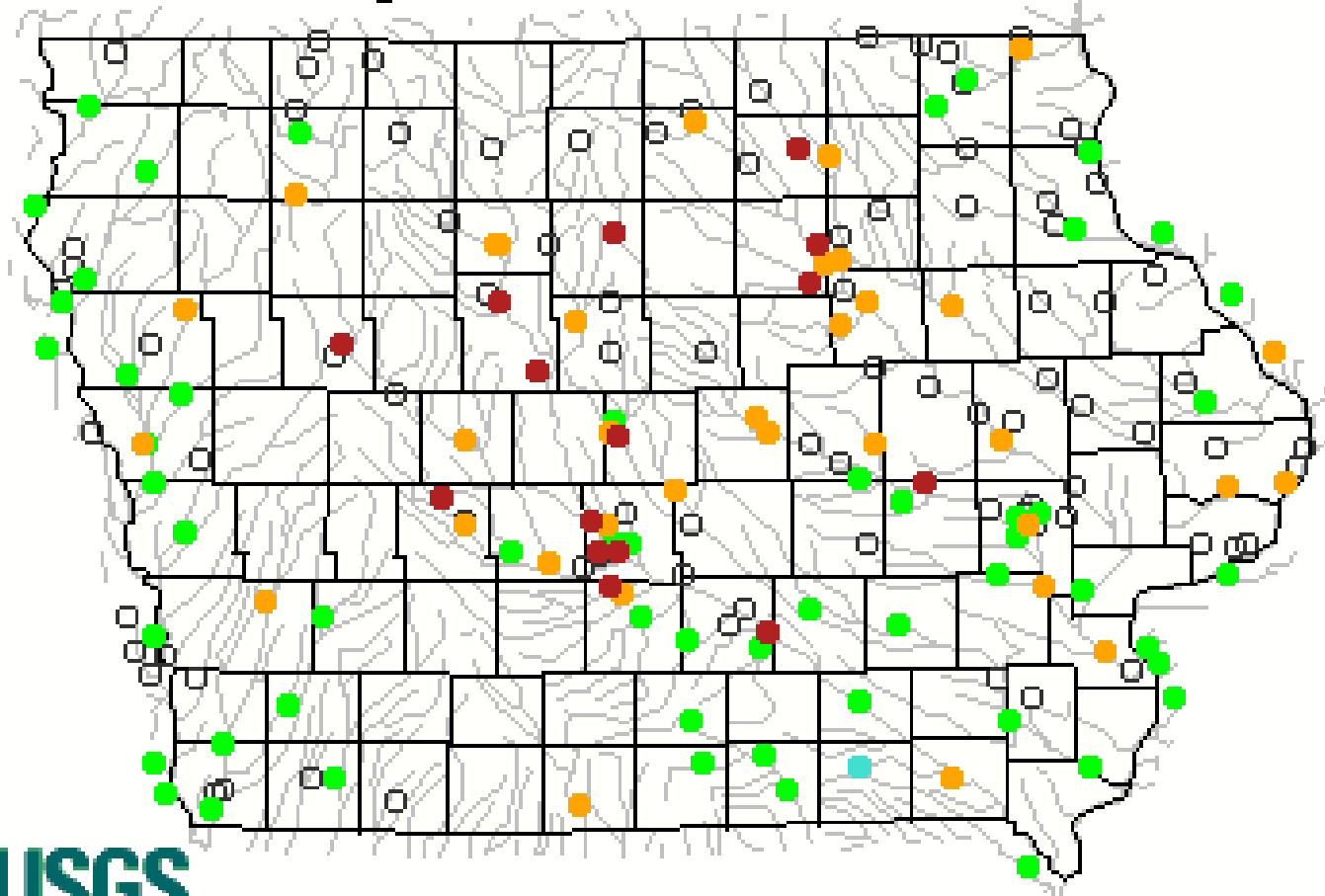
Normal precipitation for the period is ~41" NW to ~56" SE



State Climatologist, Iowa Dept. of Agriculture & Land Stewardship  
 DEPARTURE FROM NORMAL PRECIPITATION, MAR 6, 2010 TO JUN 30, 2011 (inches)



Tuesday, November 13, 2012 14:30ET

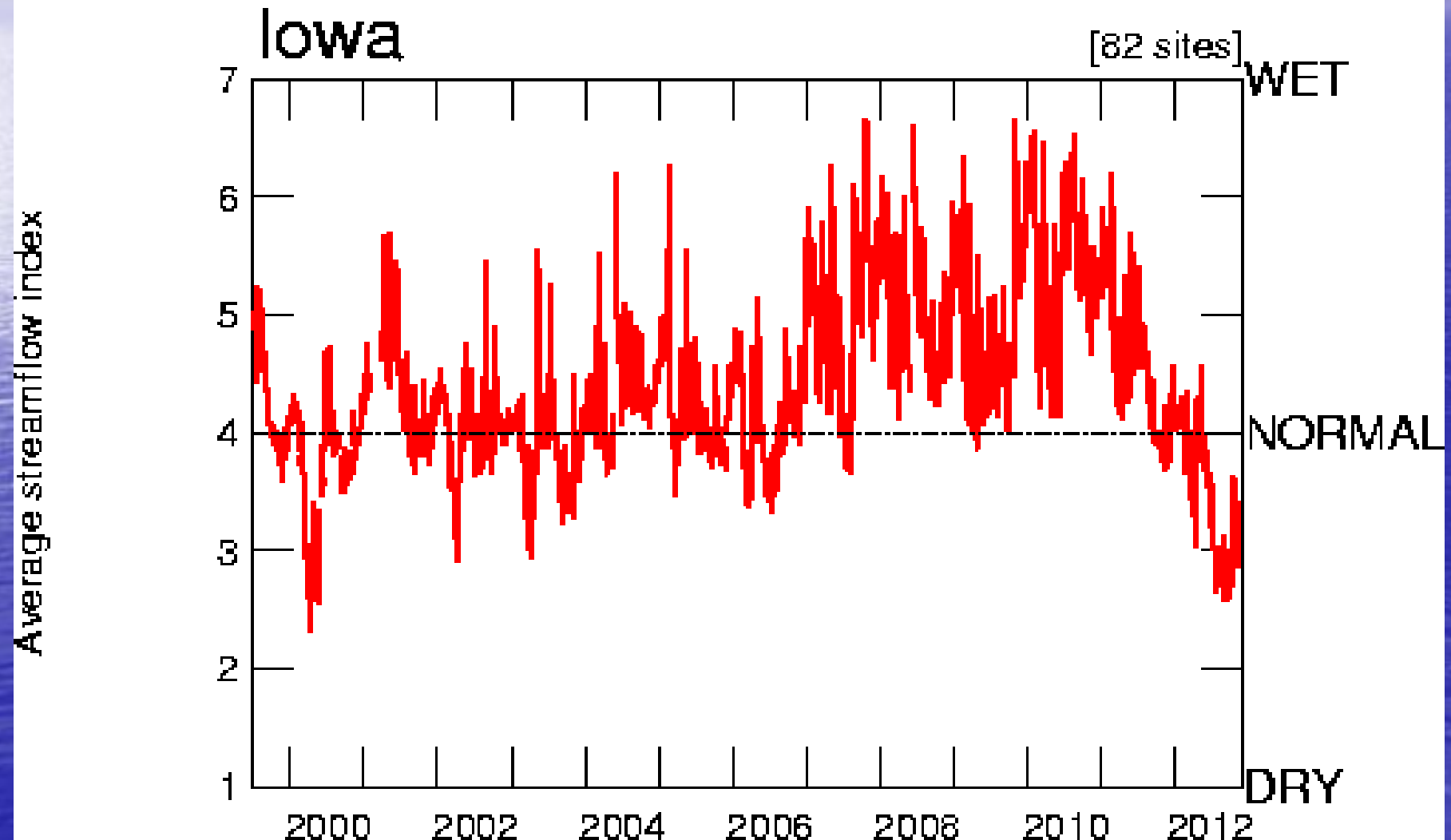


### Explanation - Percentile classes

Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

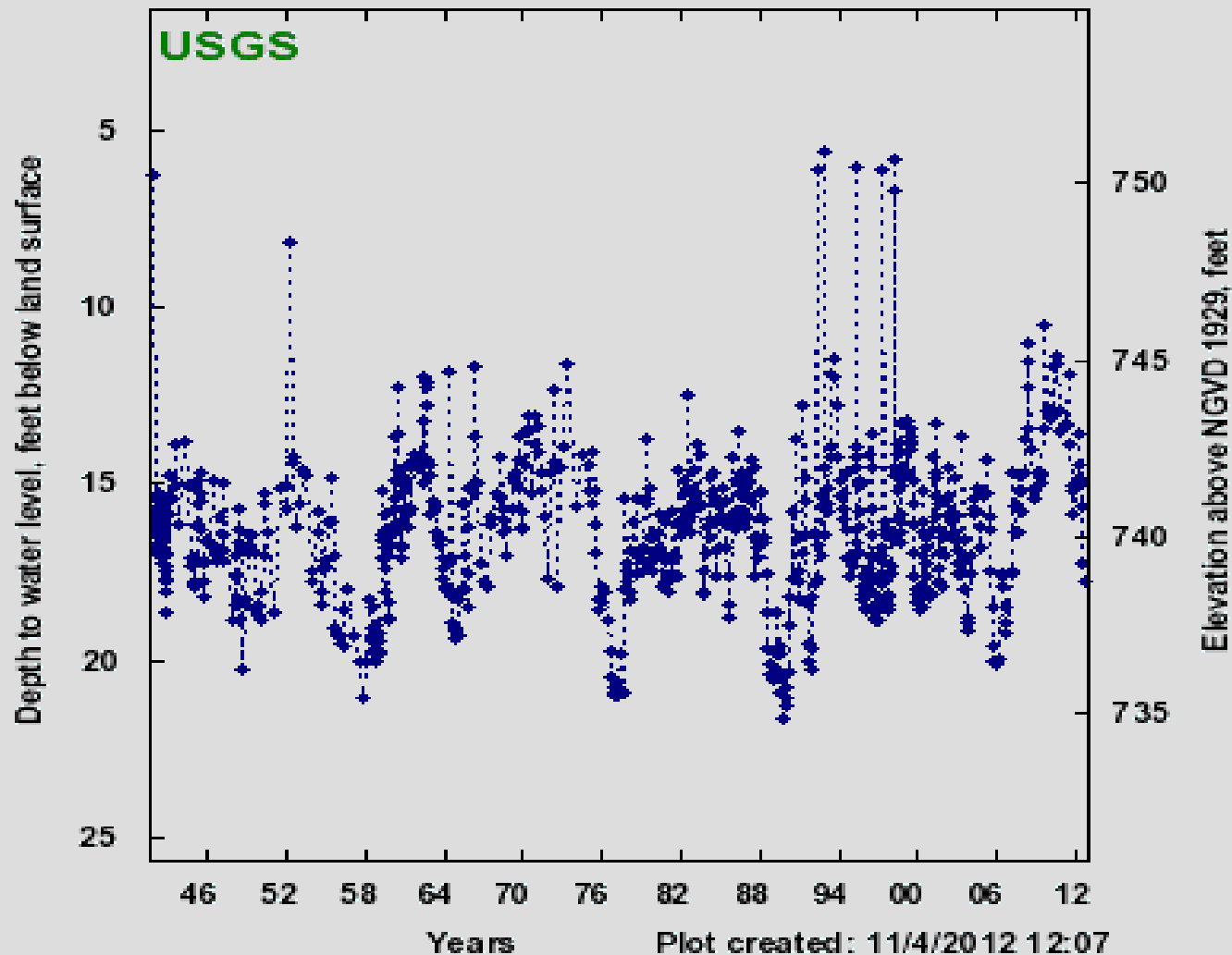
# Iowa Streamflow Trends

*Since July 2, 1999*



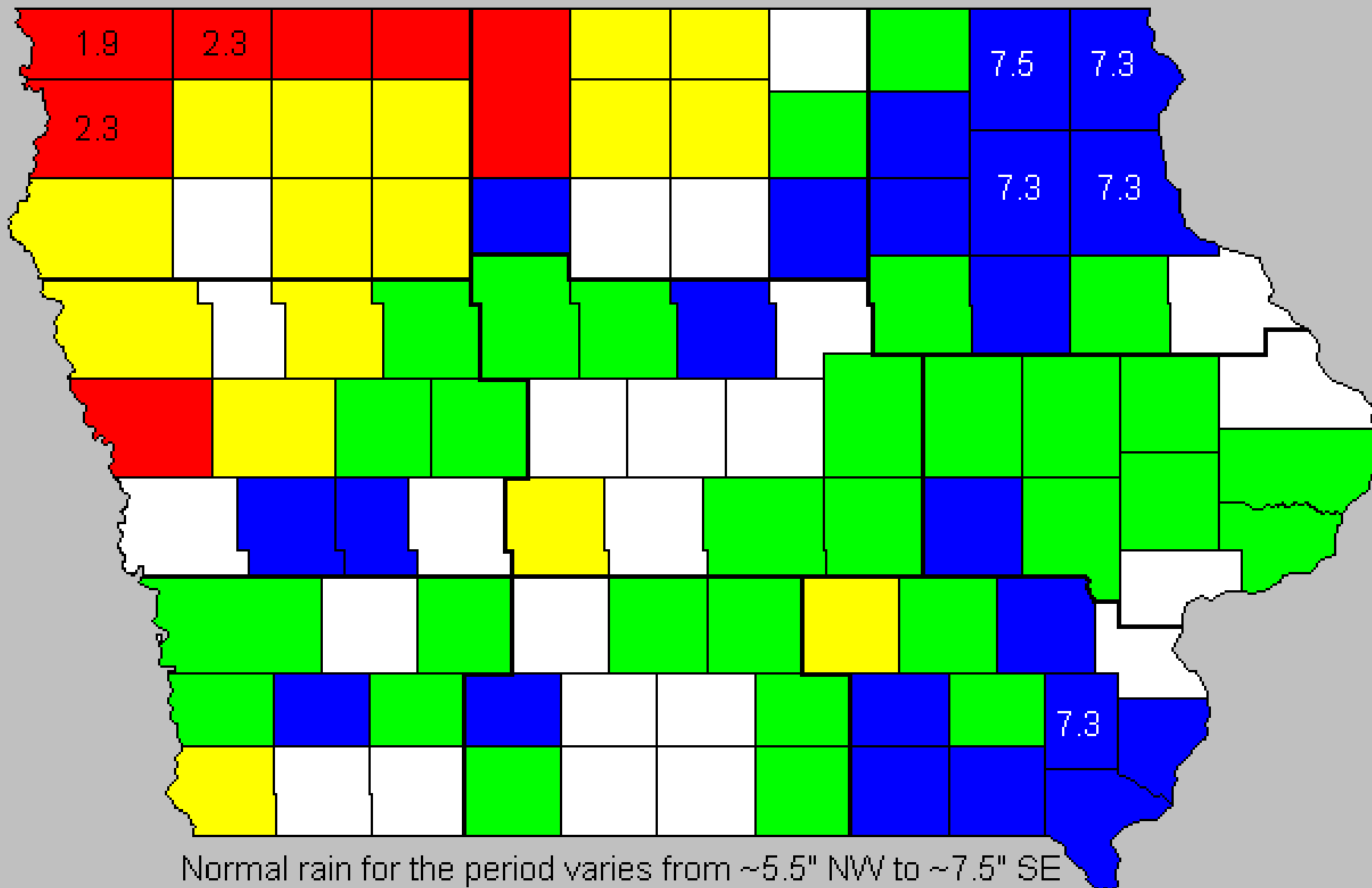
# Johnson County Well Level

414315091252002 - 080N05W22CBCB2 1941Elmira Depot 5 IACRN-

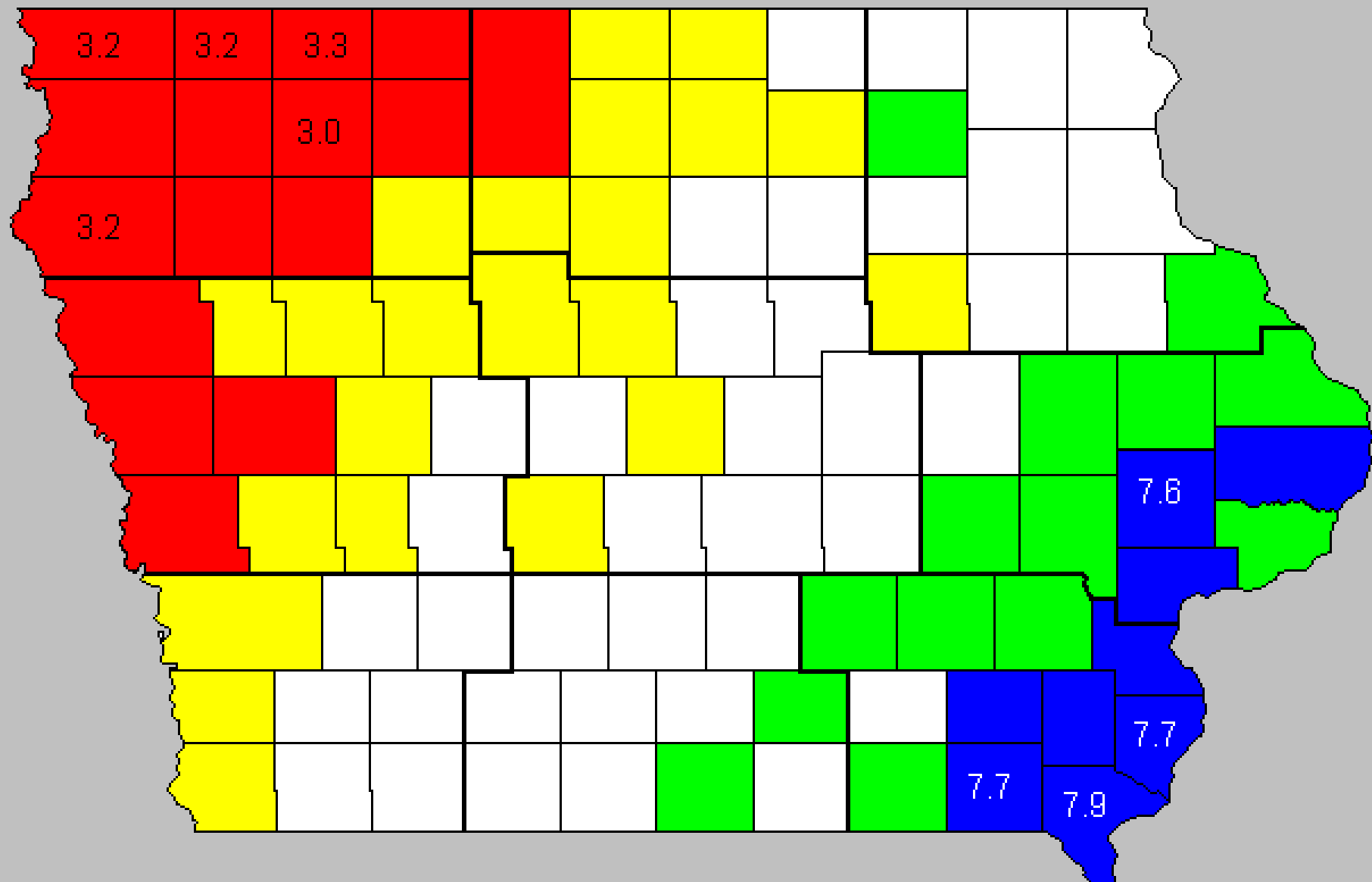




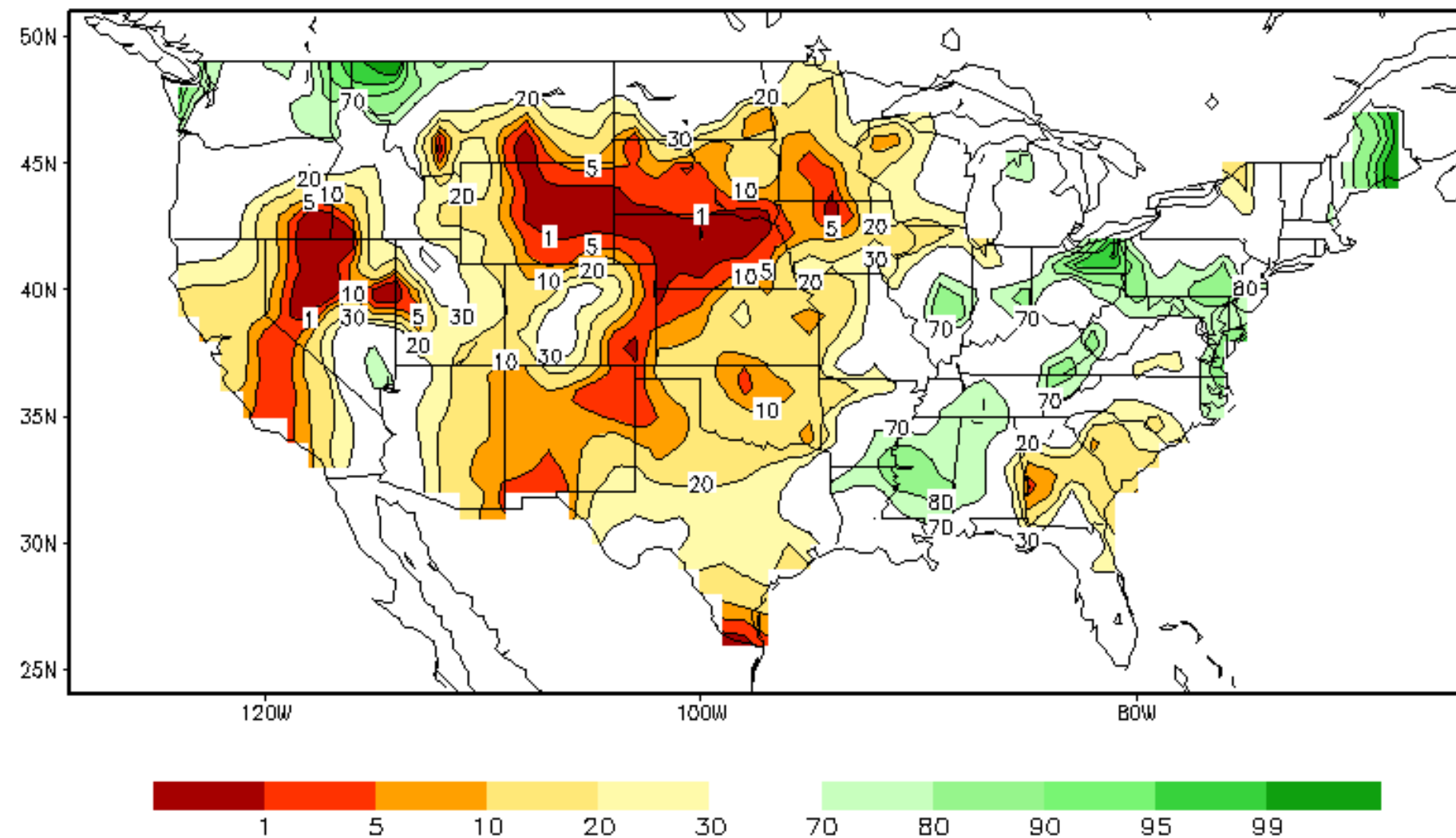
State Climatologist, Iowa Dept. of Agriculture & Land Stewardship  
 PRECIPITATION FROM SEPTEMBER 1 TO NOVEMBER 7, 2012 (inches)



NORMAL PRECIPITATION FOR THE NEXT FOUR MONTHS (NOV 7 - MAR 7)



# Calculated Soil Moisture Ranking Percentile NOV 12, 2012



# Halloween Blizzard of 1991



- 15.2" snow at Estherville.
- ~2" ice Clarinda to Lake Mills.
- 60+ mph winds.
- Record Cold Nov 3-8.
- -19° at Hawarden on Nov. 7.

# The Winter of 1880-1881

- Immortalized in Laura Ingalls Wilder's book "The Long Winter".
- Major blizzard struck NW Iowa on October 15, 1880.
- The last heavy snow came on April 12, 1881.
- 80" of snow at Sioux City
- Missouri R. 8 to 10 miles wide in SW Iowa
- July 6, 1881 Honey Creek flood.



# Record Dry June

• Sibley	0.36	0.96 in 1888	113yr
• Rock Rapids	0.47	0.78 in 1912	113yr
• Sheldon	0.48	0.88 in 2004	100yr
• Sanborn	0.53	0.87 in 1933	100yr
• Hawarden	0.59	0.83 in 1987	86yr

# Record Dry July

• Atlantic	Trace	0.43 in 1975	125yr
• Audubon	Trace	0.32 in 1974	116yr
• Logan	0.02	0.33 in 1936	146yr
• Harlan	0.06	0.31 in 1959	113yr
• Guthrie Ctr	0.12	0.15 in 1975	113yr
• Oakland	0.18	0.19 in 1954	92yr
• Mapleton	0.44	0.73 in 1967	75yr
• Lake Mills	0.61	0.91 in 1988	58yr



# Record Dry Summer

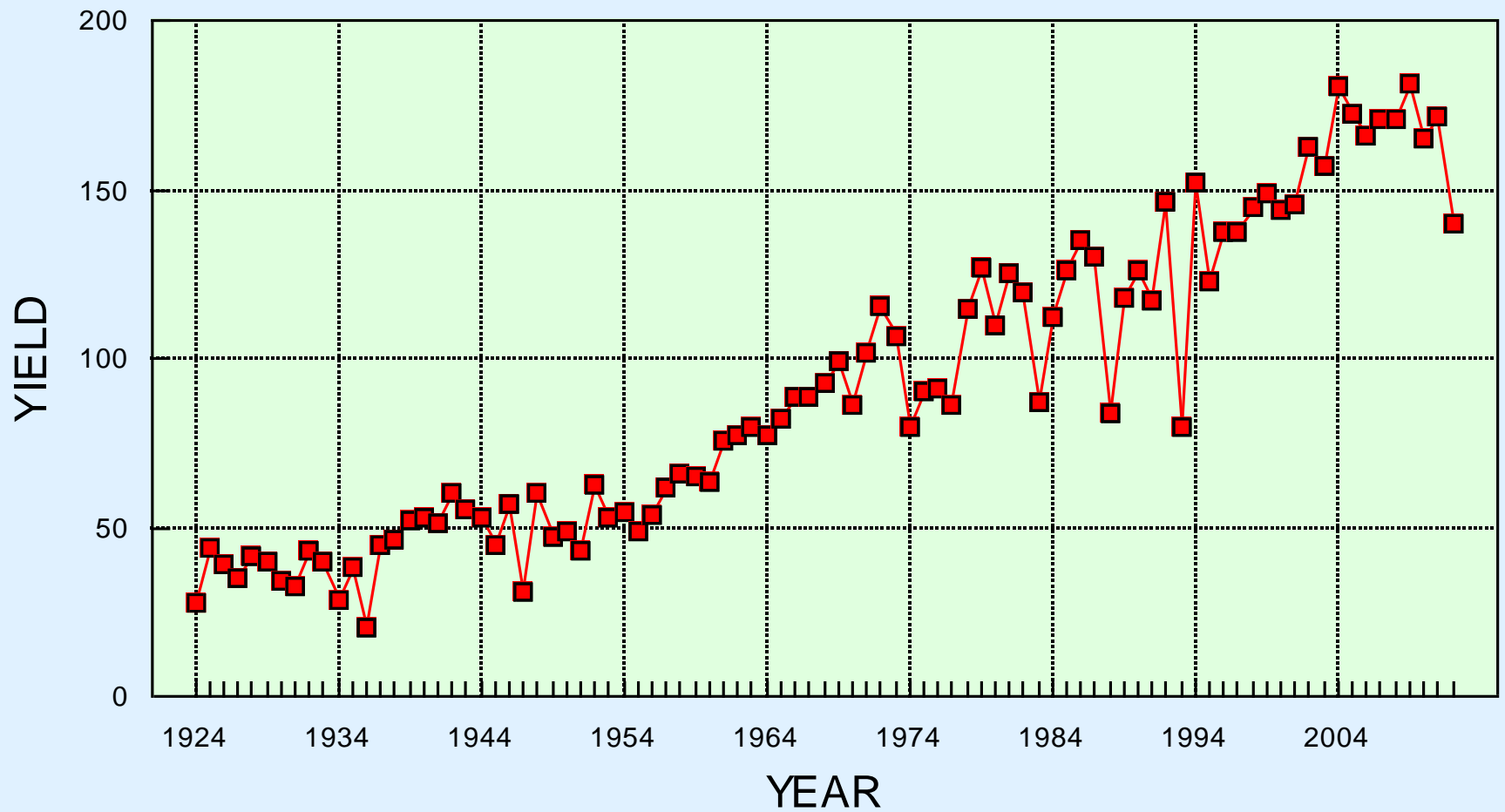
- Orange City      3.06"      3.57" in 1976      108yrs.
- Sioux Center      3.64"      4.25" in 1976      110 yrs.
- Sheldon      3.70"      4.35" in 1970      100 yrs.

# Iowa July 2012

- 3rd hottest among 140 years of records.
- 5th driest among 140 years of records.
- Hottest July since 1936.
- Driest July since 1975.

# IOWA CORN YIELD

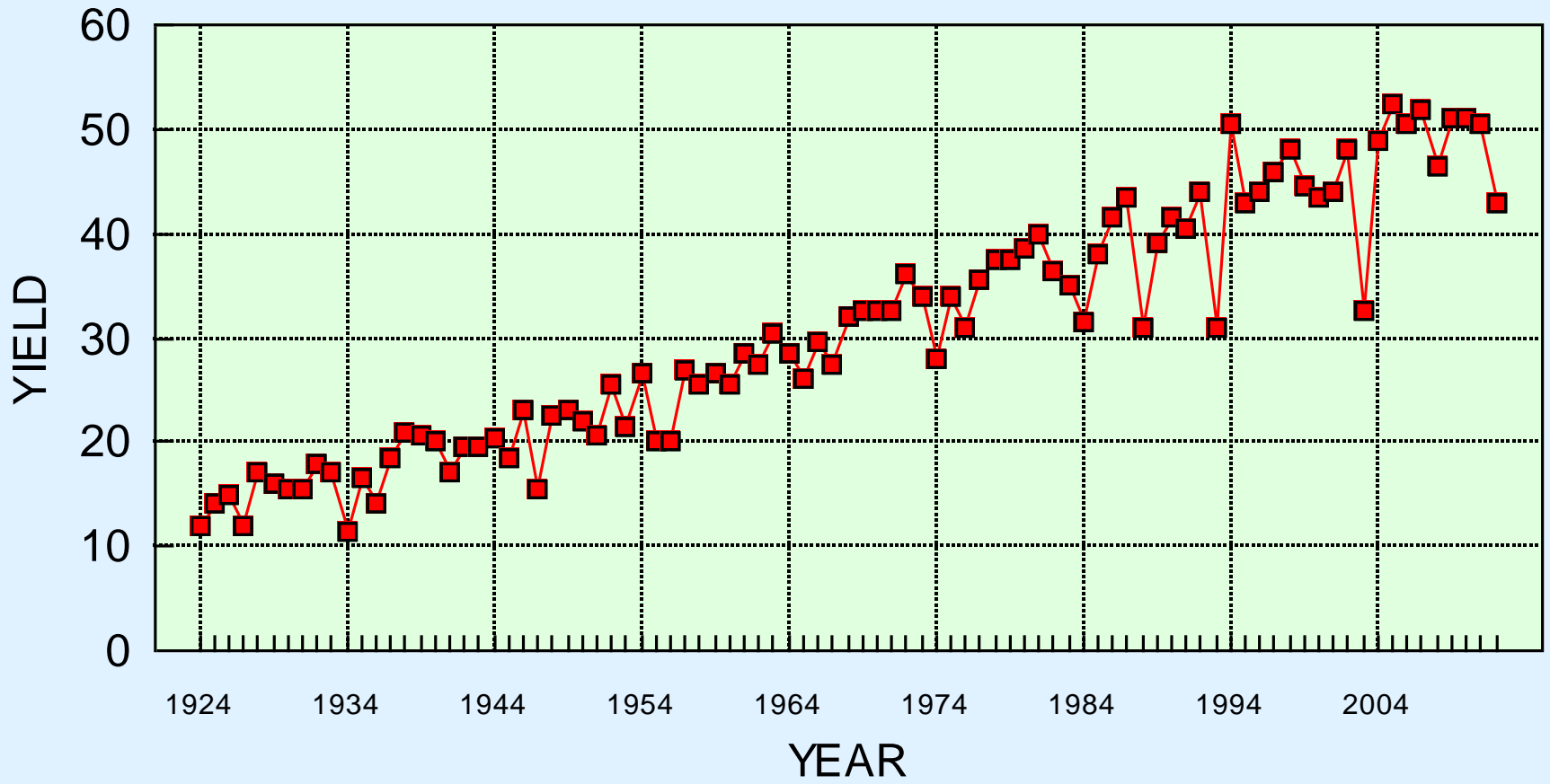
BUSHELS PER ACRE, 1924-2012





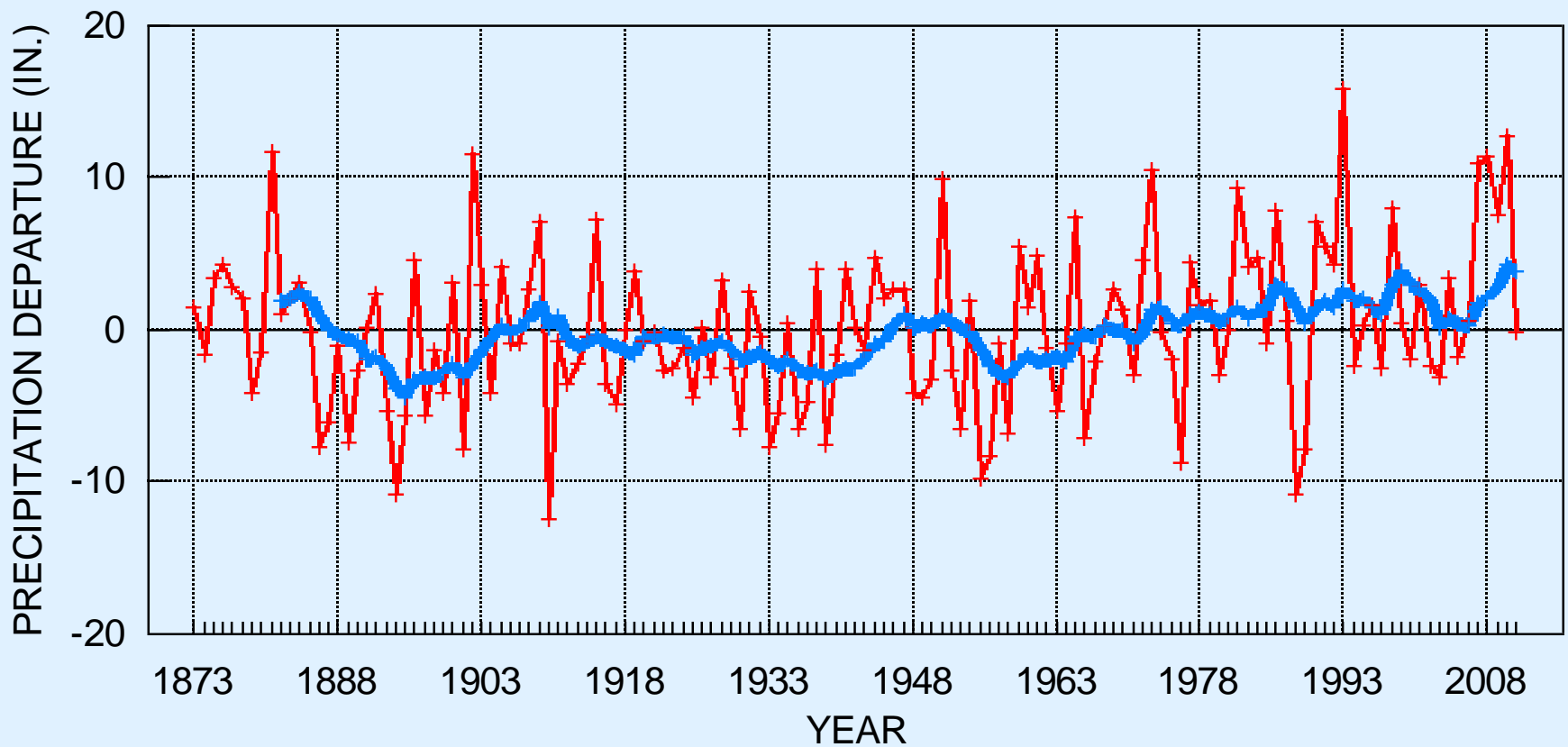
# IOWA SOYBEAN YIELD

BUSHELS PER ACRE, 1924-2012



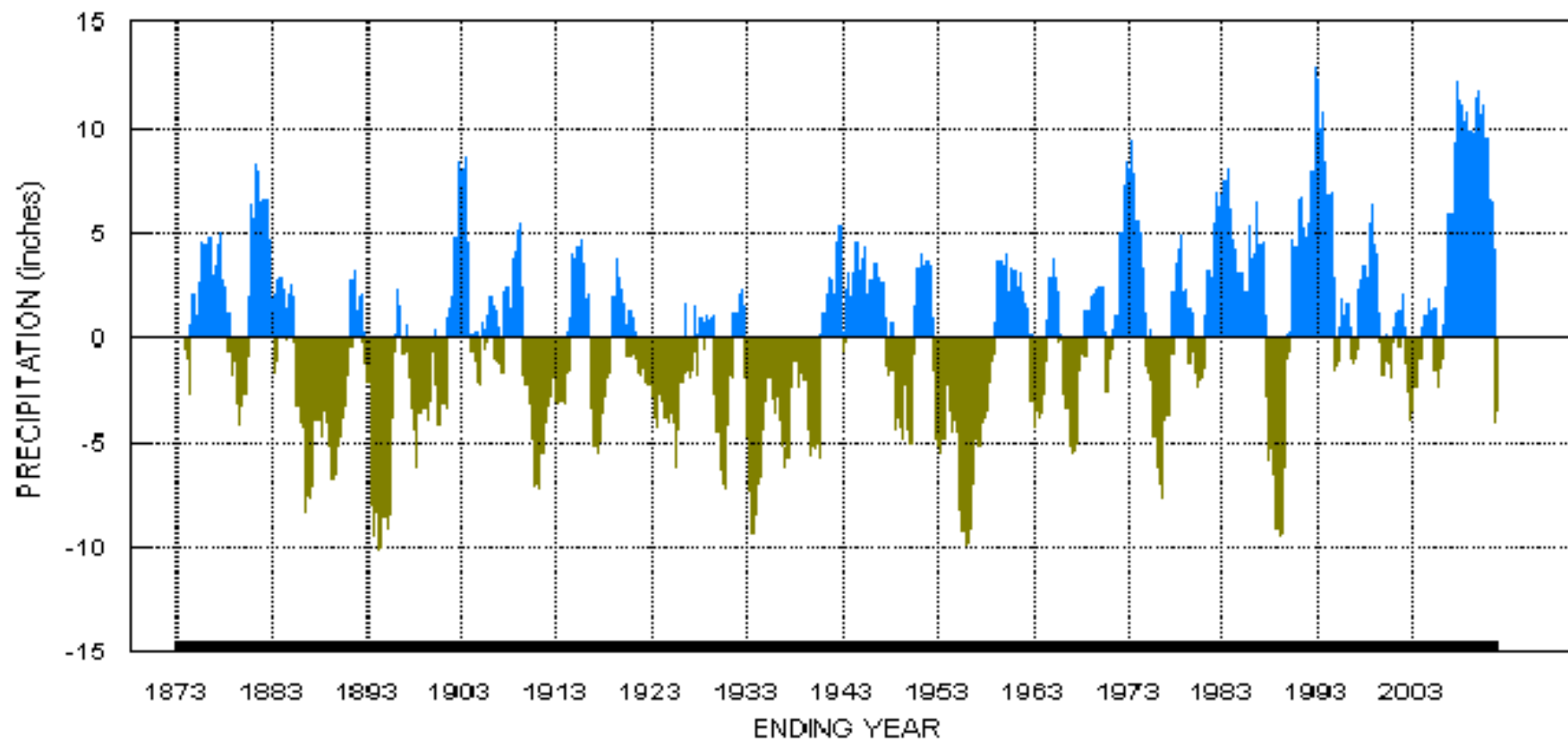
# IOWA ANNUAL PRECIPITATION

1873 - 2011 (32.41" AVERAGE)



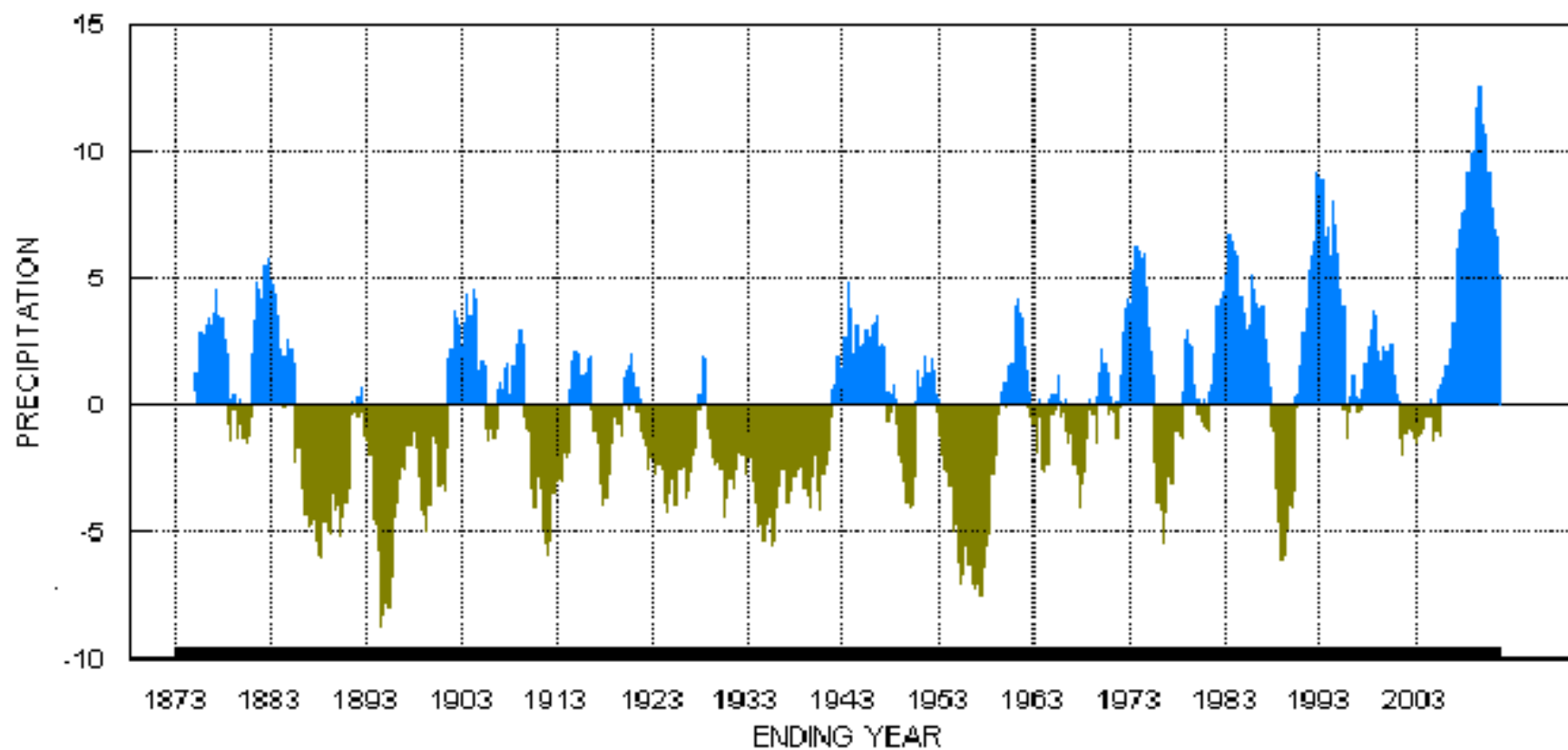
# IOWA PRECIPITATION

24-MONTH RUNNING AVERAGE



# IOWA PRECIPITATION

36-MONTH RUNNING AVERAGE



# A Silver Lining to the Drought

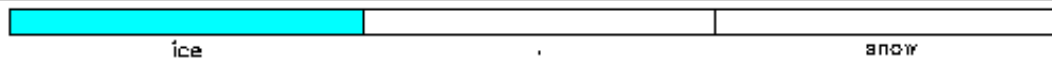
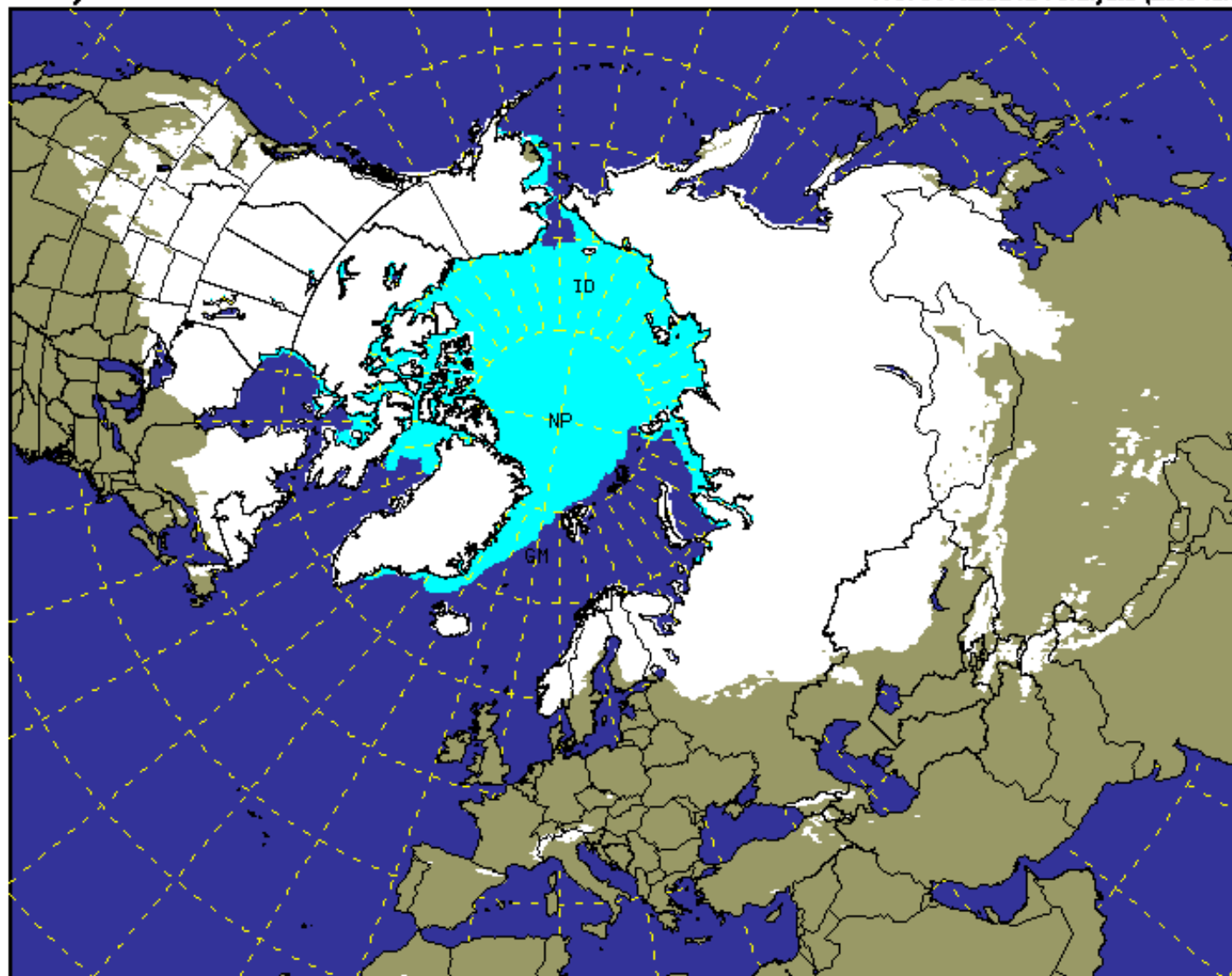
- No Iowa tornadoes since May 24.
- Earliest end to the Iowa tornado season since at least 1955 if we have no more this year.
- 16 total tornadoes in 2012.
- Lowest annual total since at least 1963.

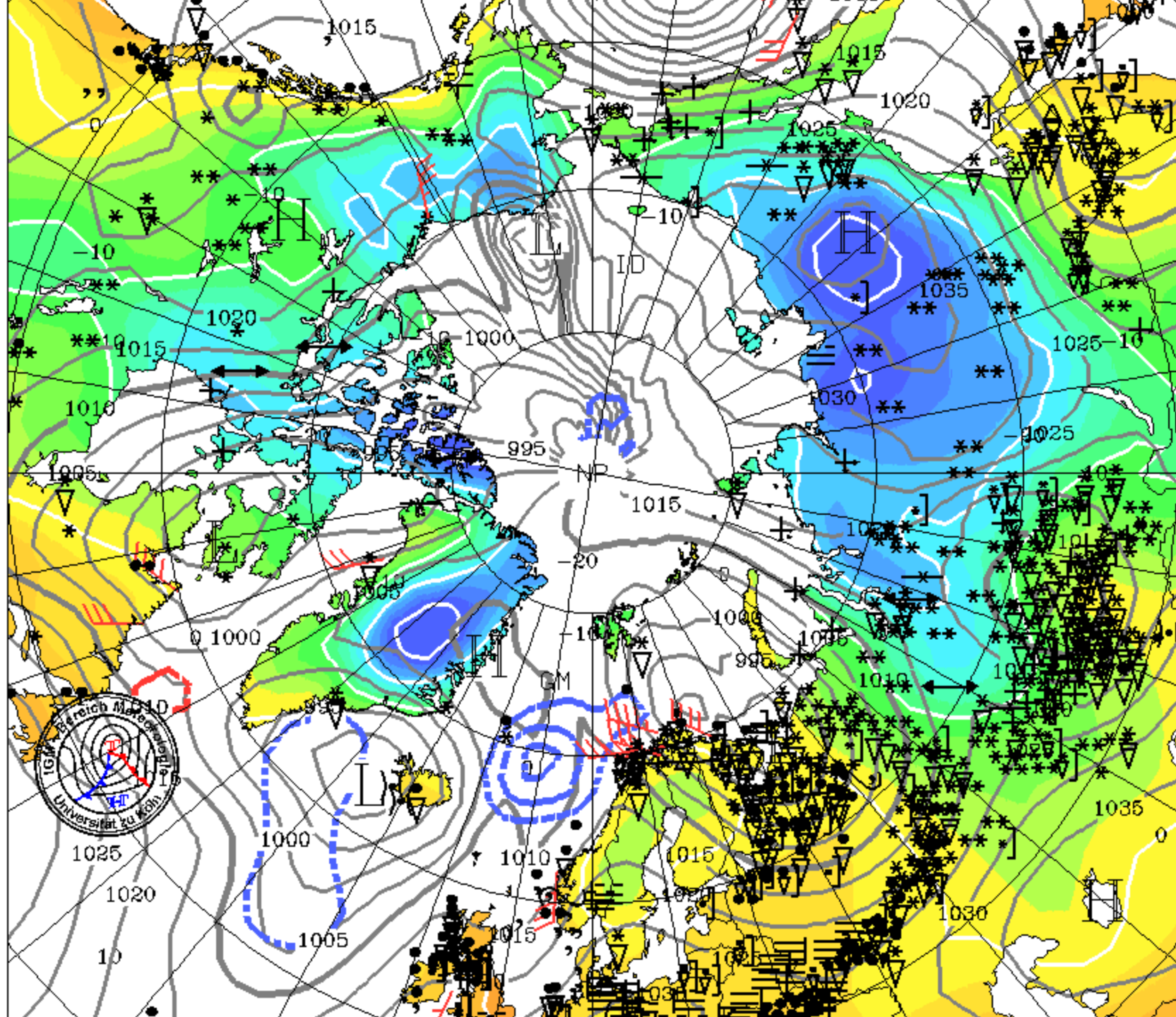


# Snow cover analysis

Analysis valid 0000 UTC Mon 12 Nov 2012

NOAA-NESDIS Analysis (23.8 km)



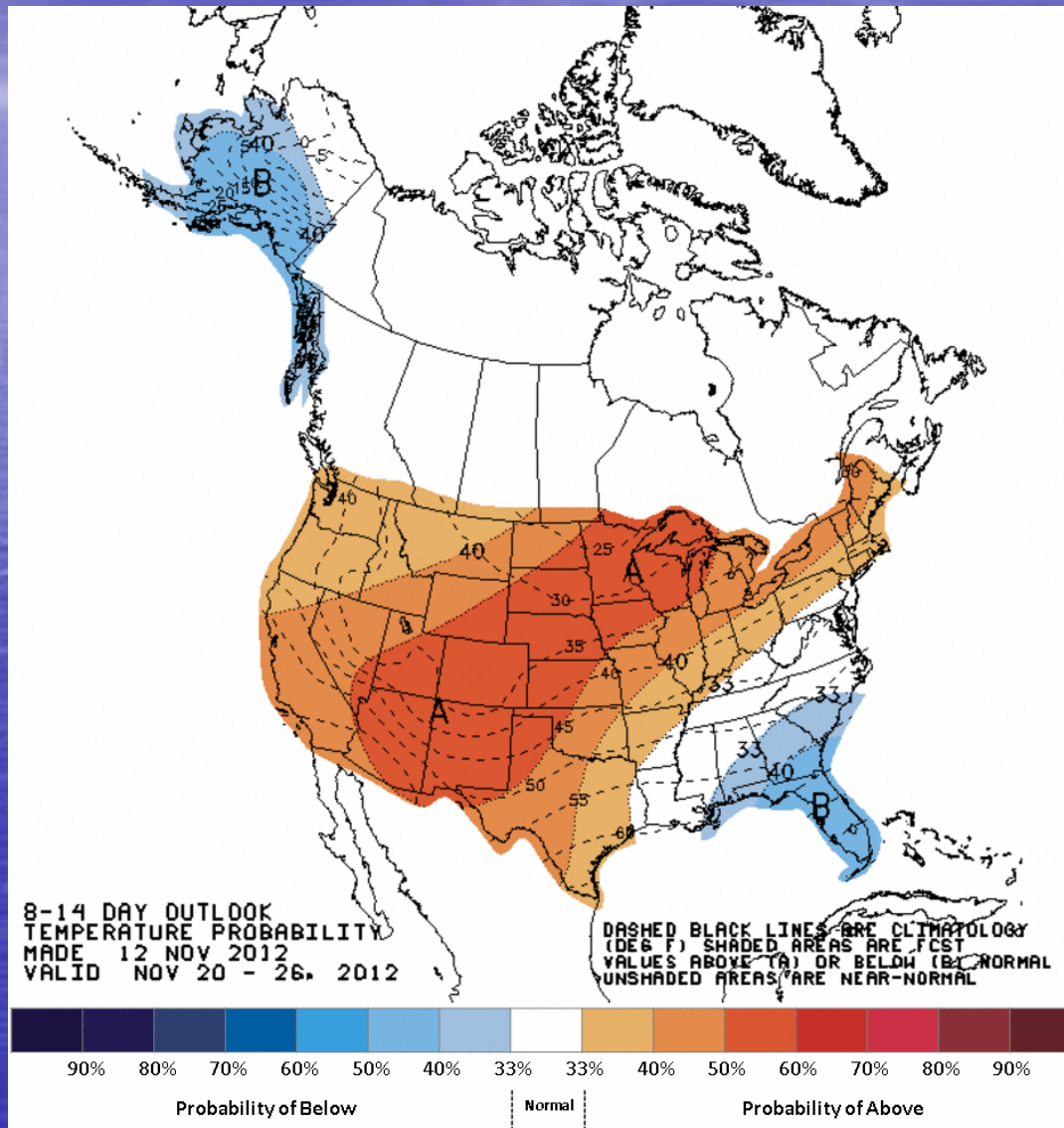


# NWS Forecast

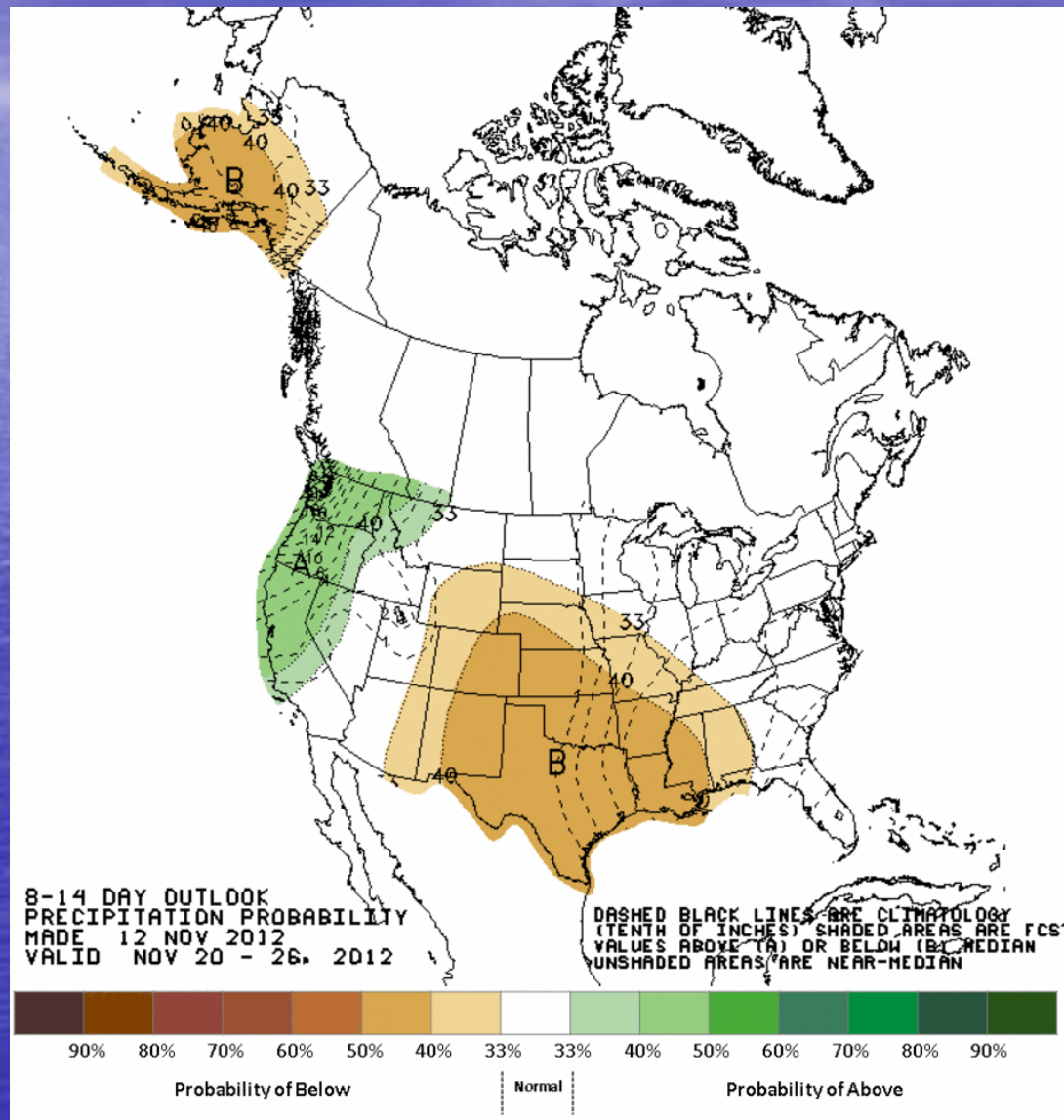
• DAY	A.M.	P.M.	(Normal = 32/49)
• Tue. 13 <sup>th</sup>	23	49	Mostly Sunny
• Wed. 14 <sup>th</sup>	34	53	Mostly Sunny
• Thu. 15 <sup>th</sup>	37	53	Mostly Sunny
• Fri. 16 <sup>th</sup>	31	49	Sunny
• Sat. 17 <sup>th</sup>	32	51	Mostly Sunny
• Sun. 18 <sup>th</sup>	37	50	Mostly Cloudy
• Mon. 19 <sup>th</sup>	37	51	Mostly Cloudy



# NWS Nov. 20-26 Temperatures



# NWS Nov. 20-26 Precipitation



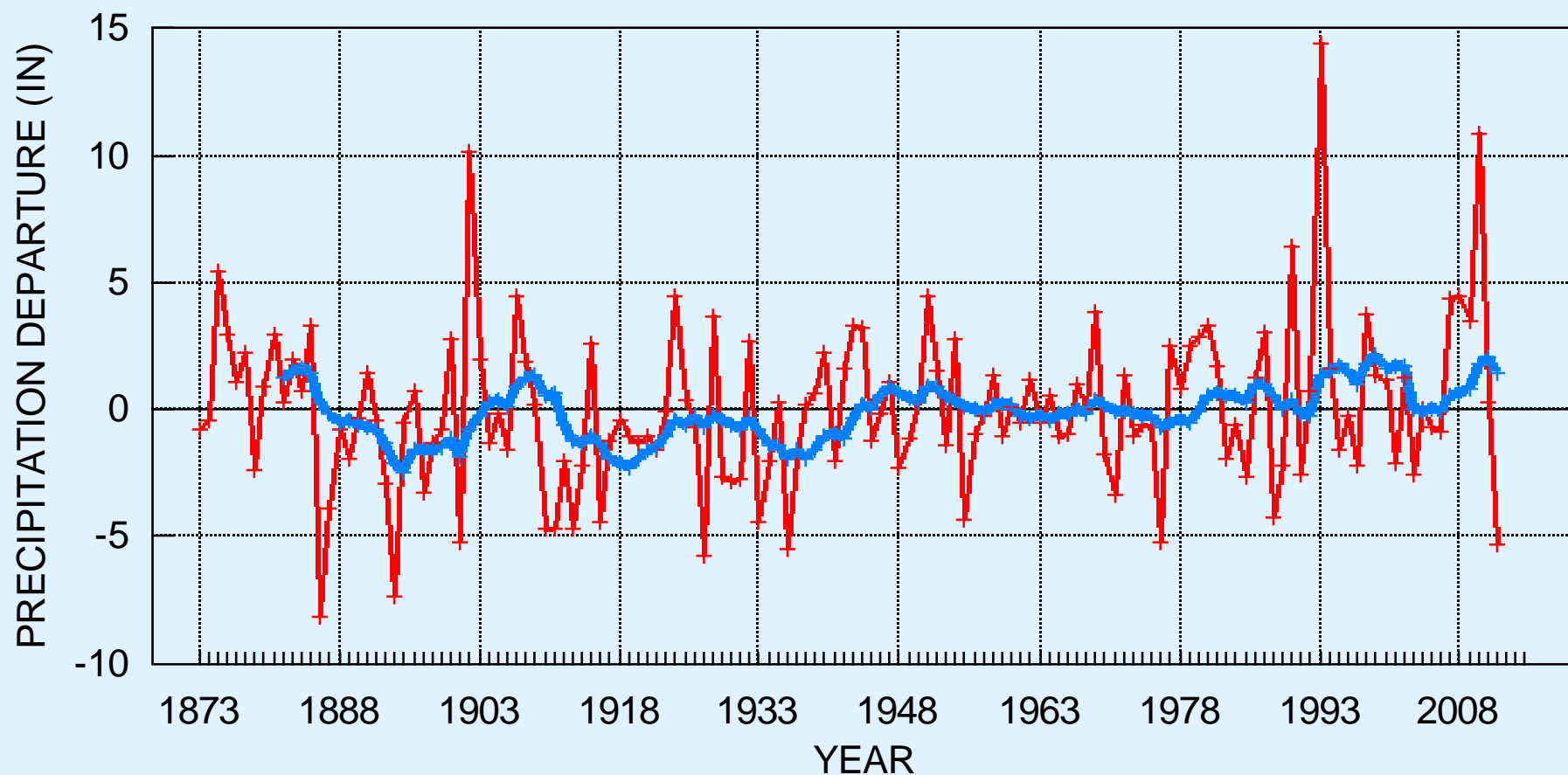


# Believe it or not!

- Mount Ayr, Iowa
- 117 years of weather records
- Endured a record 63 consecutive days without so much as one drop of rain from Sep. 15 through Nov. 16, 1952.
- Set an Iowa record for the month of November with 6.22 inches of rain in one day on Nov. 17, 1952.

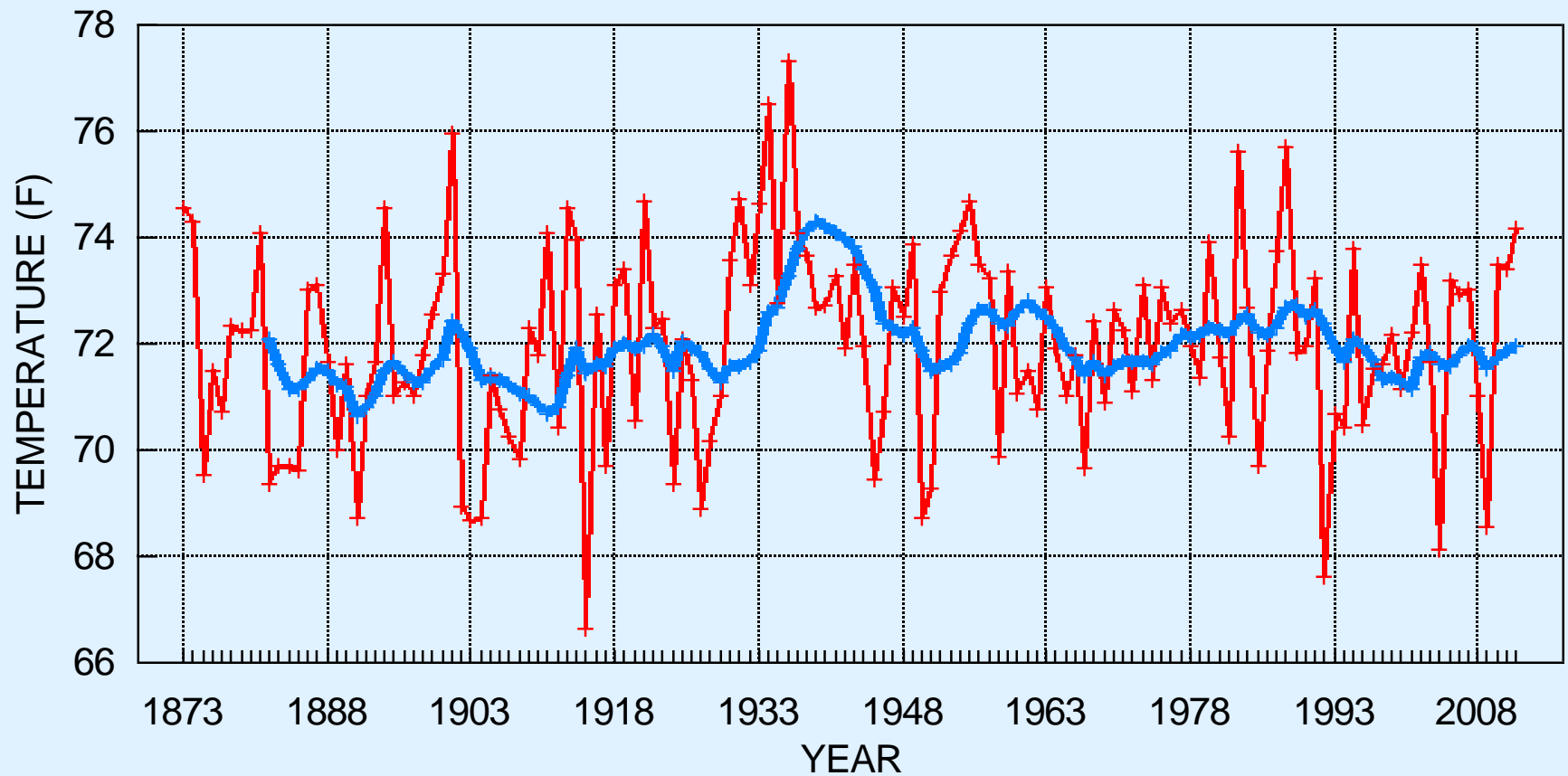
# IOWA SUMMER PRECIPITATION

## JUN - AUG, 1873 - 2012 (12.43" AVERAGE)



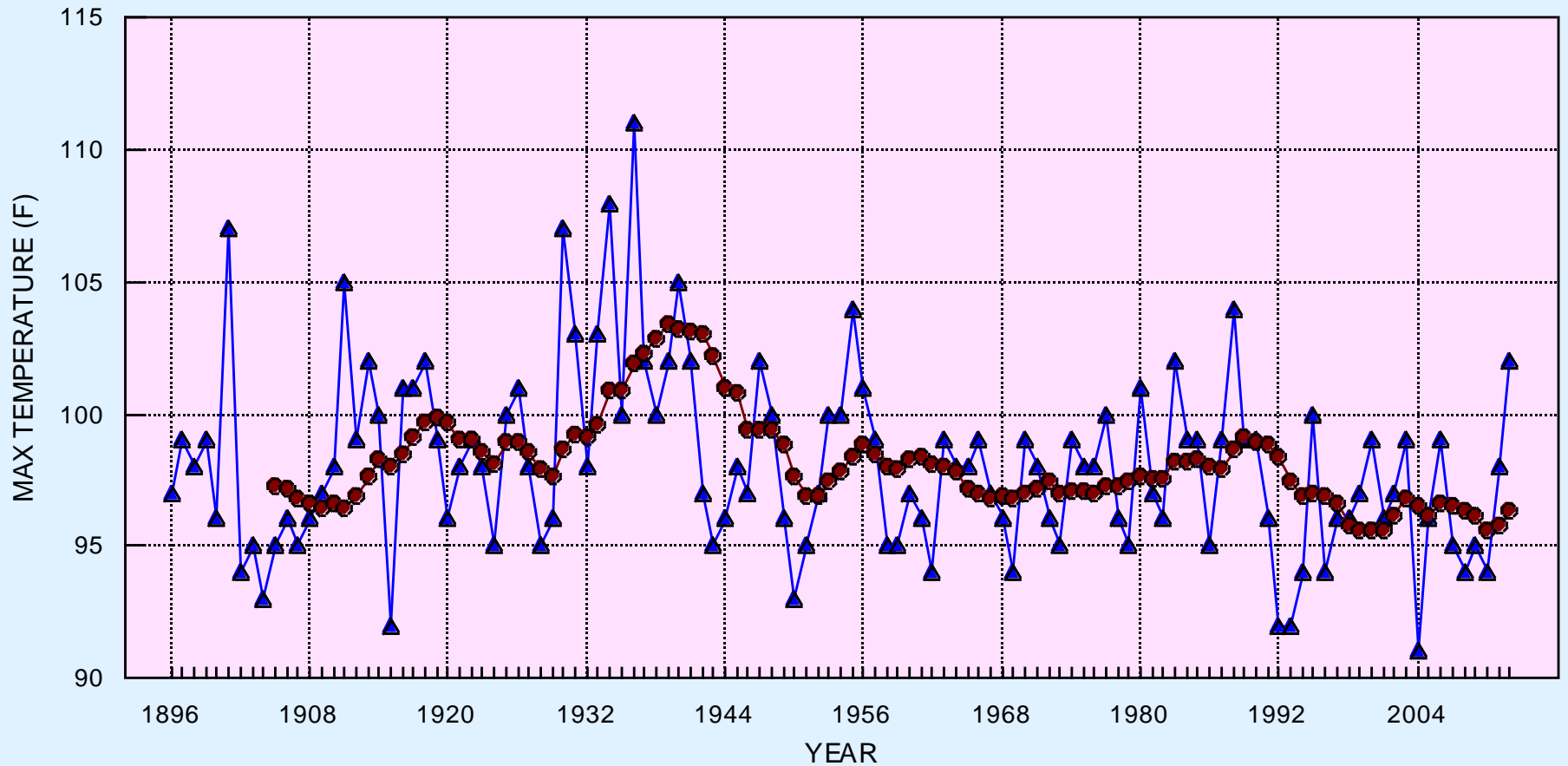
# IOWA SUMMER TEMPERATURES

Jun - Aug, 1873-2012, (AVERAGE = 72.0)



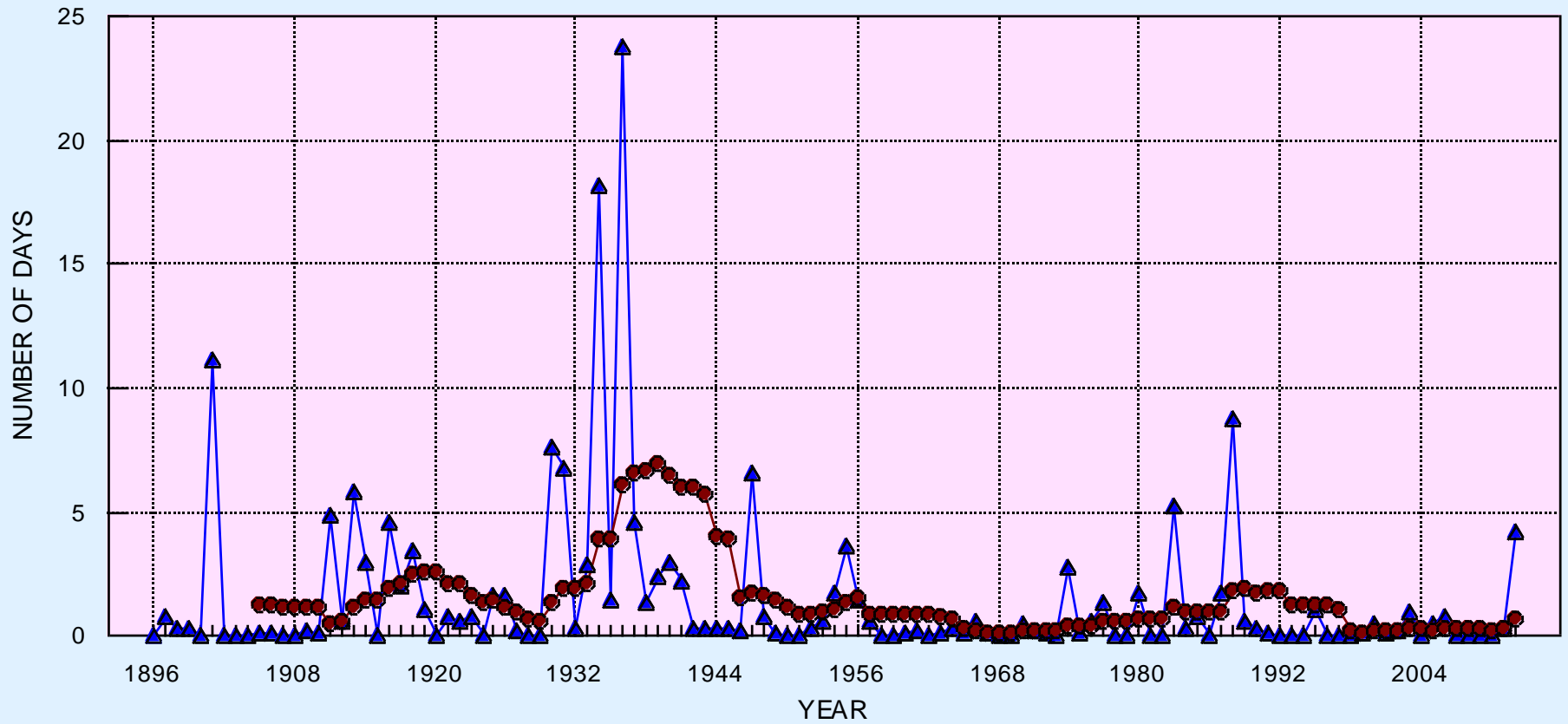
# ANNUAL MAX TEMPERATURE

IOWA AVERAGE (1896-2012 = 98 DEGREES)



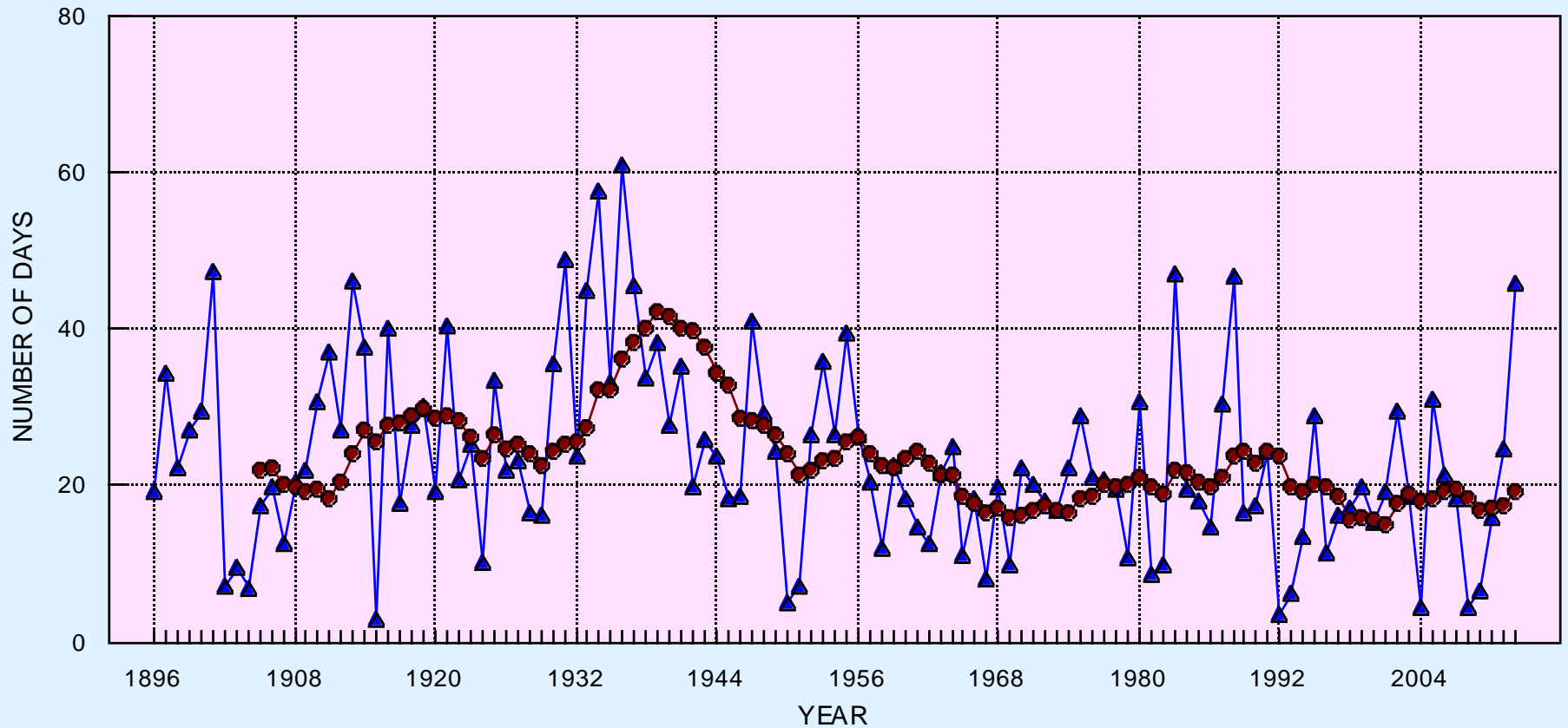
# MAX TEMPERATURE 100F OR HIGHER

IOWA AVERAGE (1896-2012 = 1 DAY/YEAR)



# MAX. TEMPERATURE OF 90F OR HIGHER

IOWA AVERAGE (1896-2012 = 23 DAYS/YEAR)



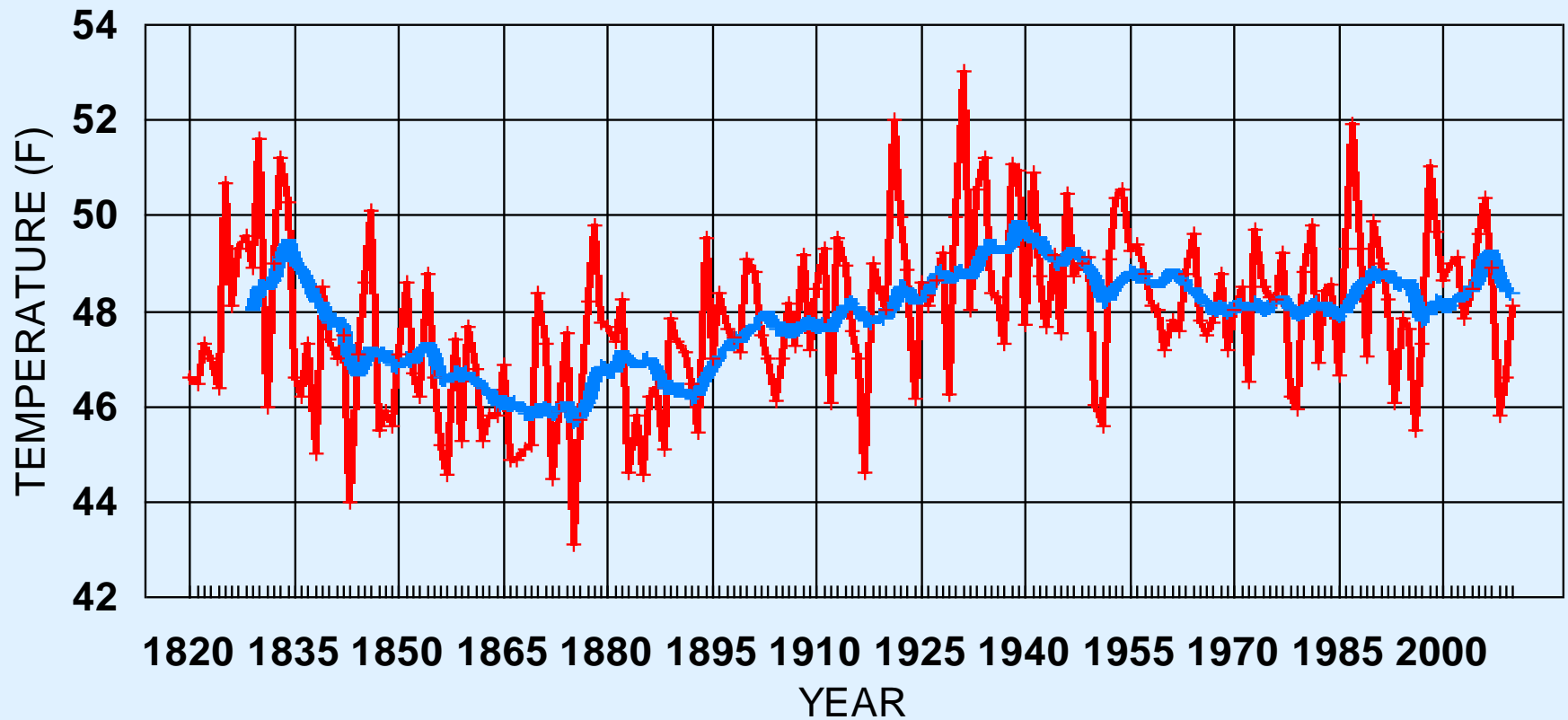


# What's the Big Deal about Heat?

- 90° 13% greater drying potential than at 86°.
- 96° 37% greater.
- 100° 54% greater.
- 104° 74% greater.
- 108° 95% greater.

# IOWA ANNUAL TEMPERATURE

## 1820-2010 (AVERAGE = 47.8)



# If you don't like the weather...

- Keokuk, Nov. 11, 1911
- Noon. 79F, strong wind from the southwest.
- 1:55 p.m. Thunderstorm.
- 2:55 p.m. 42F, strong NW wind.
- Midnight. 14F, an inch of sleet had fallen.
- Morning Low Temp of 11F on Nov. 12.
- Afternoon high of only 17F on Nov 12.

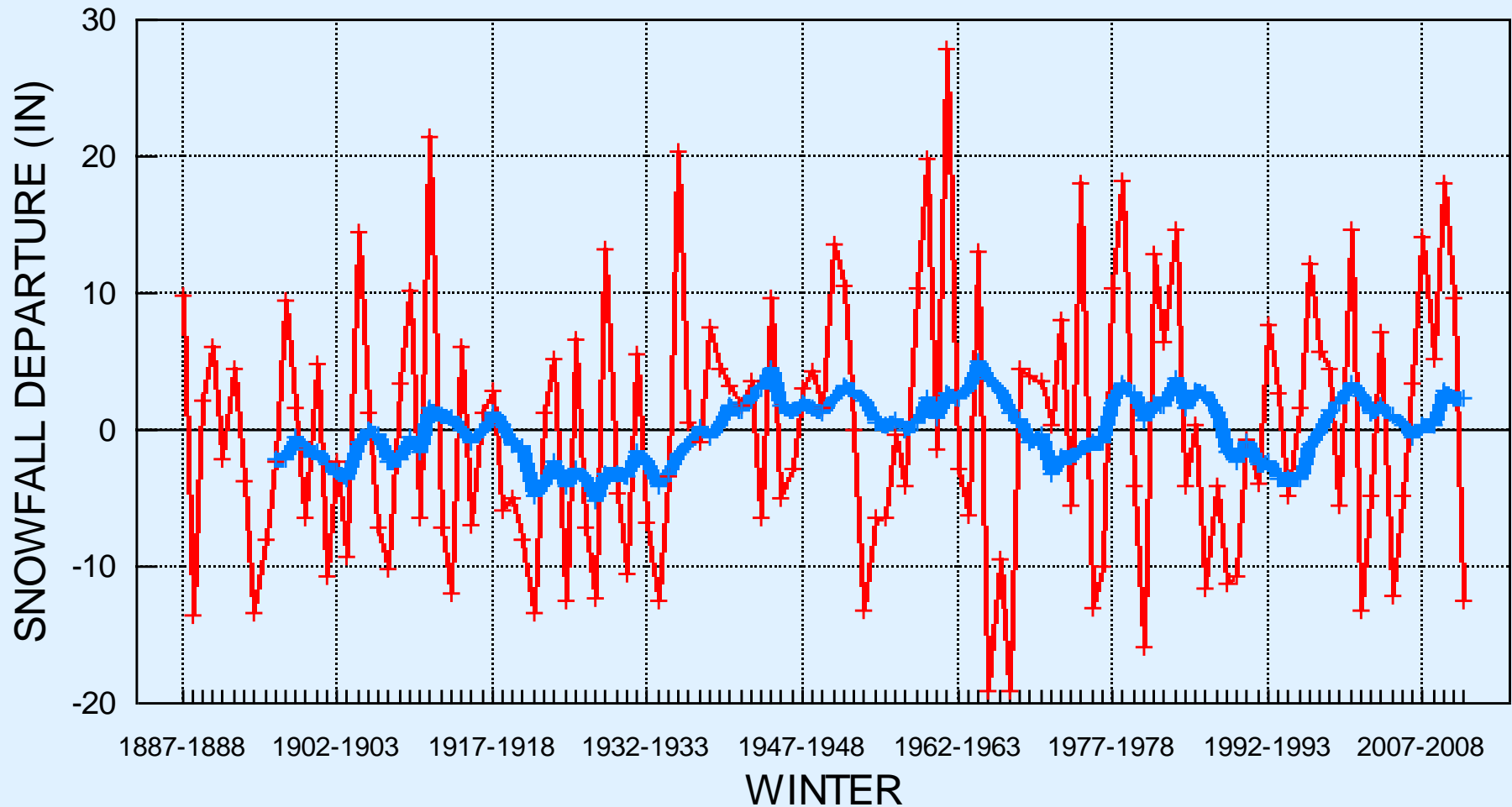


# November 11, 1911 continued...

- Severe blizzard over much of eastern Iowa.
- Tornado on the ground for seven miles near Davenport.
- Eight people killed by a tornado in SC Wisconsin.
- Much of the corn crop, already stunted by severe drought, was lost owing to cold damp weather in SE Iowa that Fall.

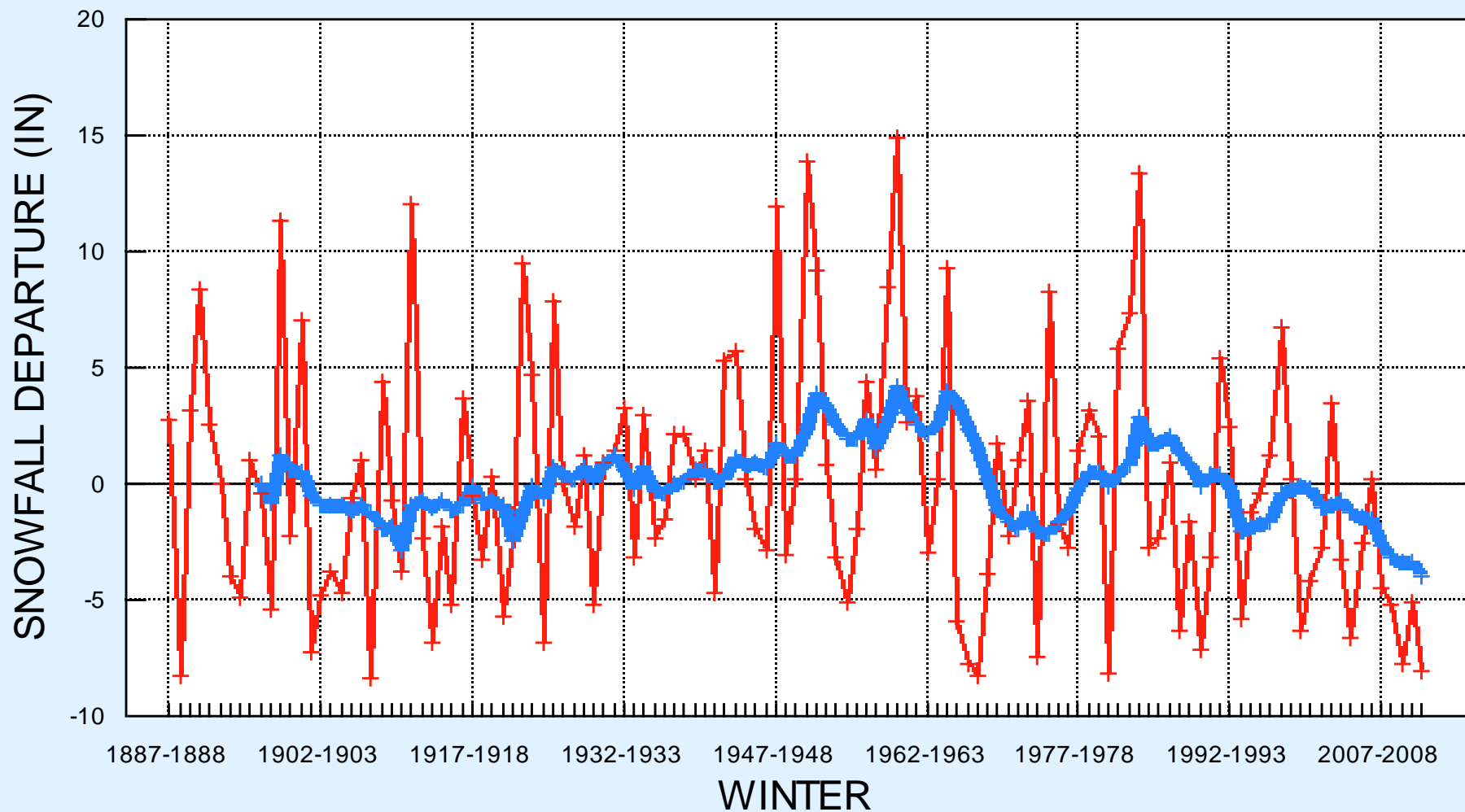
# IOWA WINTER SNOWFALL

1887/88 - 2011/12 (AVERAGE = 31.3")



# IOWA OFF-SEASON SNOWFALL

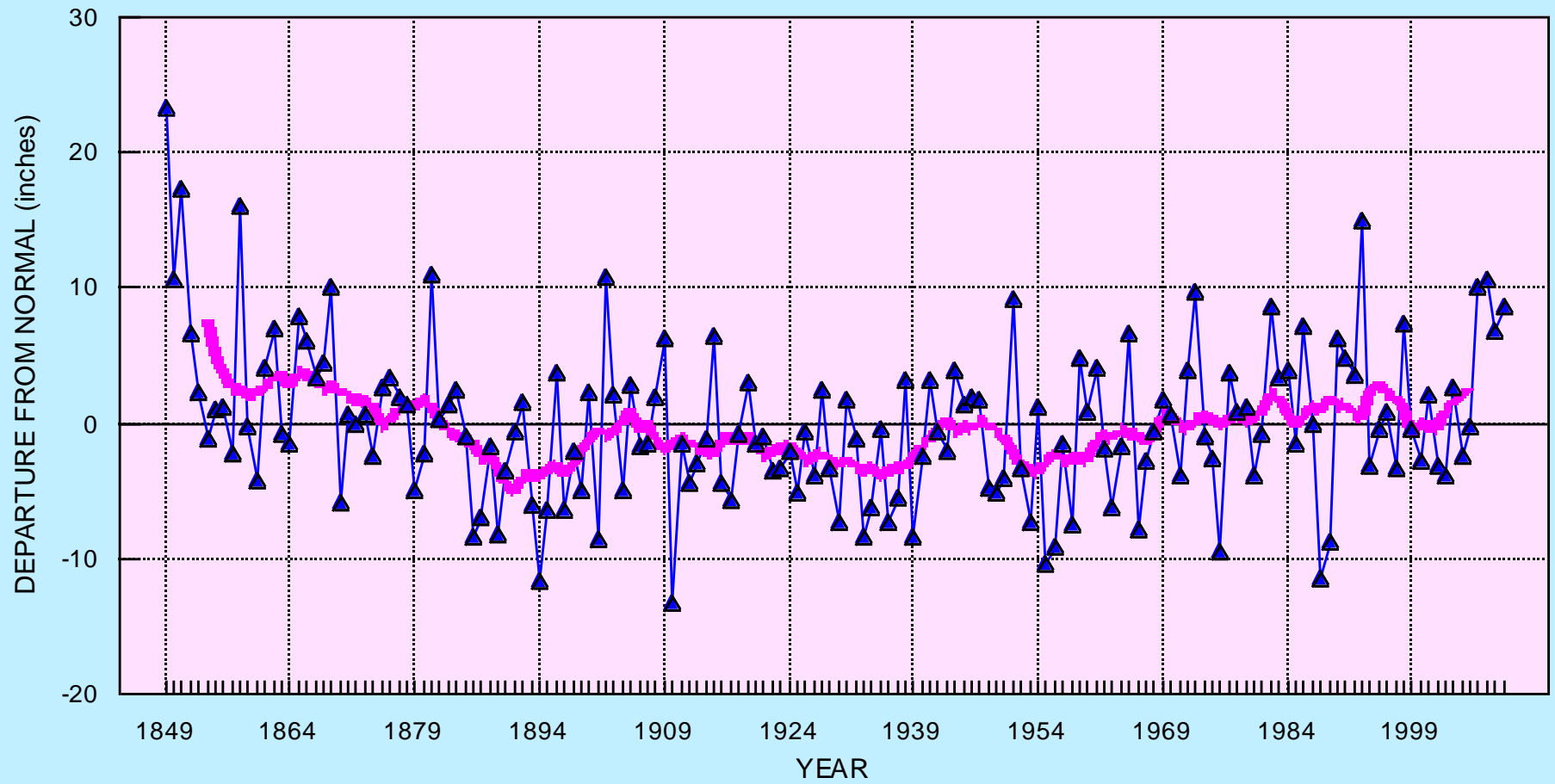
1887/88 - 2011/12 (AVERAGE = 10.5")





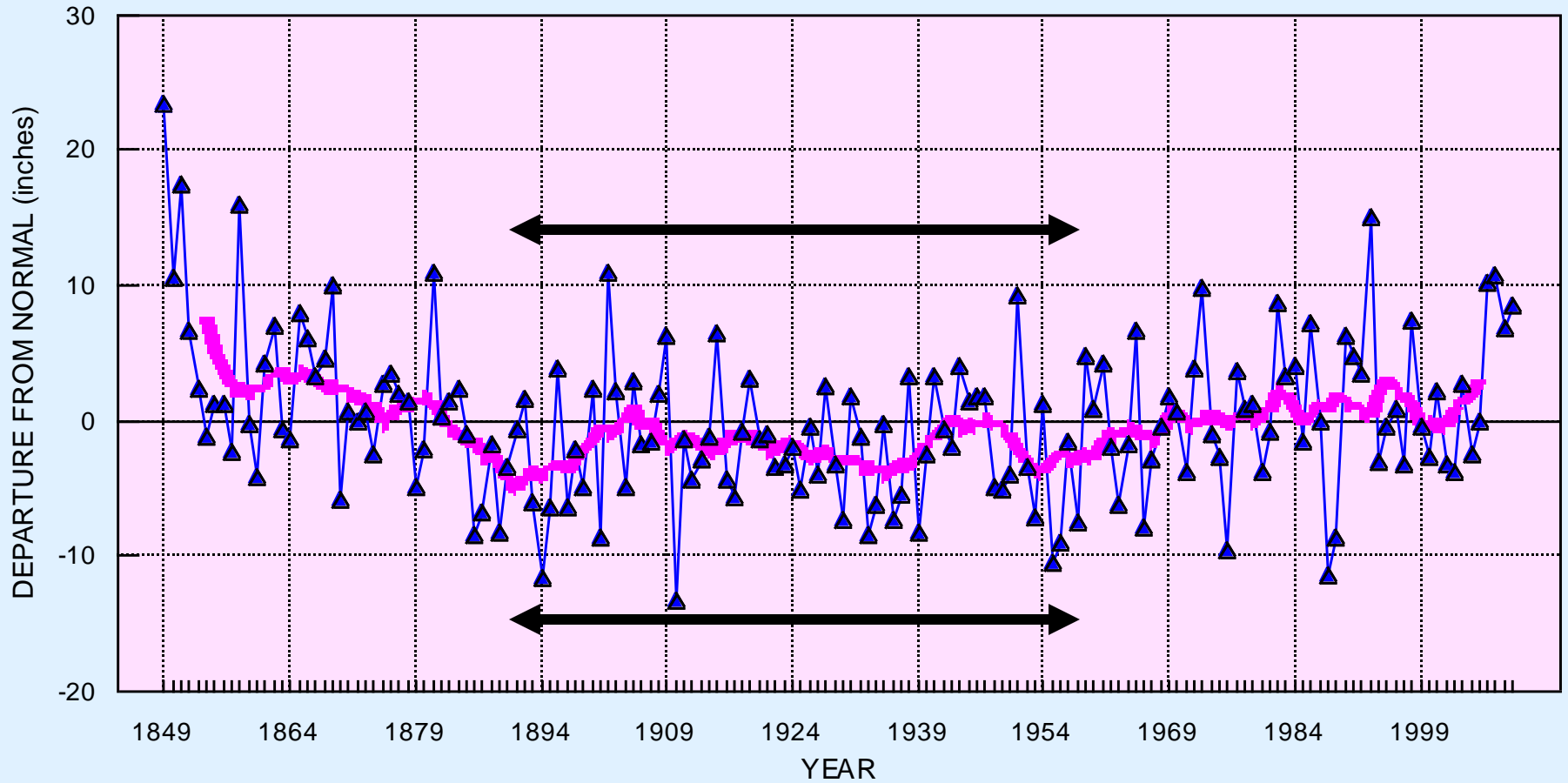
# IOWA STATEWIDE AVG PRECIPITATION

1849-2010 (AVG = 33.20")



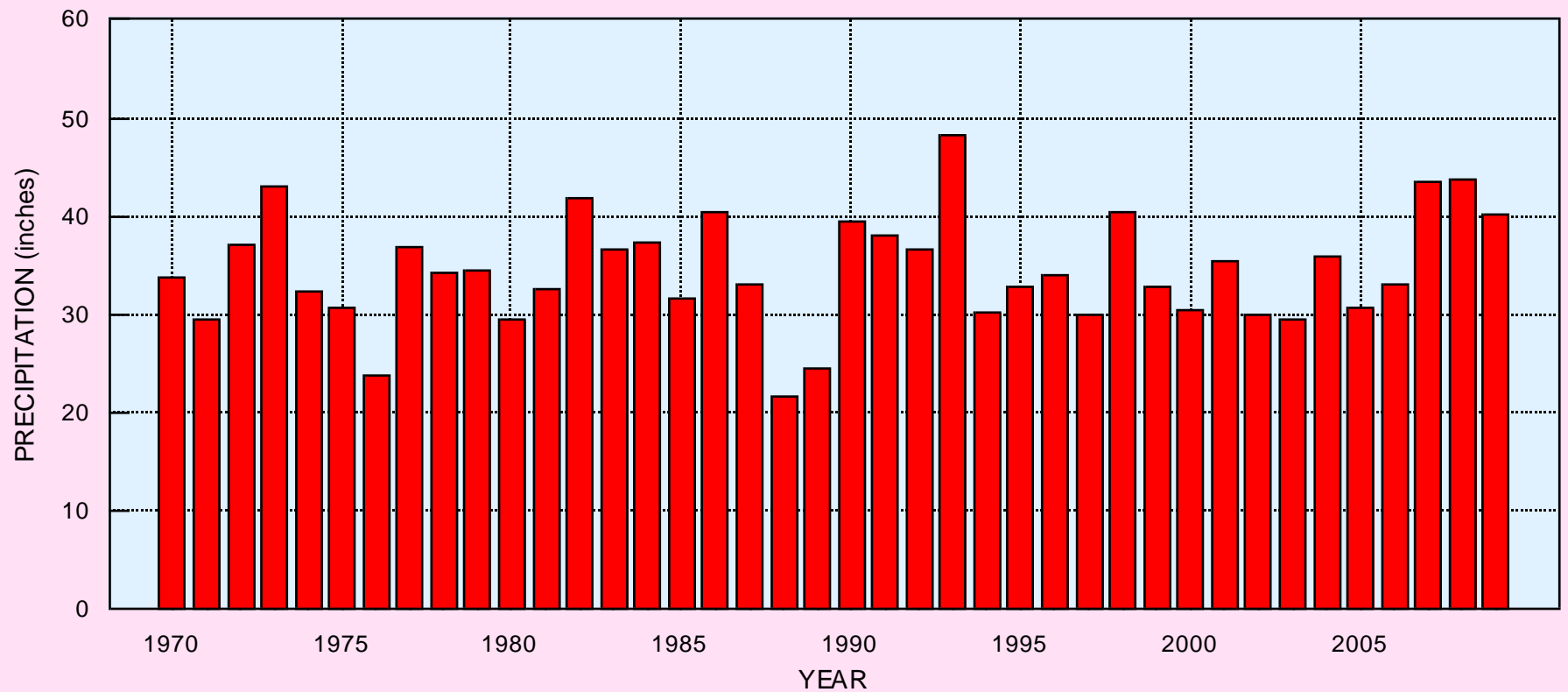
# IOWA STATEWIDE AVERAGE PRECIPITATION

1849-2010 (AVG = 33.20")



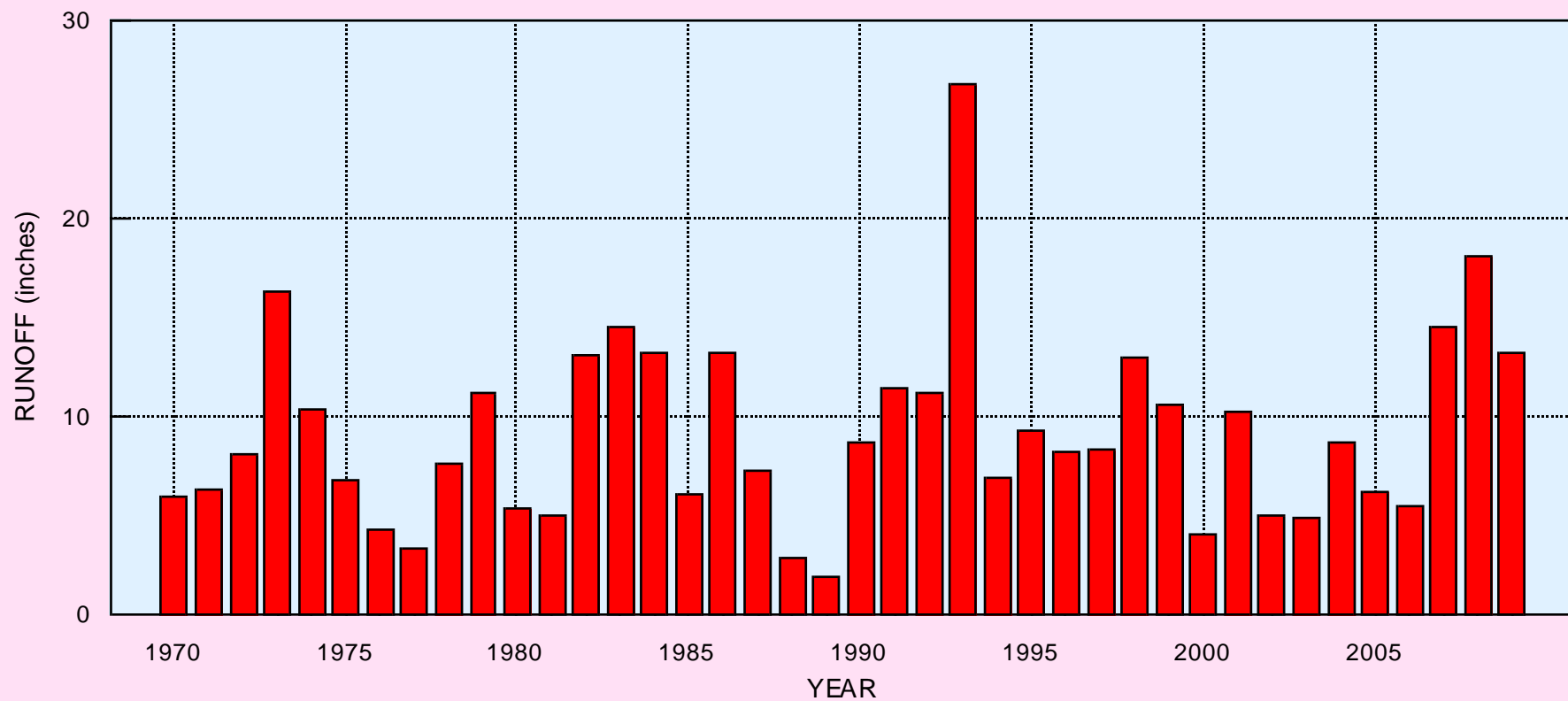
# IOWA ANNUAL PRECIPITATION

1970-2009



# IOWA ANNUAL RUNOFF

1970-2009



# A Quick Iowa Water Cycle

- Annual Precipitation = 32 inches.
- Annual Evaporation = 24 inches.
- Annual Runoff = 8 inches.



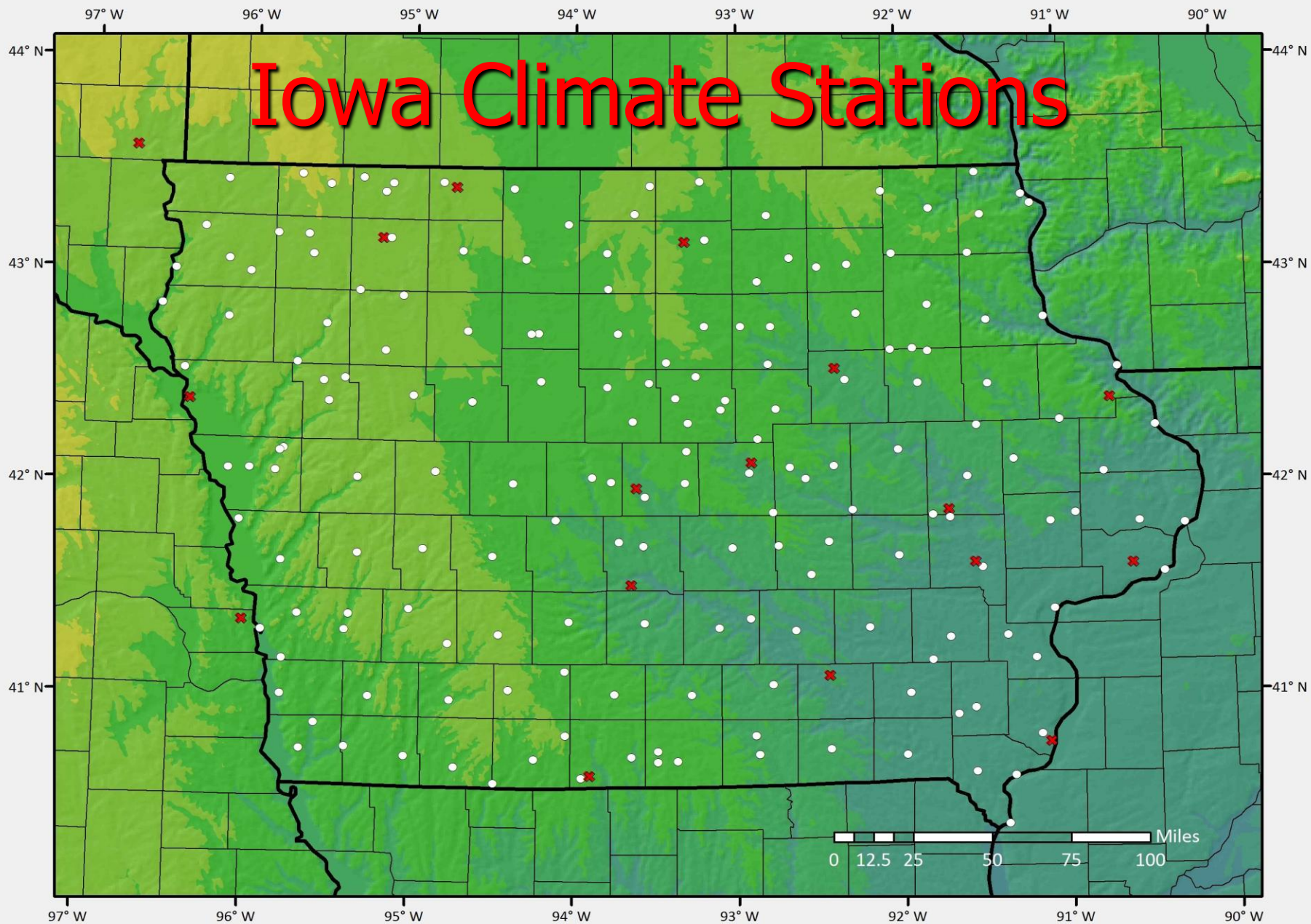
# Evaporation fairly stable year to year

- +25% increase in rain ( $32''+8''$  to  $40''$ ).
  - Evaporation: No change ( $24''+0''$  to  $24''$ ).
  - +100% increase in runoff ( $8''+8''$  to  $16''$ ).
- 
- +50% increase in rain ( $32''+16''$  to  $48''$ ).
  - Evaporation: No change ( $24''+0''$  to  $24''$ ).
  - +200% increase in runoff ( $8''+16''$  to  $24''$ ).

# Some Iowa Winter Records

- -47F at Elkader on February 3, 1996.
- -47F at Washta on January 12, 1912.
- 93.0 inches of snow at Elkader 1950-1951.
- 2.5 inches of snow at Shenandoah 1965-1966 (max depth 1/2 inch).
- 147 consecutive days with at least 1 inch of snow on the ground at Sanborn; Nov. 7, 2000 through Apr. 2, 2001.





# NWS Observers Needed

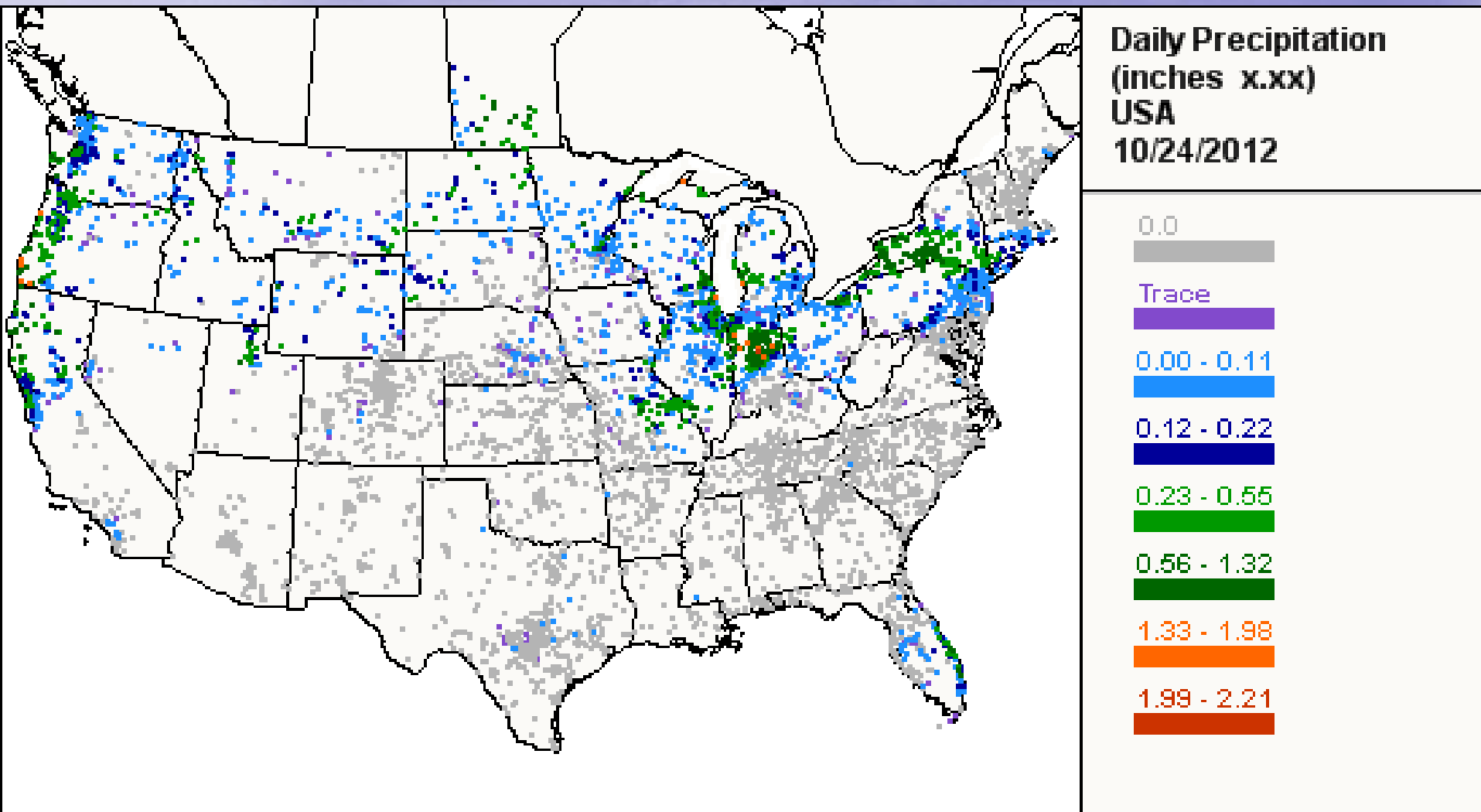
- Colo/Nevada
- Columbus Junction
- Independence
- Leon
- Onawa
- Tipton



# Community Collaborative Rain, Hail and Snow Network



# [www.cocorahs.org](http://www.cocorahs.org)



# E. Fork Nishnabotna River Flood

- Near Exira 3.7 inches of rain fell between 11 p.m. and midnight, July 1, 1958.
- Another 3.11" from midnight to 1 a.m.
- And another 2.0" from 1 a.m. to 2 a.m.
- Upstream of Exira 12.53" fell at Audubon.
- David's Creek had flow of 22,700 cfs.
- 17 lives lost overnight along the river.

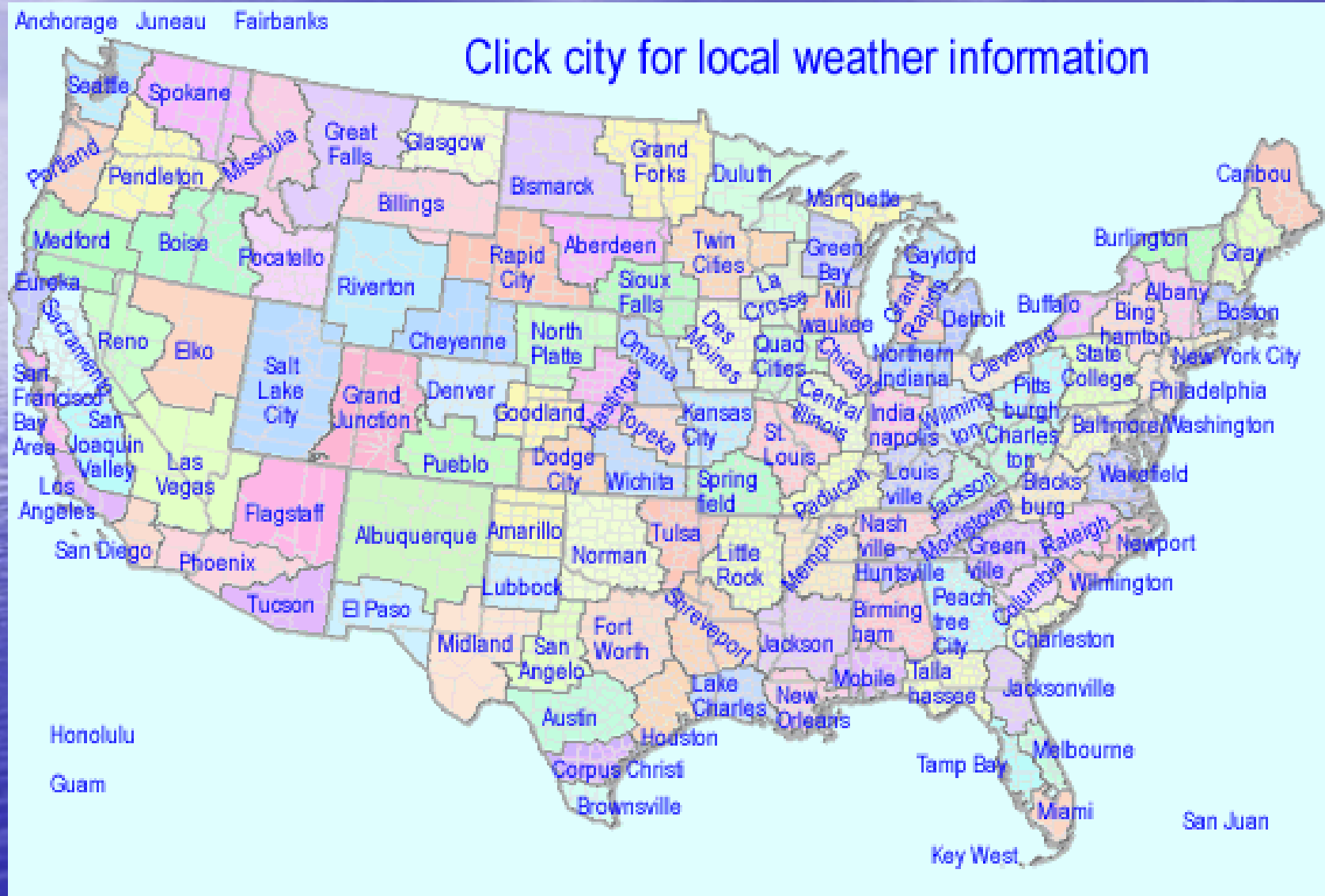


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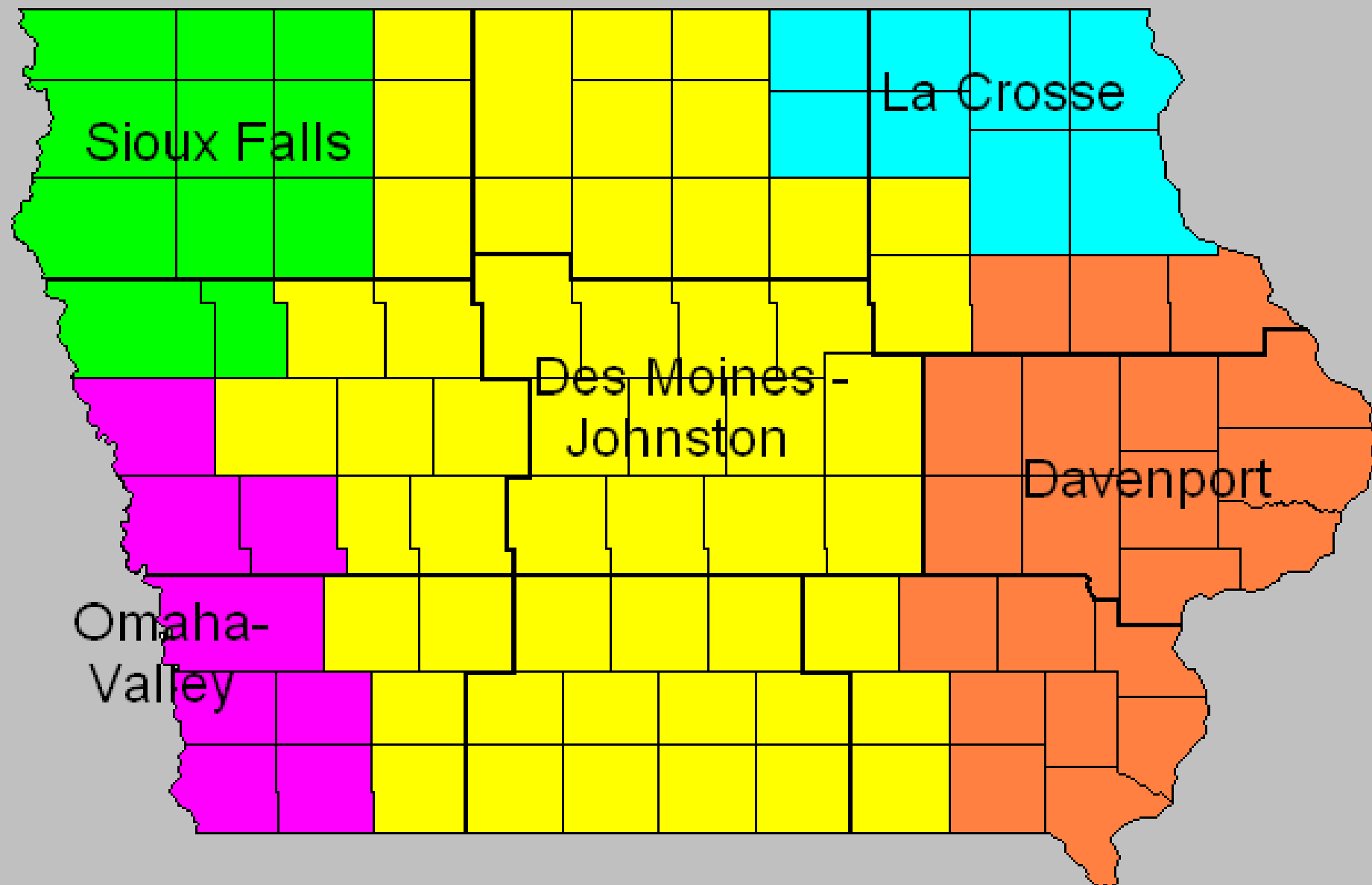
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E-Mail: [HarryHillaker@iowaagriculture.gov](mailto:HarryHillaker@iowaagriculture.gov)

# National Weather Service Forecast Offices





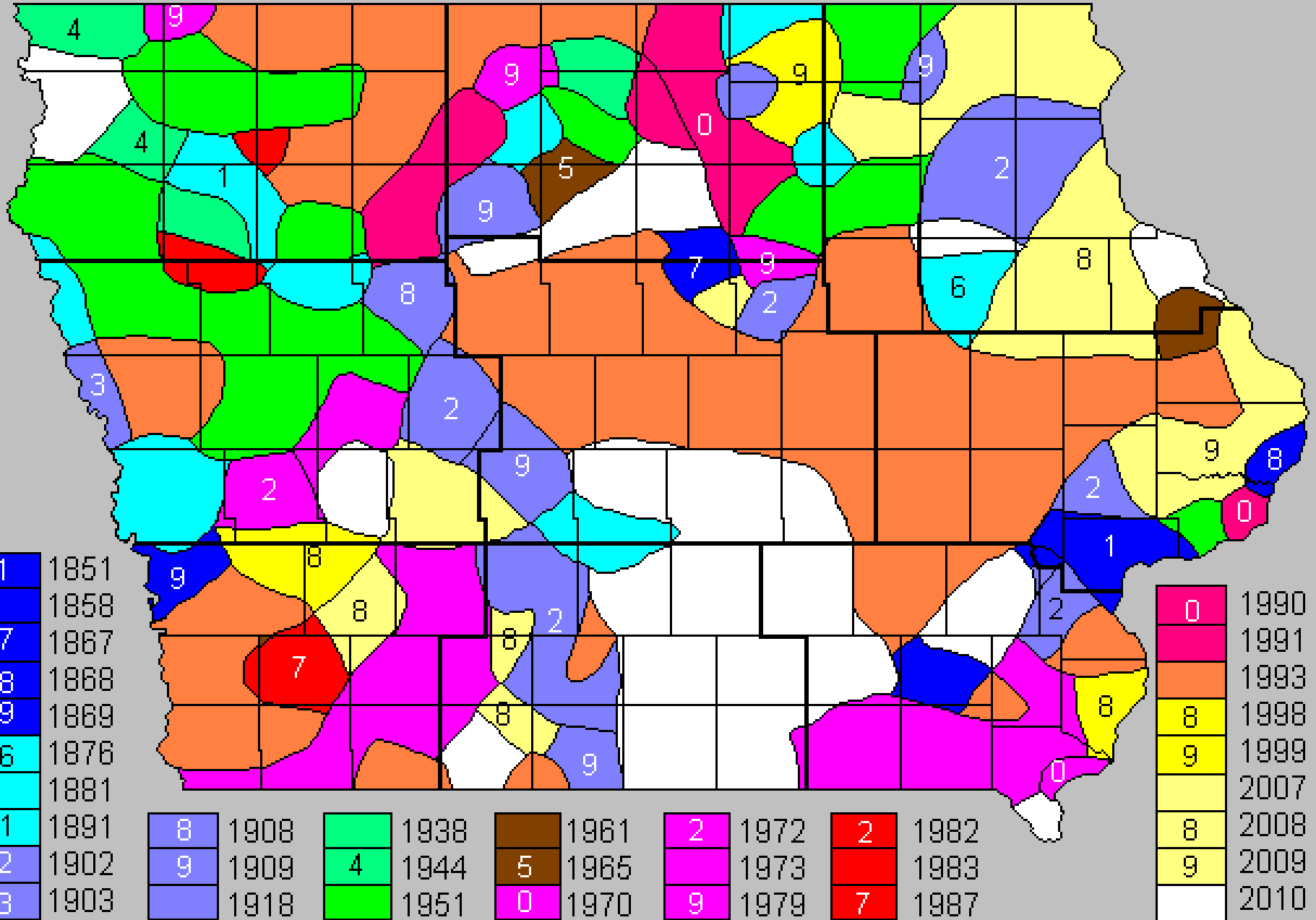
# Iowa's National Weather Service Forecast Offices



# September 1926 Flood

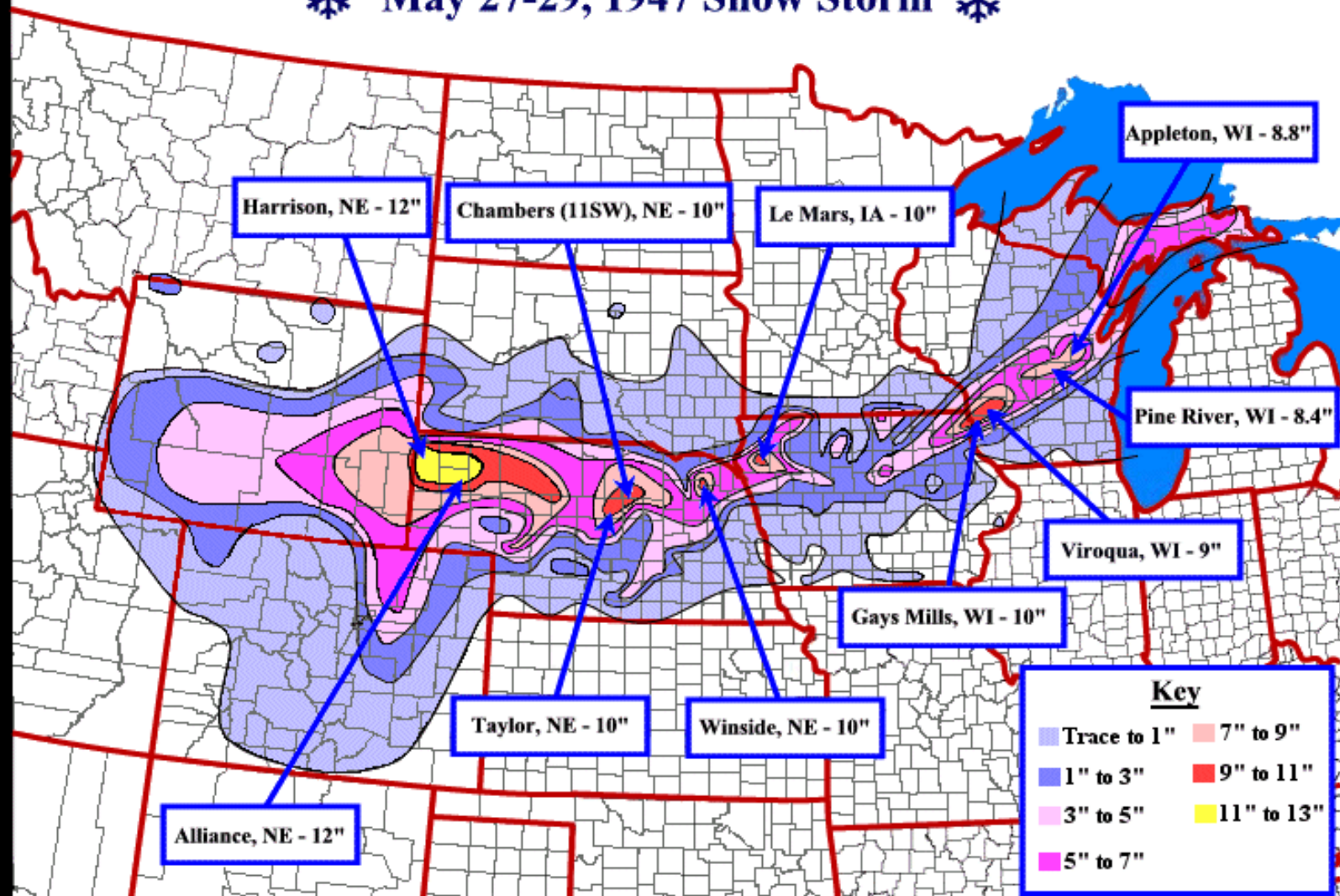
- August 10, 1926: A new weather station established at Hawarden, Iowa with young Earl Slife as the observer.
- September 17, 1926: 20.7" of rain falls east of Hawarden at town of Boyden.
- September 18, 1926: Earl regretfully reports that his new rain gage has been lost in a flood after being in service for only 39 days.
- July 3, 1993. Earl Slife, Sr. dies after having served as the Hawarden weather observer for nearly 67 years.

## WETTEST CALENDAR YEAR OF THE HISTORICAL RECORD



# May 28, 1947 Snow Storm

❄ May 27-29, 1947 Snow Storm ❄





# June 1947

- Iowa's wettest calendar month up to that time (10.33" statewide average).
- Major flooding on most Iowa rivers.  
Record crest at Ottumwa on June 7 & 15.
- 18.12 inches of rain at Van Meter.



# August 1947

- Hottest August ever in Iowa.
- Ranks 5<sup>th</sup> driest August in 140 yrs of record.
- 109° at Monroe on August 3.
- Worst Iowa yields of the hybrid corn era (31 bu./acre statewide average).