

## ***Hot Summers of 1988 and 2010 – Did CO2 help us get thru this time without major crop losses?***

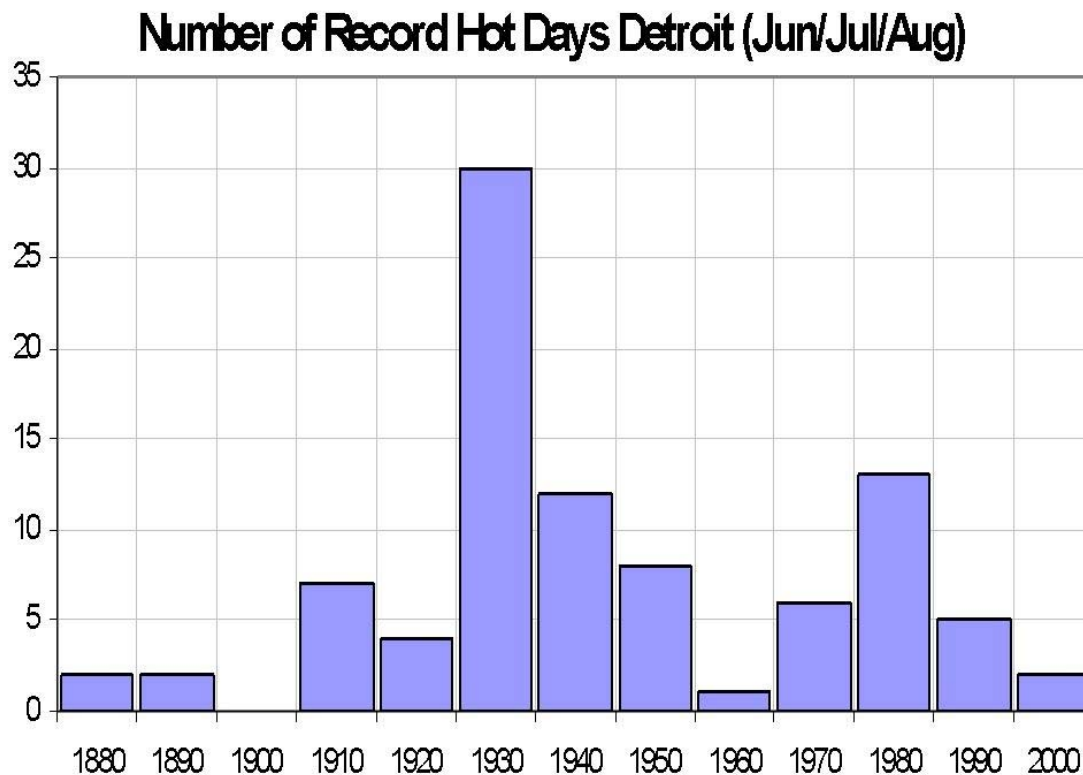
*By Joseph D'Aleo, CCM*

Both 1988 and 2010 were hot summers where a strong La Nina developed following a moderately strong El Nino winter. 2010 was the fourth warmest for the United States and 1988 the sixth hottest (out of 116 years in the United States climate record).

1988 had a major drought that led to over \$40 billion in crop losses. USDA reported corn yields dropped 36% from the prior year and soybeans dropped 22%.

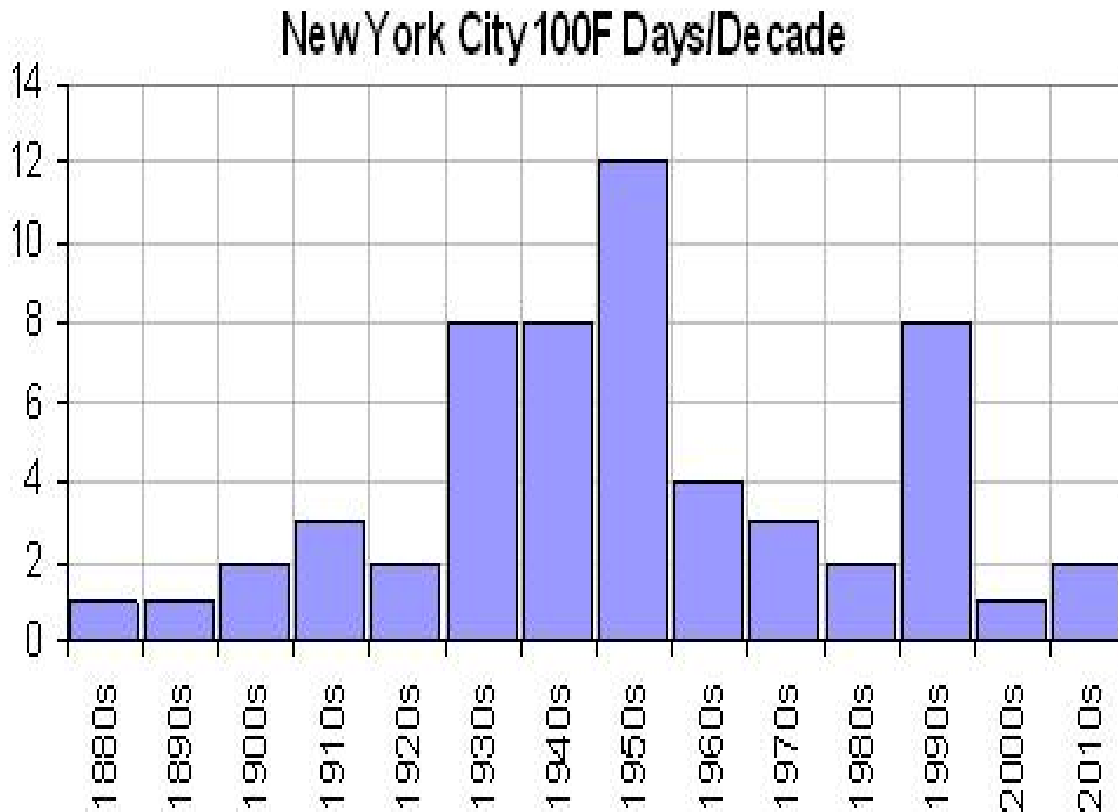
2010 soybean yields were the highest on record. Corn was down 3% from last year's record crop.

The summer heat was unusual – more records were set for elevated minimums than record highs. For example in Detroit, it was a record hot summer. No record highs were set. Nighttime temperatures were elevated by high moisture (dewpoints). When you look at record summer highs by decade in Detroit you see the 1930s clearly dominates. The 1980s come in second.



New York reached 100F on two days in early July.

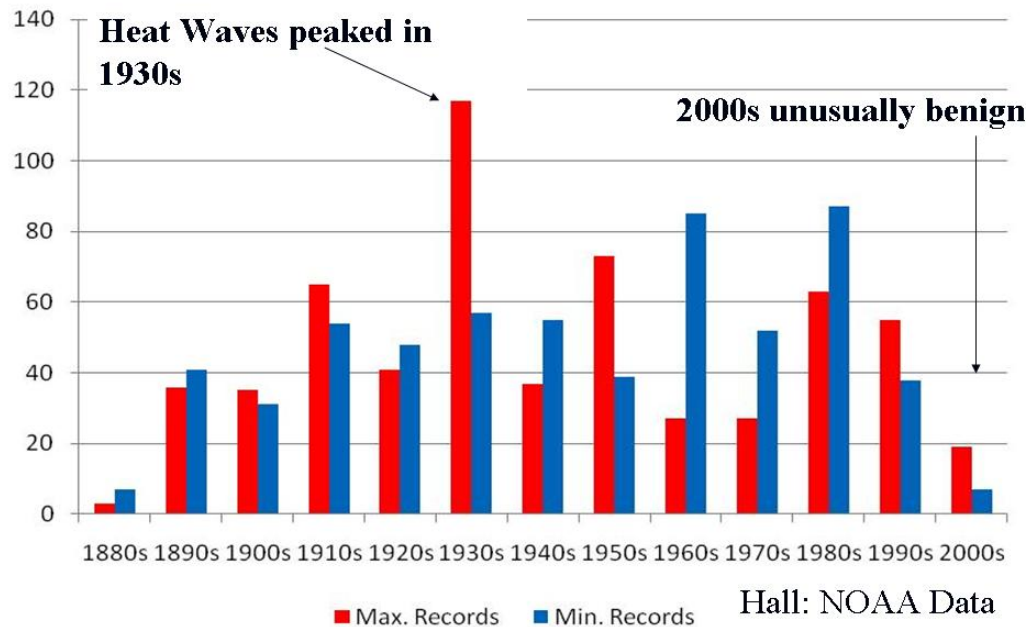
They were daily records. The summer was record warm but those were the only daily records set. How does that compare historically? In New York City, 100 degree days were common from the 1930s to the 1950s (the warmest decade). 1990s showed another spike. Again no upward trend is evident.



In sharp contrast June/July in 2009 were the 3<sup>rd</sup> coldest such period since records began over 130 years ago. How quickly we forget.

For the 50 states, the monthly (all 12 months) heat and cold records show this same pattern with the 1930s dominating the heat records. The 2000s had fewer heat records than any decade since 1880. The NOAA/NCAR/IPCC claims that heat waves in the United States and world are rapidly increasing is patently false.

## U.S. State Maximum and Minimum Monthly Records by Decade



But let's get back to the difference in crops. A number of factors may have played a role.

### *ANTECEDENT CONDITIONS*

During the mid to late spring, soil moisture deficits were extensive and expanding in the growing areas in 1988. Since drought begets drought, conditions deteriorated further as summer heat set in. In 2010, soil moisture was more than adequate after a snowy winter. That helped feed heavier than normal precipitation in the prime growing areas. Beans thrive in heat (unless extreme) if there is sufficient soil moisture.

### *LOW SOLAR, HIGH PERSISTENCE*

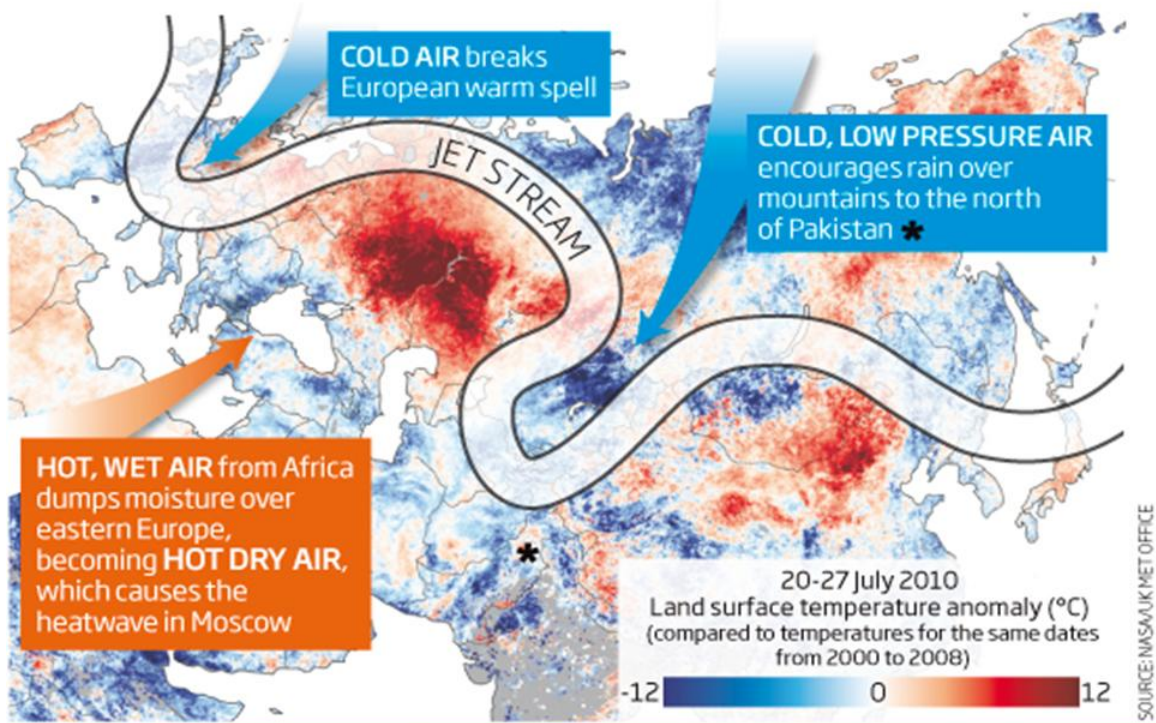
When sun is quiet, the patterns tend to persist. That has been the case the last few years. The patterns in both the warm and cold seasons has tended to persist. This aggravates the seasonal anomalies and can allow extremes to build.

That is why the east and south central had the warmest summer on record in some locations with few or no record daily highs. It helps explain why some other locations like California had the coldest or second coldest summer on record. It explains the Russian heat wave and drought in some of the same areas that had one of the coldest (or the coldest) and snowiest winter on record. And why areas downstream (Pakistan) had record floods as the downstream trough from the heat ridge amplified the summer monsoon rain band over Pakistan and parts of India.

## Holding pattern

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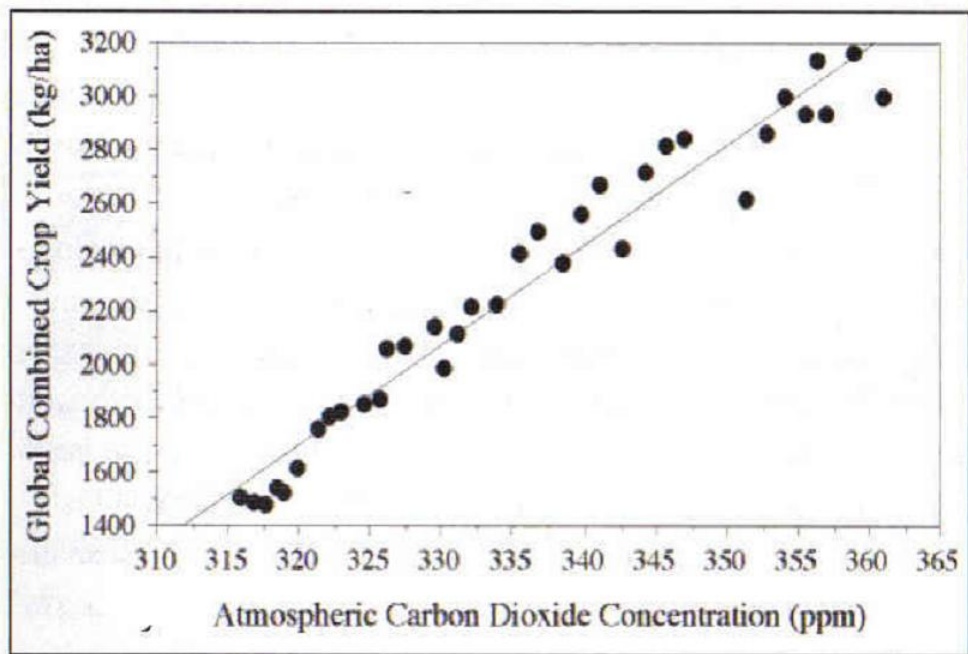
In the second half of July, a blocking event froze the meanders of the jet stream over Europe and Asia. The pattern led to extreme weather across the continents



## ***CARBON DIOXIDE, THE GAS OF LIFE***

Another factor not discussed is CO<sub>2</sub>. CO<sub>2</sub> is a plant fertilizer. Even the UN has shown crop yields increase as CO<sub>2</sub> increases. CO<sub>2</sub> enriched crops are more vigorous and more drought resistant. They shade the ground and keep down solar induced ground evaporation down. This reduces water needs. NASA found that crop yields had increased 30% in the Northern Hemisphere in the last 50 years with an increase of 10% in arable land. Some of this is better hybrids, better fertilizers, pesticides and insecticides but CO<sub>2</sub> is playing a key role.

# CO2 and Crop Yields



UN Study Graph Blick 2009

This is one of the CO2 benefits they won't talk about. We do have real issues in the world with water pollution, air pollution, toxins in the environment, insects and disease. Instead of focusing our attention on these real problems the world led by the corrupt UN and government, corporate and university profiteers is wasting resources dealing with a beneficial gas.

That is why when a panel of eight leading economists in the [Copenhagen Consensus](#) project, including five Nobel laureates was organized by Bjorn Lomborg prioritized a list of 30 efforts that made economic sense (best cost benefit ratios) for the world to pursue, global warming R&D and mitigation ranked 29<sup>th</sup> and 30<sup>th</sup>.