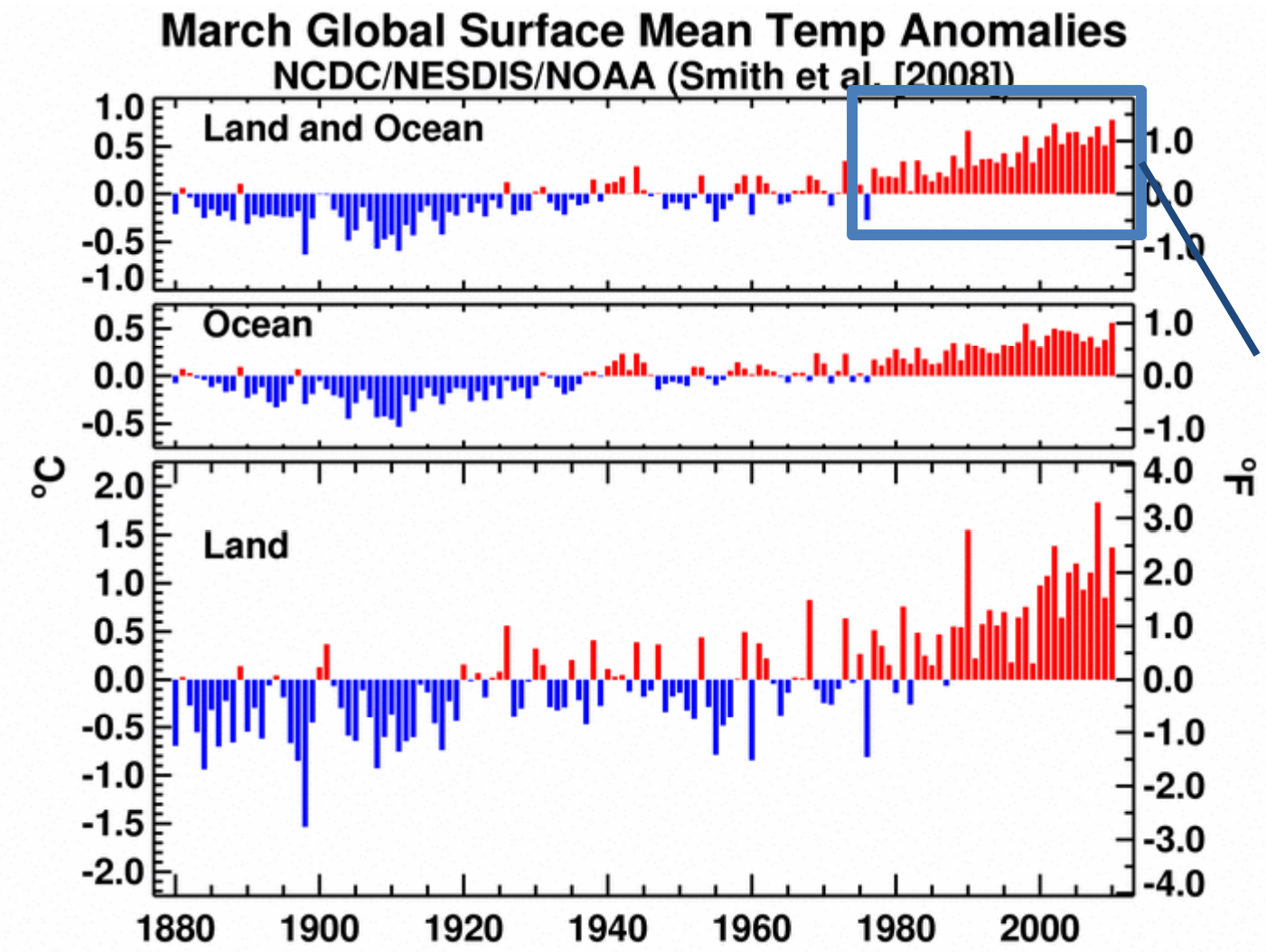


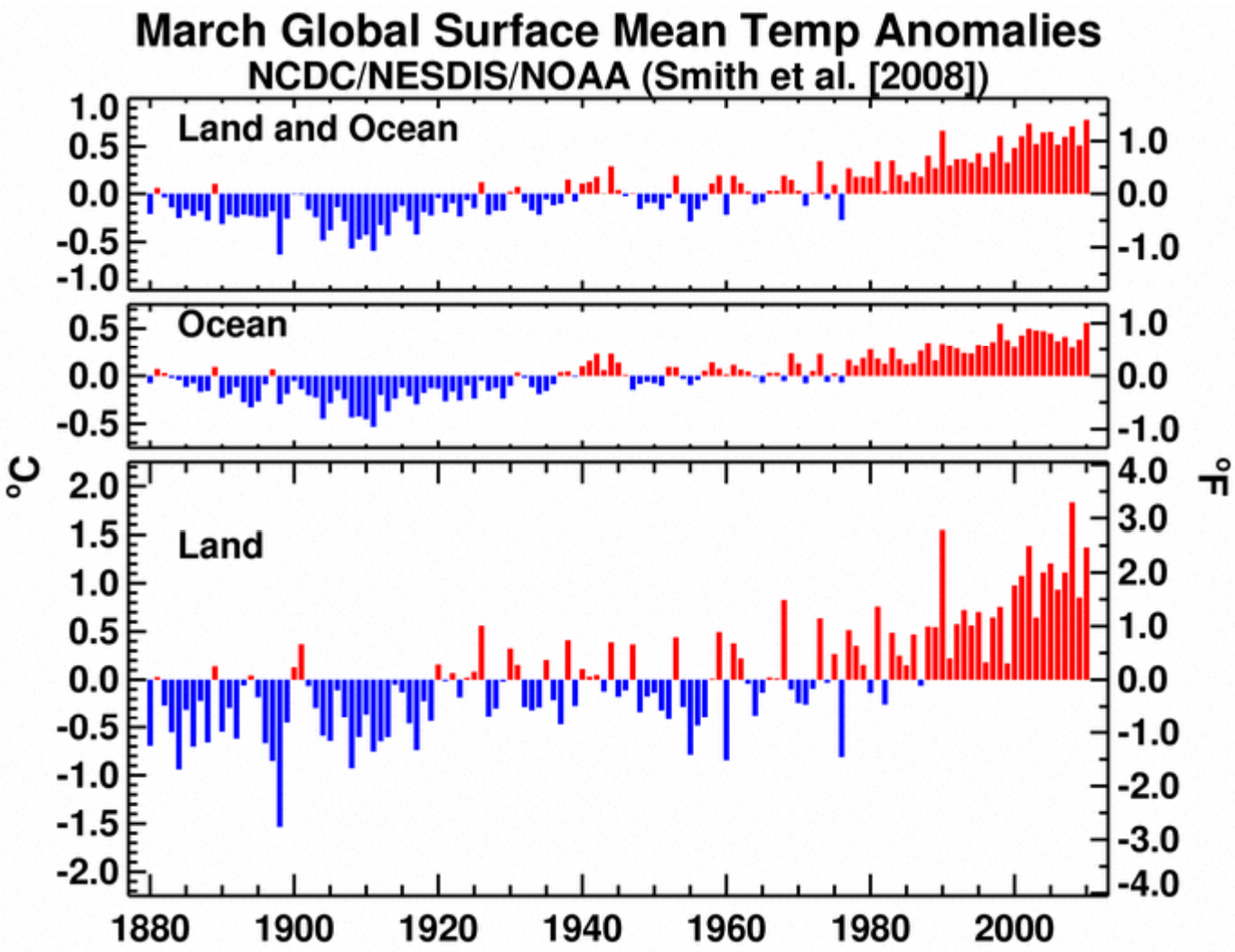
- 34th consecutive March with average global surface (land + ocean) temperatures above the 20th Century average
- Last March below the average: March 1976

•34th consecutive March with average global surface (land + ocean) temperatures above the 20th Century average

•March 2010 was the 301st consecutive month with average global surface (land + ocean) temp above the 20th Century average.

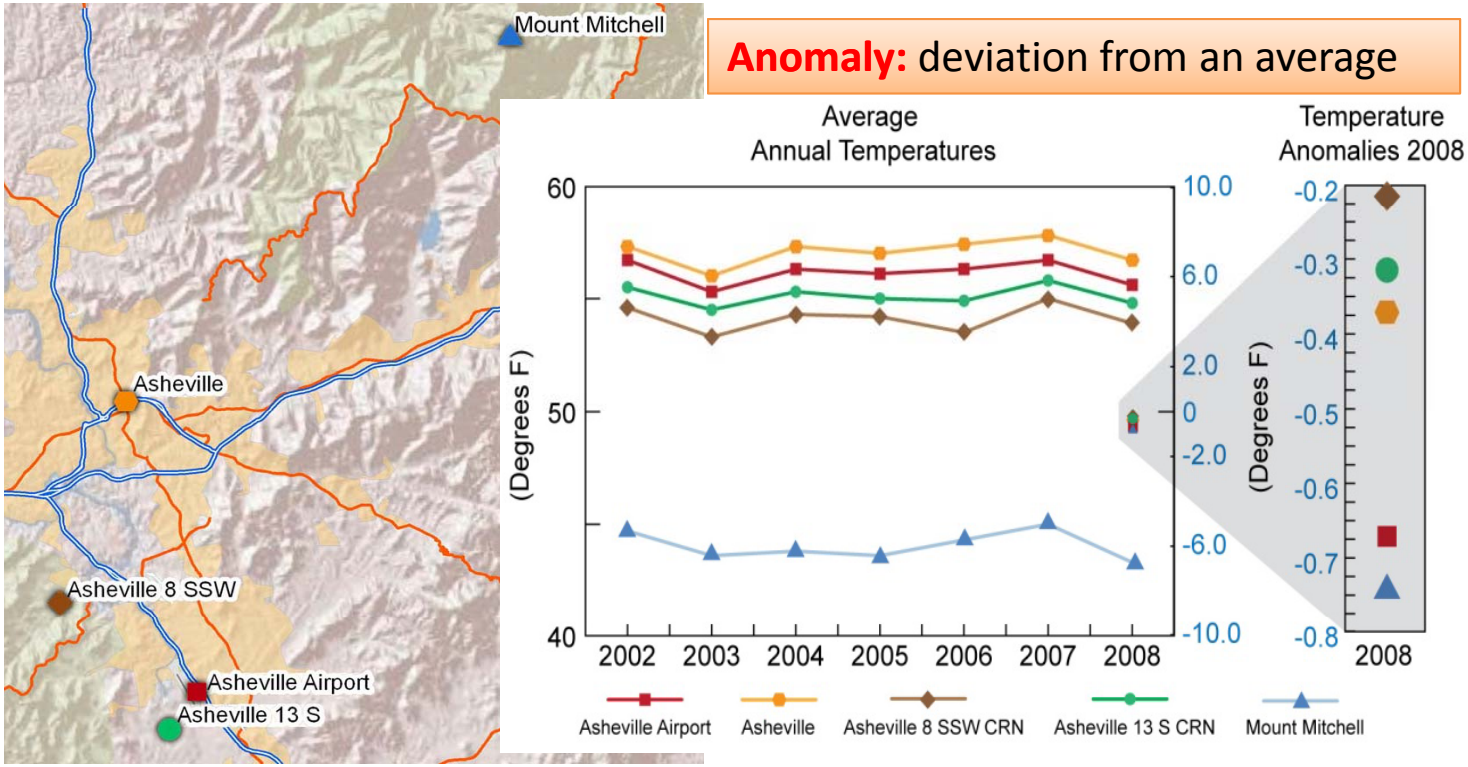
•The last month with an average global surface (land + ocean) temperature below the 20th Century average was Feb 1985.

NOAA National Climatic Data Center, Monthly Global State of the Climate Report, March 2010



NOAA National Climatic Data Center, Monthly Global State of the Climate Report, March 2010

Why Track Temperature Anomalies, Not Absolute Temperatures?



Cite: NCDC/NOAA

•Temperature anomaly refers to the difference from average. The global temperature is calculated using anomalies because they give a more accurate picture of temperature change. If calculating an average temperature for a region, factors like station location or elevation affect the data, but when looking at the *difference from the average* for that same location, those factors are less critical. For example, while the actual temperature on a hilltop will be different than in a nearby valley on a given day or month, stations in both places will show a similar trend in temperature when you calculate the change in temperature compared to average for that station.

•Using anomalies also helps minimize problems when stations are added to or removed from the monitoring network. The above diagram helps show how even if one station were removed from the record or did not report data for some period of time, the average anomaly would not change significantly, whereas the overall average temperature could change significantly depending on which station dropped out of the record.

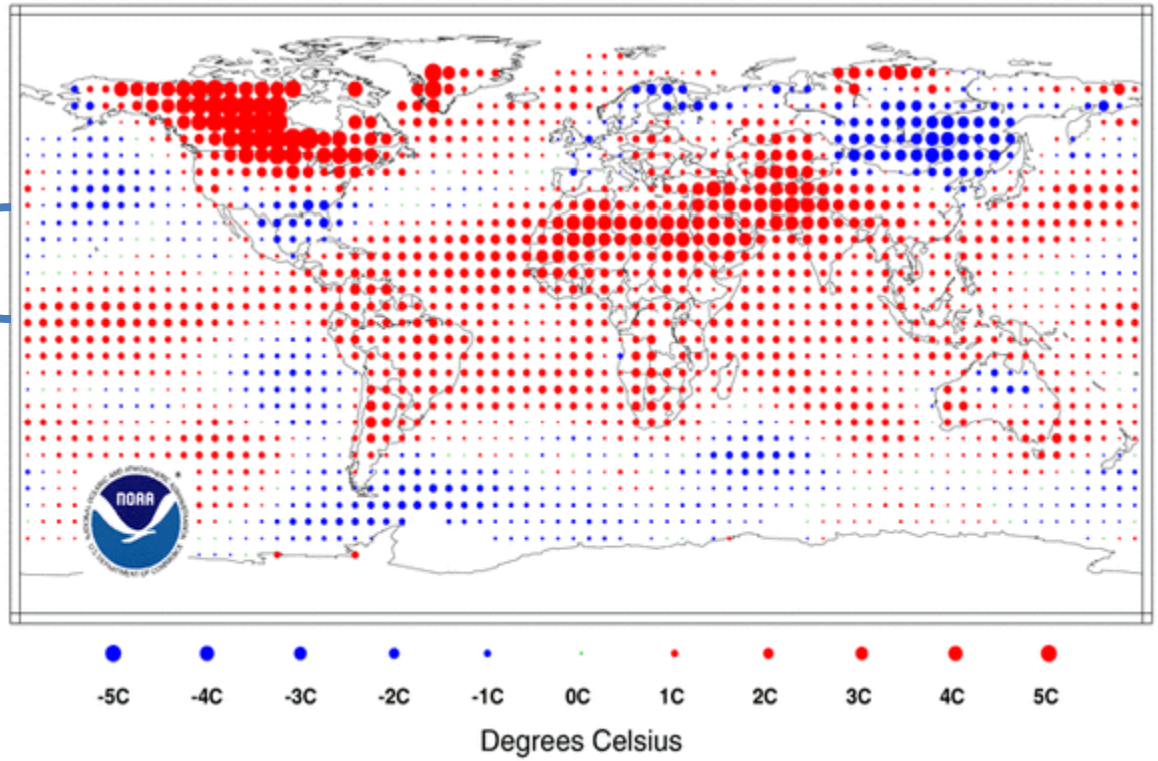
NOAA National Climatic Data Center, Monthly Global State of the Climate Report, March 2010

Temperature Anomalies March 2010

(with respect to a 1971-2000 base period)

National Climatic Data Center/NESDIS/NOAA

Low Latitude N. Hemisphere (defined as 0°N-30°N): Warmest on record



Mid-latitude N. Hemisphere (30°N-60°N): 15th warmest on record

Tropics (20°S-20°N): Warmest on record

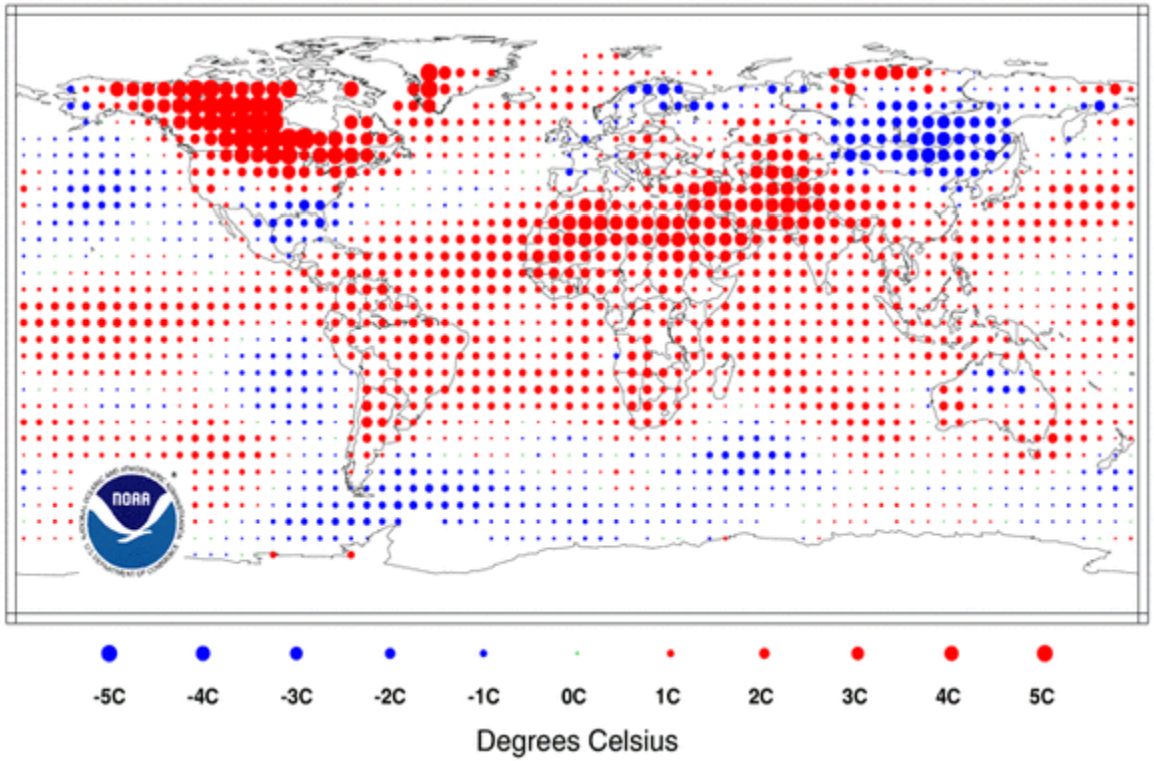
- Tropics were extremely warm even while there were cold air outbreaks in North America throughout the winter
- Every month since June 2009 has had 1st or 2nd warmest tropics (land + ocean) on record.

NOAA National Climatic Data Center, Monthly Global State of the Climate Report, March 2010

Temperature Anomalies March 2010

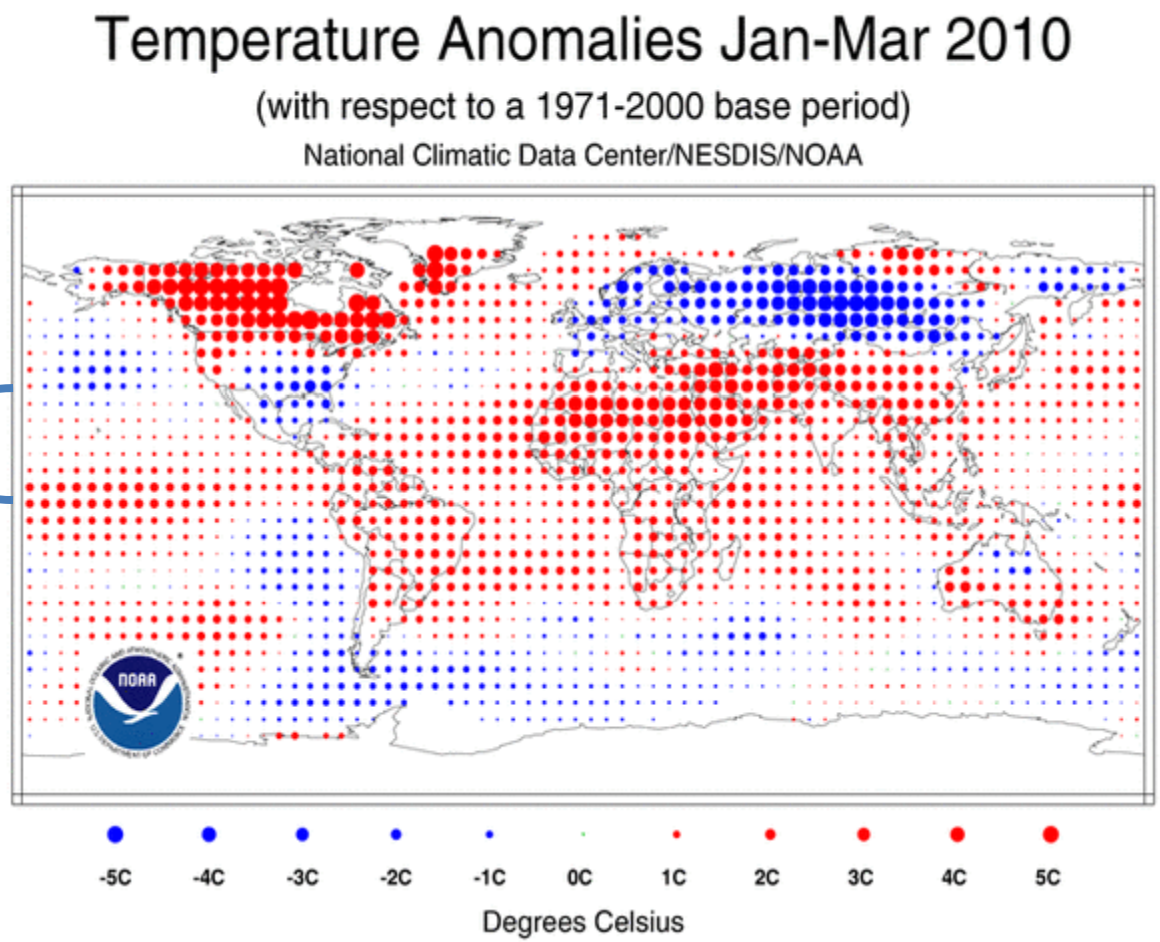
(with respect to a 1971-2000 base period)

National Climatic Data Center/NESDIS/NOAA



NOAA National Climatic Data Center, Monthly Global State of the Climate Report, March 2010

(Same as previous slide, except for year-to-date)



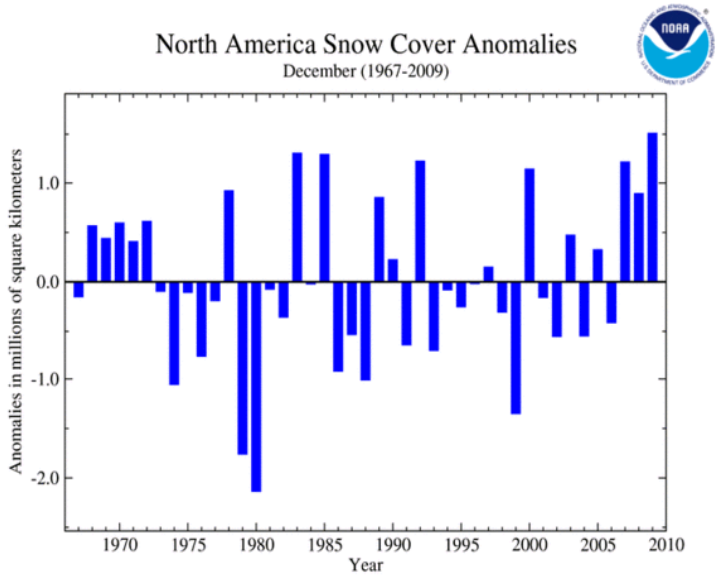
Low Latitude N. Hemisphere (defined as 0°N-30°N): Warmest on record

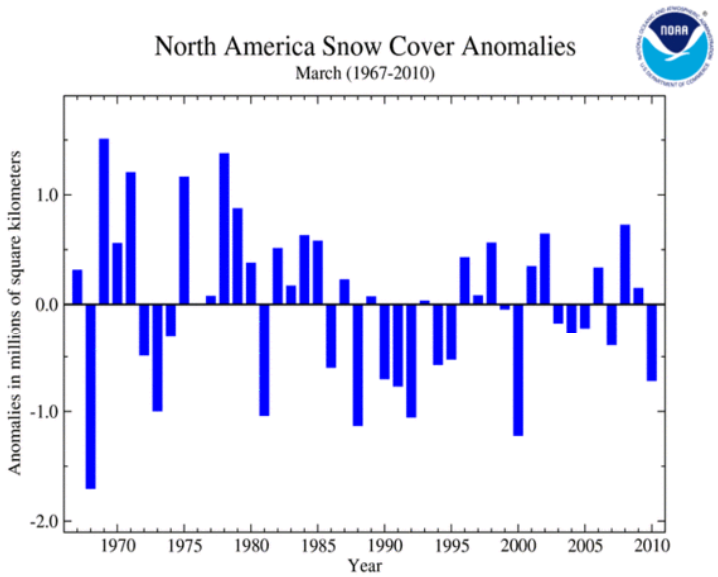
Mid-latitude N. Hemisphere (30°N-60°N): 23rd warmest on record

Tropics (20°S-20°N): 2nd warmest on record

- Tropics were extremely warm even while there were cold air outbreaks in North America throughout the winter
- Every month since June 2009 has had 1st or 2nd warmest tropics (land + ocean) on record.

NOAA National Climatic Data Center, Monthly Global State of the Climate Report, March 2010





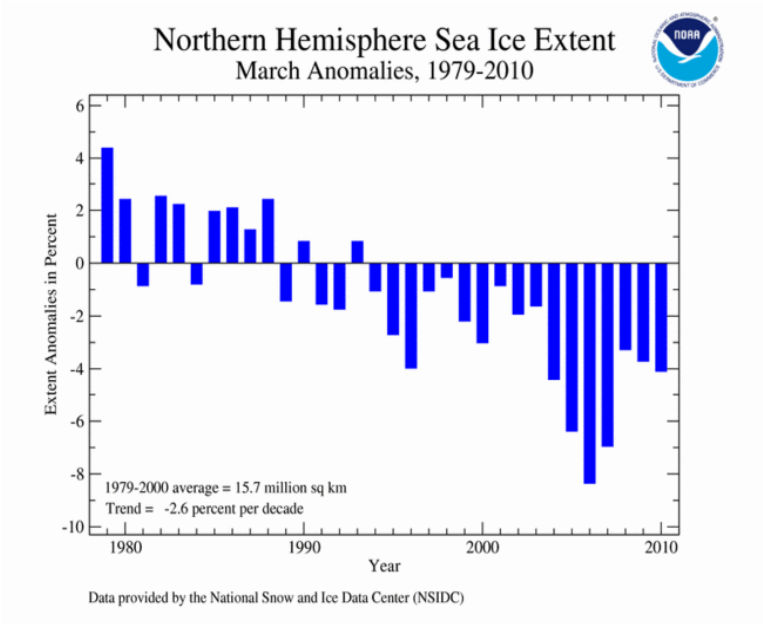
- Top: North American snow cover during December 1967-2009
- Bottom: North American snow cover during March 1967-2010
    - Rightmost bar represents the most recent month (Dec 09 and Mar 10, respectively) of each record.

- Note: record snow cover during December has retreated to below normal snow cover during March.
    - Profound warmth in Canada and much of the (northern and western) U.S. has reduced snow cover.

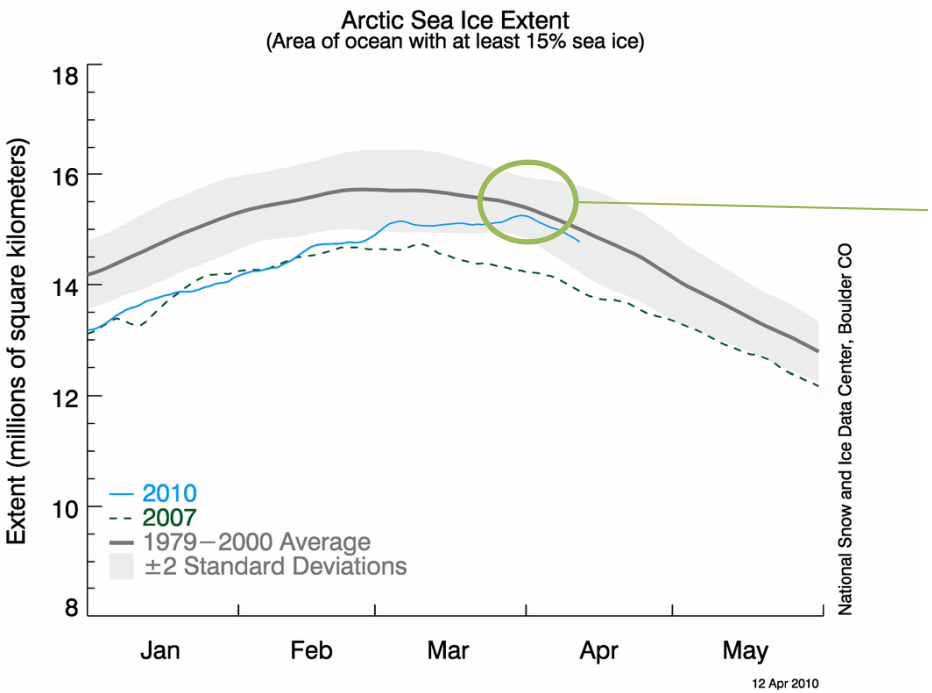
- Related: Great Lakes ice cover was at record lows during mid-March.

- Data Source: Rutgers Snow Lab, a NOAA-Supported facility.

NOAA National Climatic Data Center, Monthly Global State of the Climate Report, March 2010



- March 2010: 5th smallest Arctic sea ice extent
  - (defined as area with >15% ice pack)
- March ice extent is important because it's the annual max in the Arctic (when ice extent reaches its annual peak)
- This graph (from our report) represents the monthly avg sea ice extent for all Marches since 1979.
- The Antarctic was also below average.



- March 31st was the annual maximum.
  - This is the latest observed during the satellite era
- The late growth was the subject of much discussion, as the ice extent neared the long-term normal (and hit normal for a European analysis)
- However, the "new" ice was thin and largely a result of a cold air outbreak in the far northern Pacific (Bering sea and sea of Okhotsk)

NOAA National Climatic Data Center, Monthly Global State of the Climate Report, March 2010

Related Facts:

March was:
* warmest March on record for the global (Land & Ocean) surface temperature
* warmest March on record for the ocean surface (Ocean) temperature
* 4th-warmest march on record for the land surface (Land) temperature

... also ...
* warmest March for Northern Hemisphere ocean surface temperature
* warmest March for Southern Hemisphere land surface temperature
* warmest March for Tropics (20°S-20°N) surface temperature (Land, Land & Ocean)
* warmest March for low-latitude (0°-30°N) N. Hemisphere (Land, Ocean, and Land & Ocean)
* latest date (Mar 31) of max Arctic sea ice extent (since satellite measurements began in 1979)

NOAA National Climatic Data Center, Monthly
Global State of the Climate Report, March 2010