

# New Jersey's Changing Climate and Potential Infrastructure Issues

**Preparing New Jersey for Climate Change:  
A Workshop for Decision Makers**

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New Jersey State Climatologist  
Rutgers University**

**November 29, 2011**

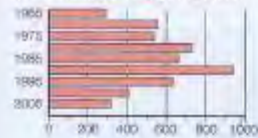


# NJ certainly has infrastructure

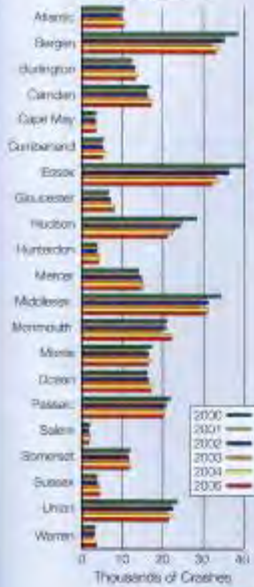


Road Network

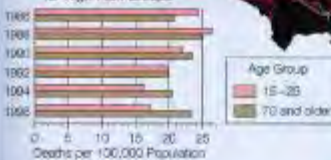
Vehicle Thefts per 100,000 Population



Vehicle Accidents



Motor Vehicle Fatality Rates for High-Risk Groups



© Hazen Group



Source: N.J. DOT 8/1/05

# Present Road Network

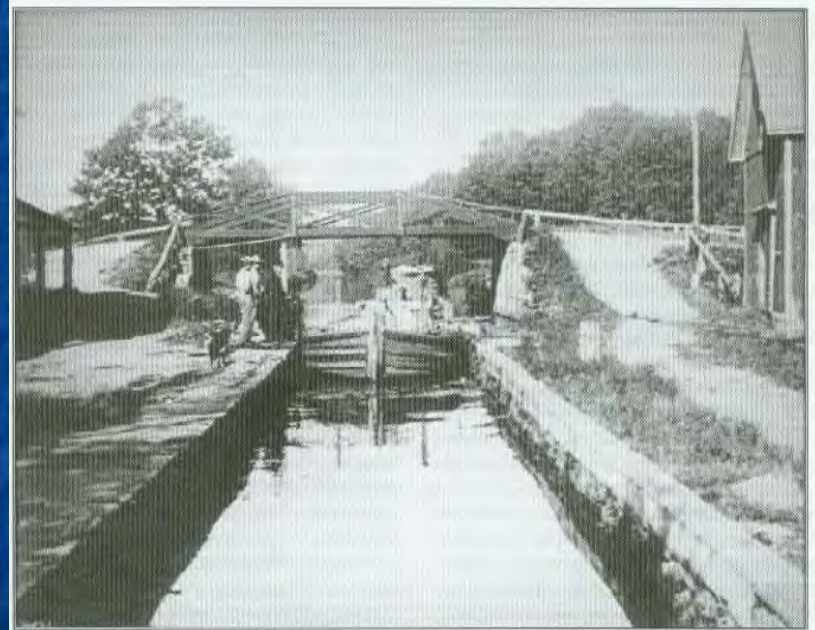
Mapping NJ, 2009



# And has long had its share



Ballantine Brewery, Newark, 1905.  
COURTESY NEW JERSEY HISTORICAL SOCIETY, NEWARK.



Canalboat at Peers Lock on the Morris Canal, Denville, c. 1880s.  
COURTESY THE STAR-LEDGER.

With more to come



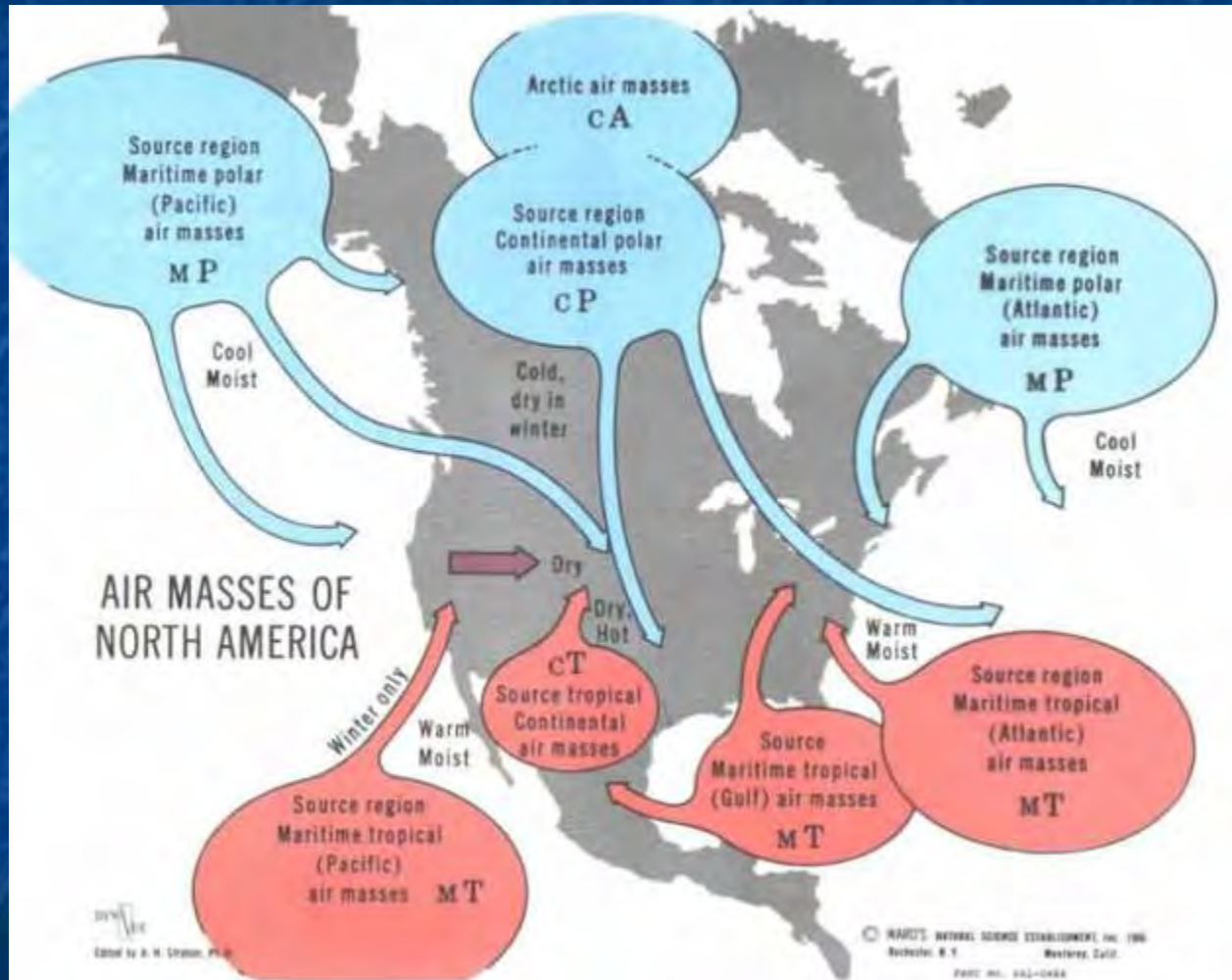
**Rutgers Livingston Campus Solar Farm**



# Weather & climate impact all aspects of life (including infrastructure!) in NJ



# Driving NJ's weather & climate: a mid-latitude squeeze play



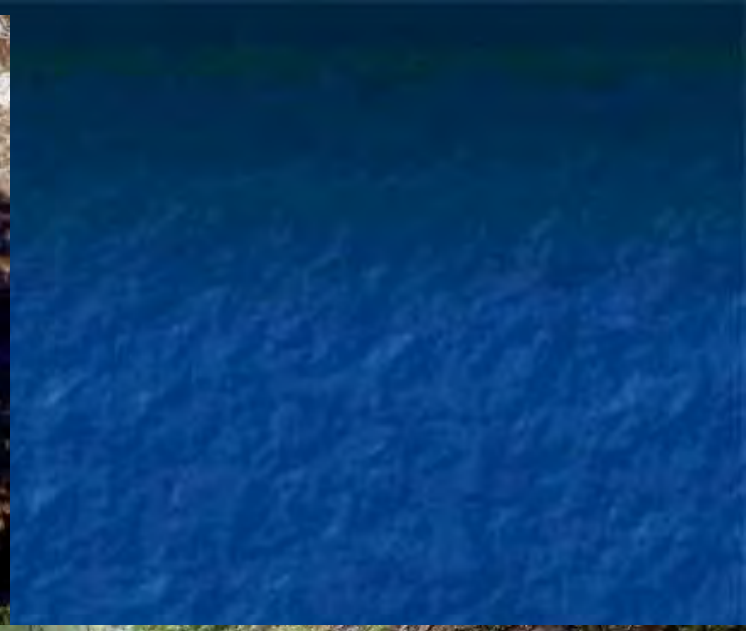
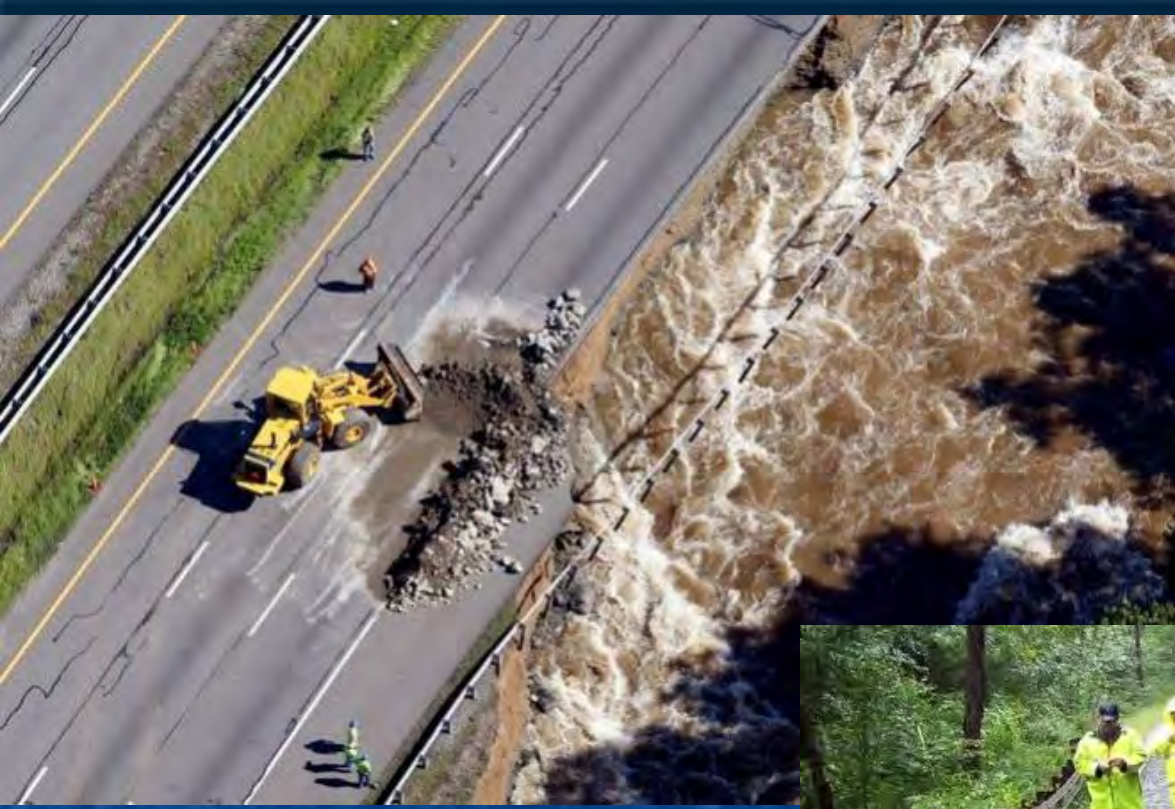


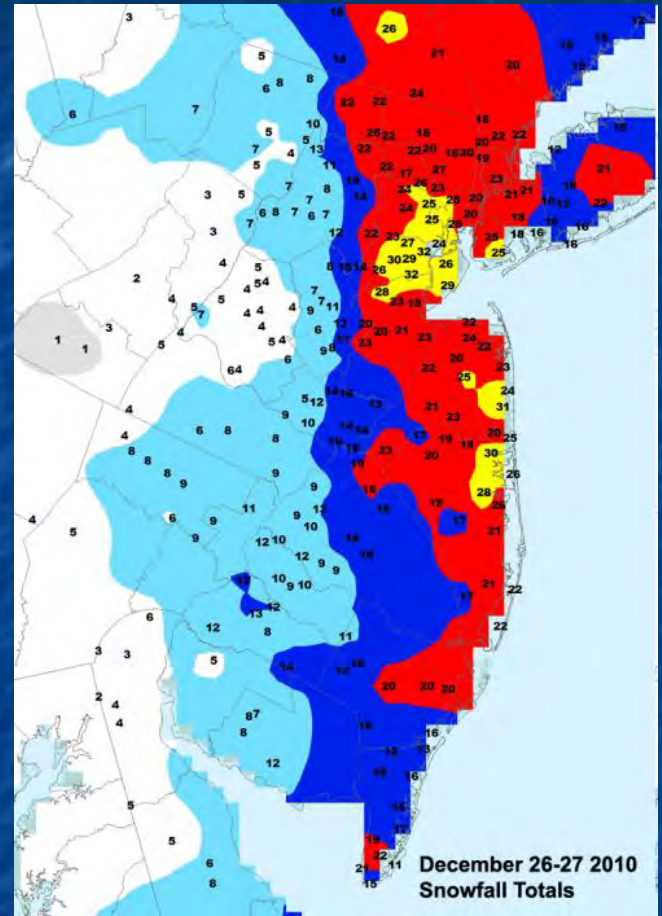




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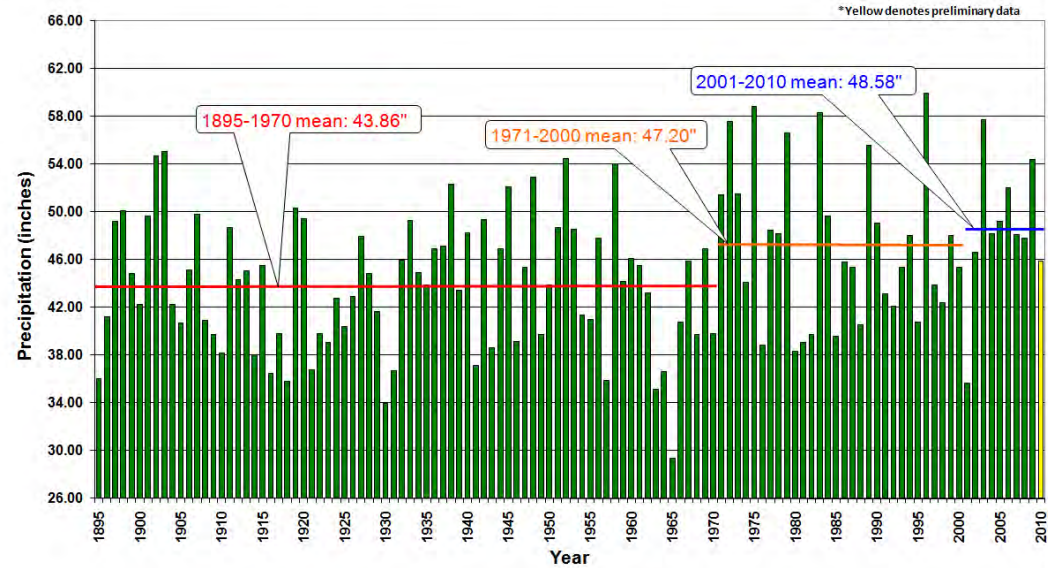
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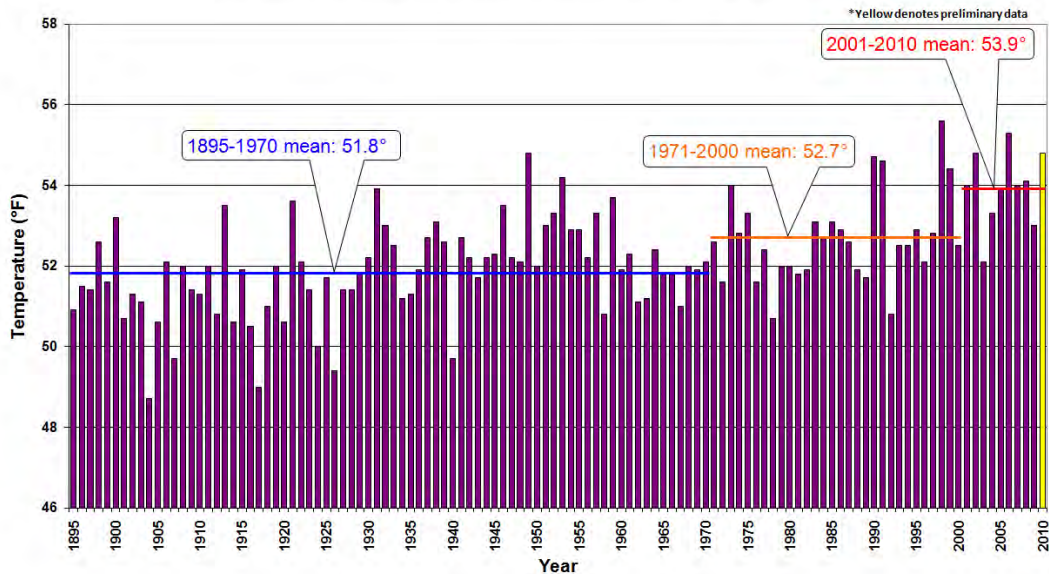
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# Past century of NJ climate variability

### NJ Statewide Annual Precipitation (1895-2010)



### NJ Statewide Mean Annual Temperature (1895-2010)



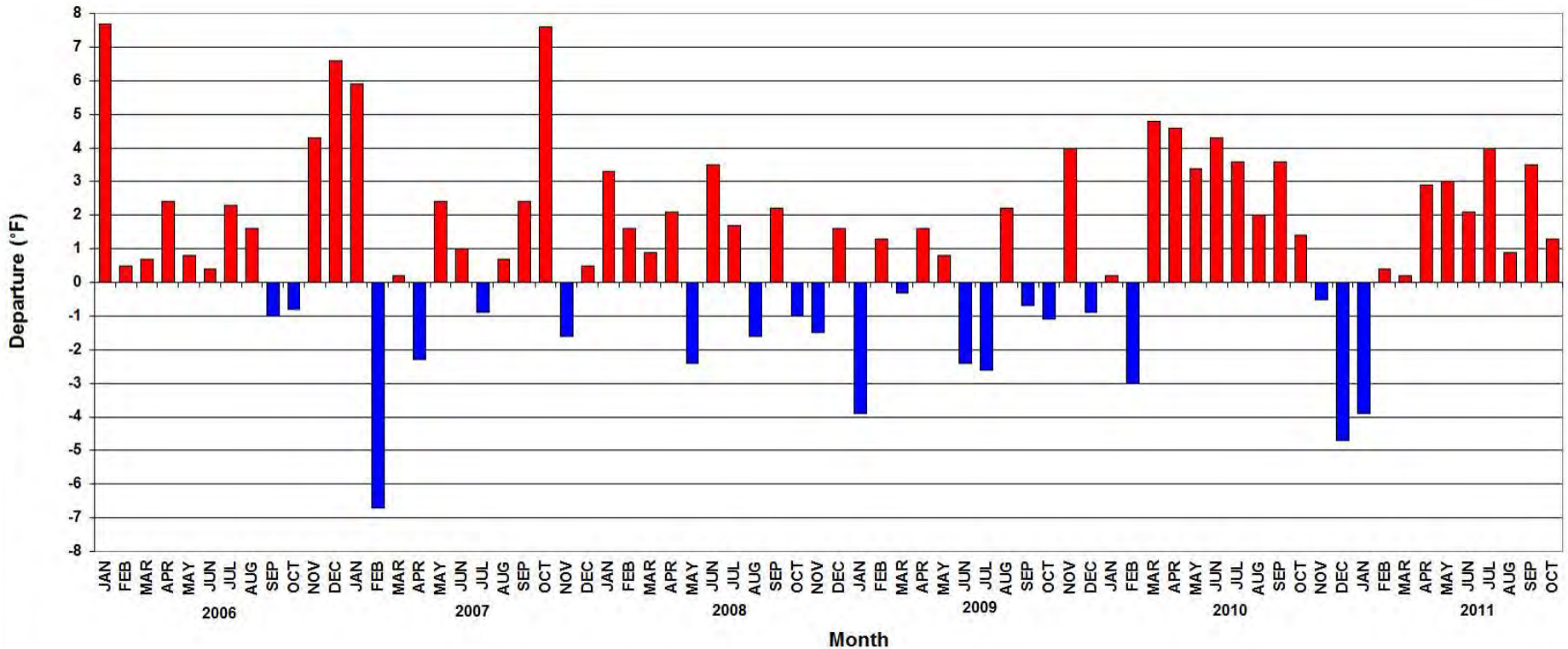
# A new normal?

Rank	Year	Summer Temp
1	2010	76.1
2	2005	75.6
3	2011	75.2
4	1949	74.6
5	1999	74.5
6	2002	74.4
7	2006	74.3
8	1955	74.1
9	2008	74.0
10	1900	73.9





# NJ Monthly Temperature Departures 2006-present



# A change in extremes?



September 17, 1999



April 16, 2007

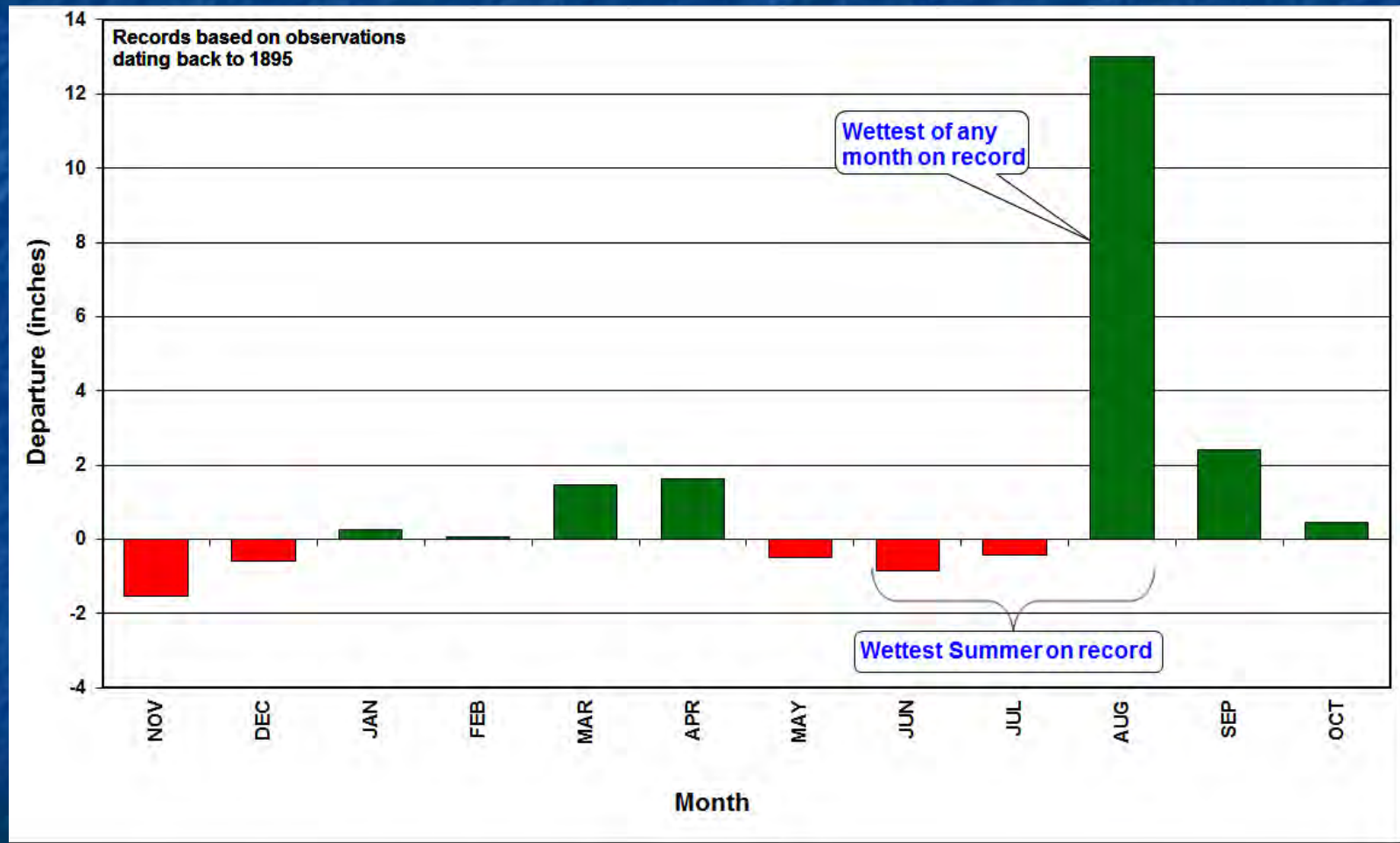


March 14, 2010

# Manville, NJ: August 28, 2011 (2PM EDT)



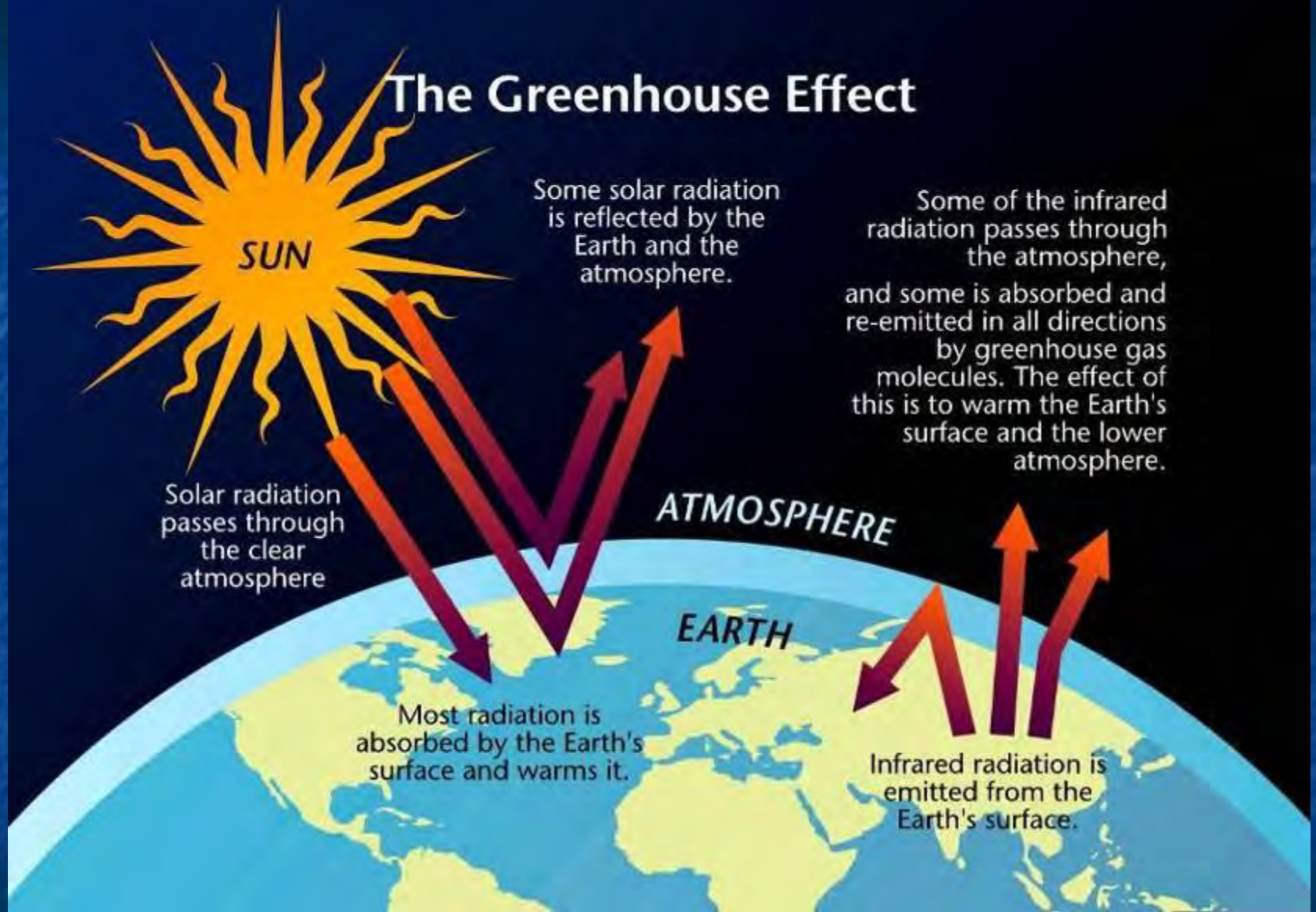
# NJ Monthly Precipitation Departures Nov. 2010 - Oct. 2011



Rank	Year	Summer Precip
1/117	1966	5.67
2	1957	5.73
3	1929	7.10
4	1949	7.65
5	1964	7.89
6	1913	8.09
7	1923	8.12
8	2010	8.27
117/117	2011	24.48



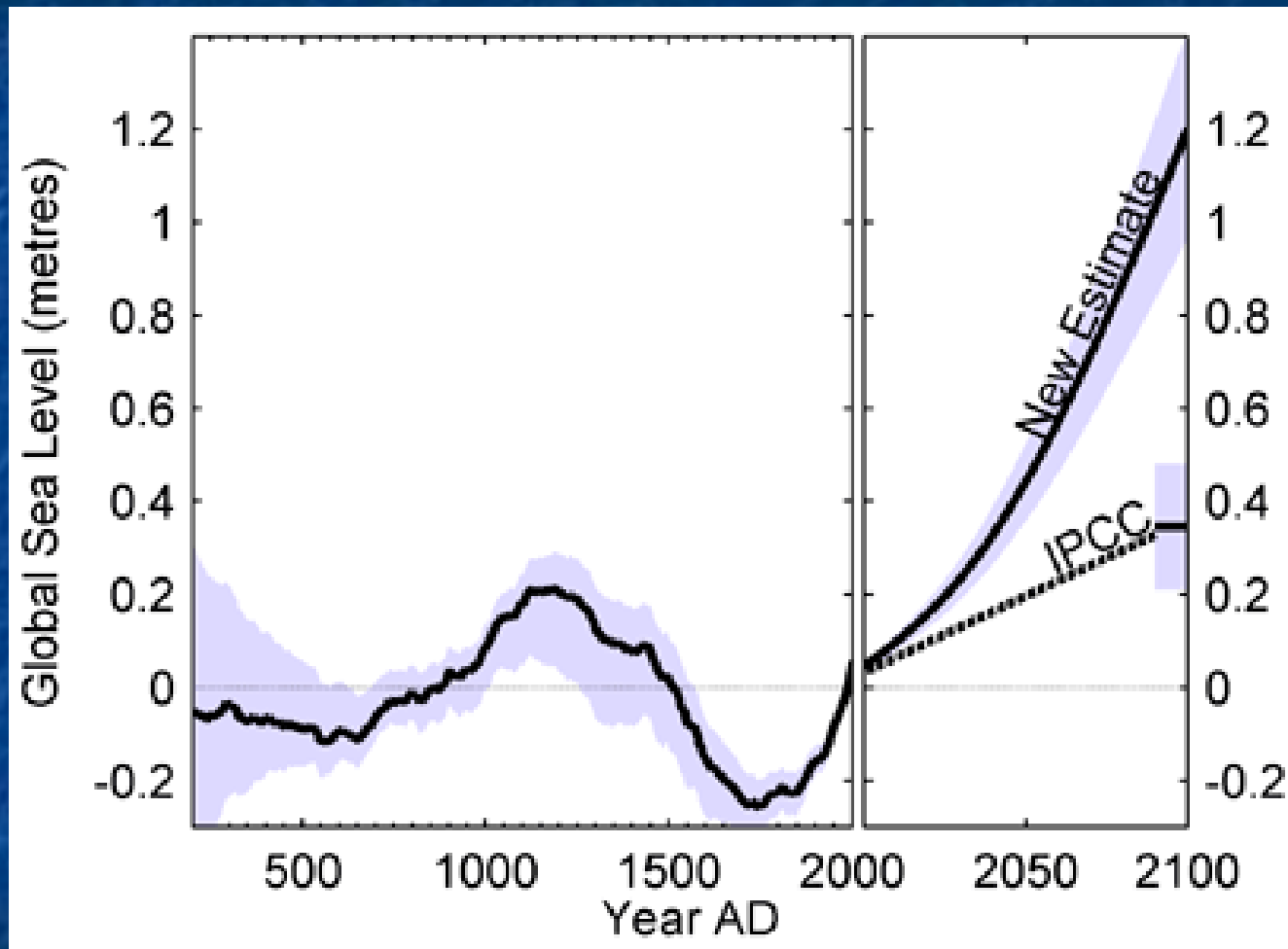
# The Greenhouse Effect



# New Jersey's future climate

- Rising temperatures
- Steady or increasing precipitation
- Increasing variability and extremes
  - storms, flood, drought, heat.....
- Rising sea level

# A recent view of global mean sea level changes



Reconstructing sea level from paleo and projected temperatures 200 to 2100 AD  
Grinsted, Moore and Jevrejeva, Climate Dynamics, 2009





# Thanks

# Office of the NJ State Climatologist

# Our mission: Monitor Understand Inform

<http://climate.rutgers.edu/stateclim>

**ONJSC**  
at Rutgers University

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**Latest from the NJWxNet**

Latest temperatures across NJ appear in the above map. Click on the map or here, the [New Jersey Weather and Climate Network](#), for much more information.

**Interested in becoming a volunteer weather observer? Click the banner below for more information.**

**Frequently Updated Climate Data**

[Winter 2011-2012 Snow Event Totals](#)

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**Latest News**

**A high school football game is played in Metuchen (Middlesex County) during the record early-season snowstorm on Oct. 29. Photo by Chris Faytak/The Star-Ledger**

**Another Record-Shattering Month: October 2011 Summary**

Dr. David A. Robinson  
NJ State Climatologist  
November 6, 2011

The record-shattering weather year of 2011 continues. Up until the last few days of the month, October looked to be providing NJ with a breather from the wild side of things. However along came the most significant October snowstorm on record on the 29th and quiescent conditions went out the window. The liquid equivalent