NOAA/NASA

2013 Global Temperatures

Gavin A. Schmidt
Director, NASA's Goddard Institute for Space Studies

Thomas R. Karl
Director, NOAA's National Climatic Data Center

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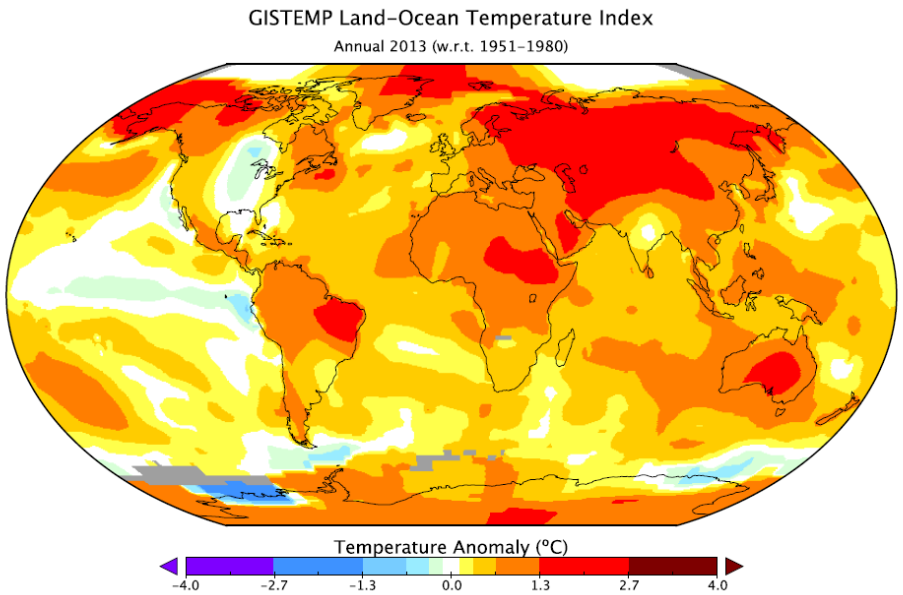
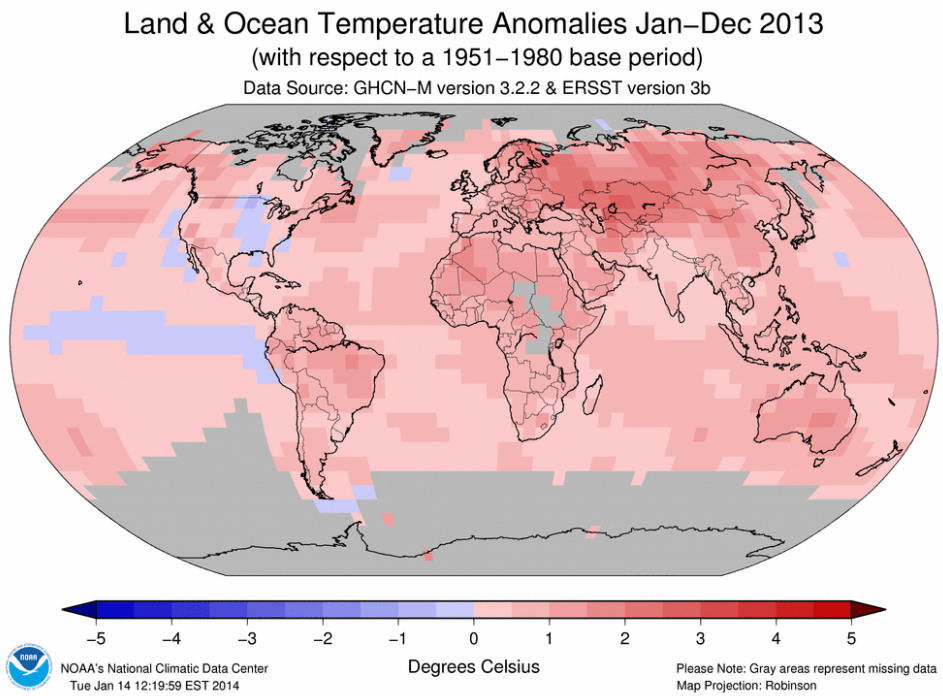
2013 Annual Temperature

NASA



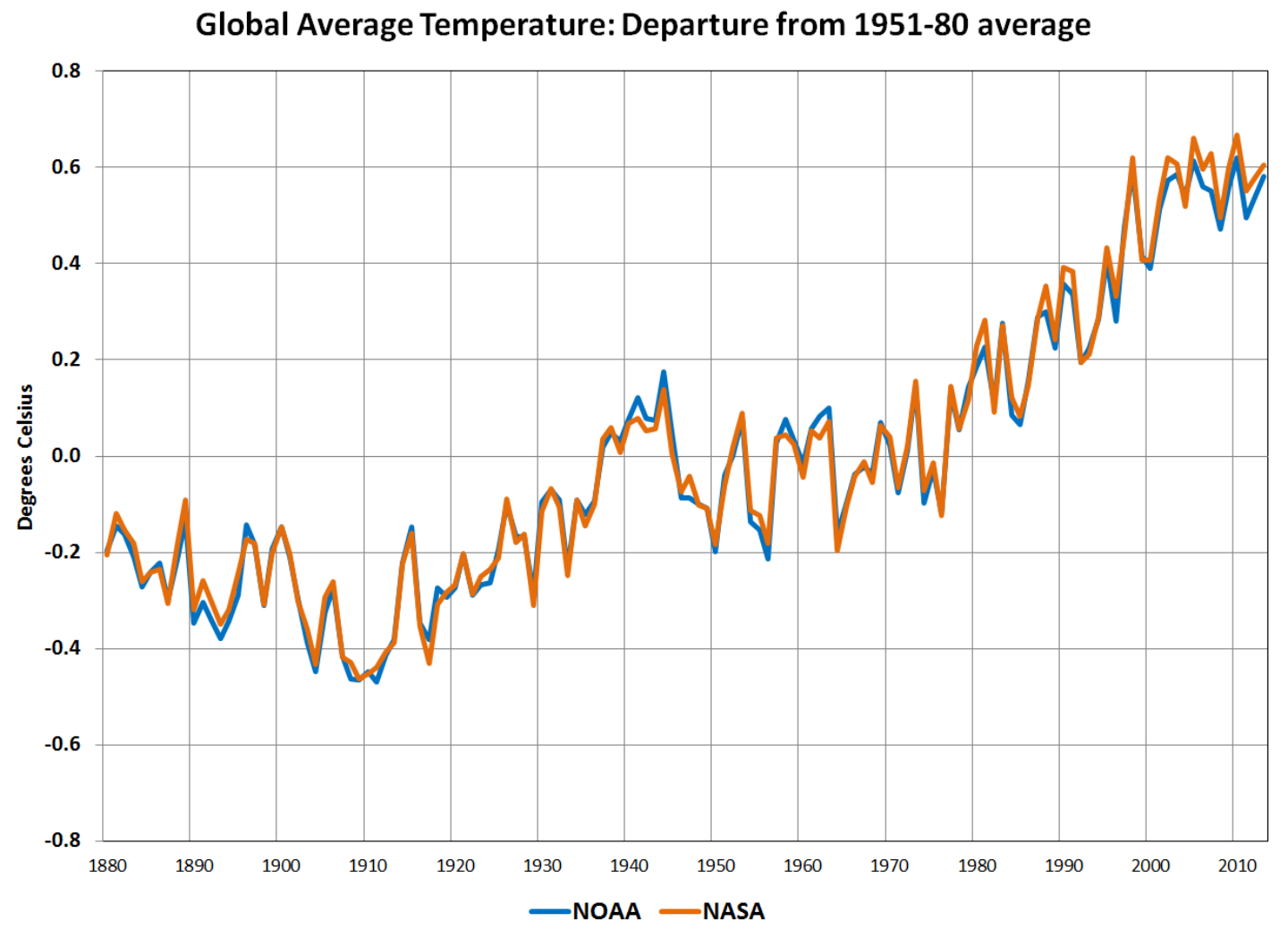
Anomaly (1951-80 base period): 0.60°C
Anomaly (20th Century average): 0.63°C

NOAA



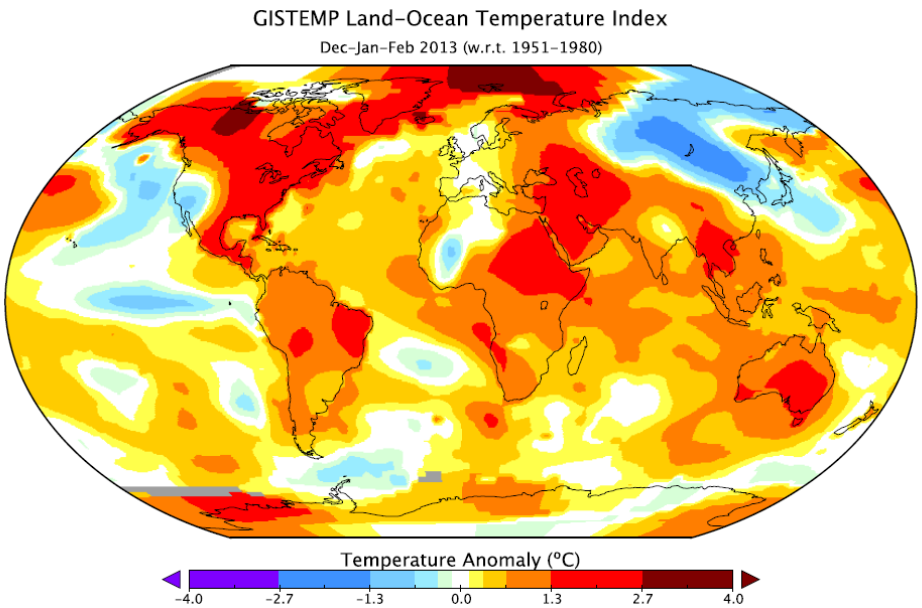
Anomaly (1951-80 base period): 0.58°C
Anomaly (20th Century average): 0.62°C

Temperature Time Series Comparison



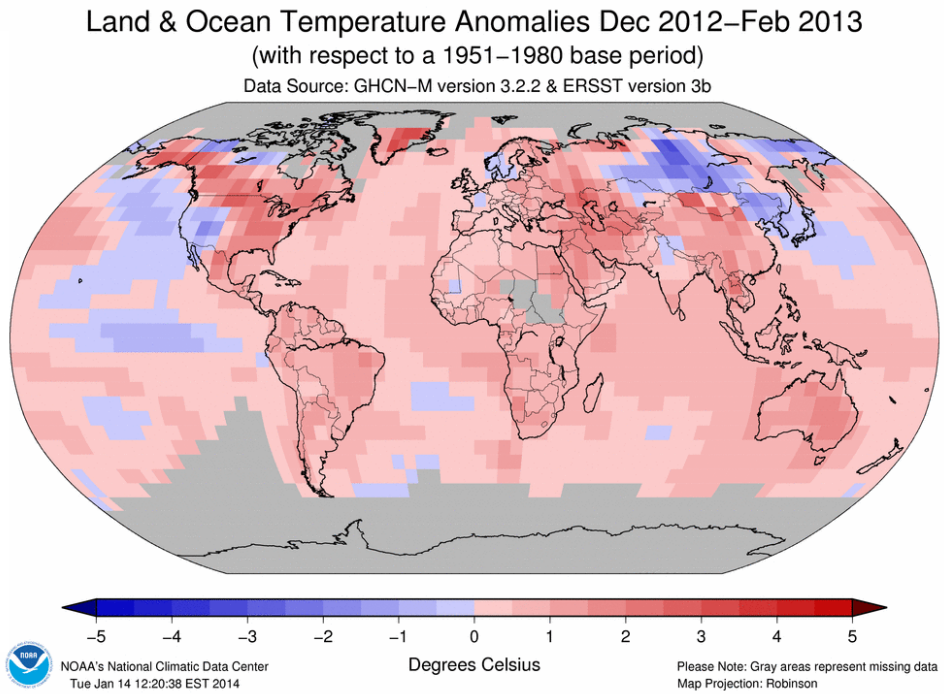
December 2012 – February 2013

NASA



Anomaly (1951-80 base period): 0.55°C
Anomaly (20th Century average): 0.57°C

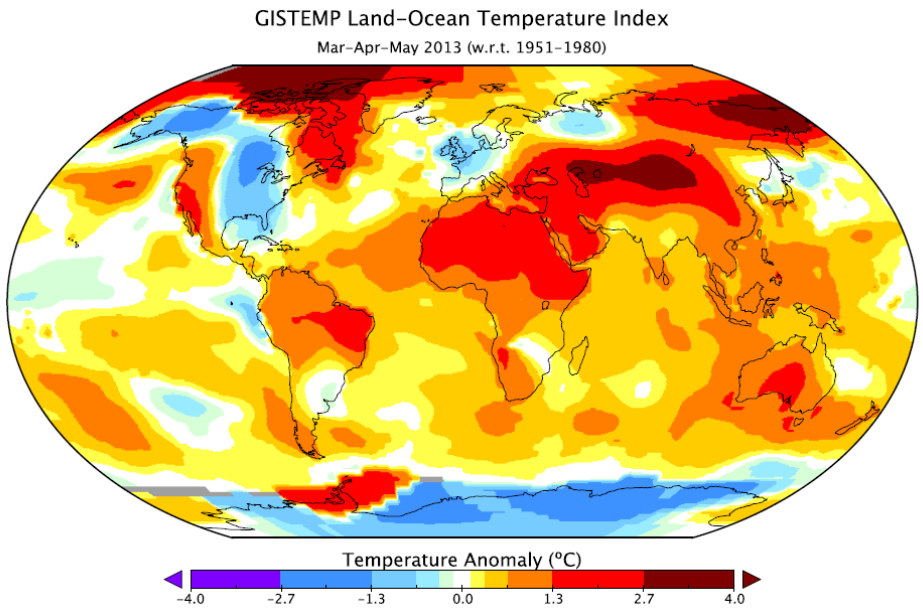
NOAA



Anomaly (1951-80 base period): 0.49°C
Anomaly (20th Century average): 0.52°C

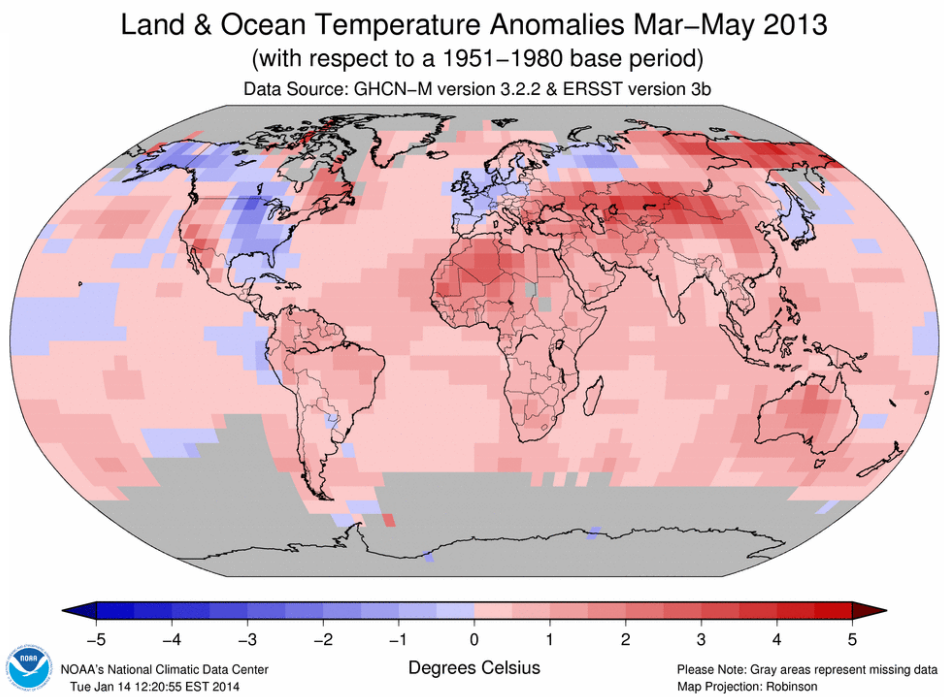
March – May 2013

NASA



Anomaly (1951-80 base period): 0.54°C
Anomaly (20th Century average): 0.57°C

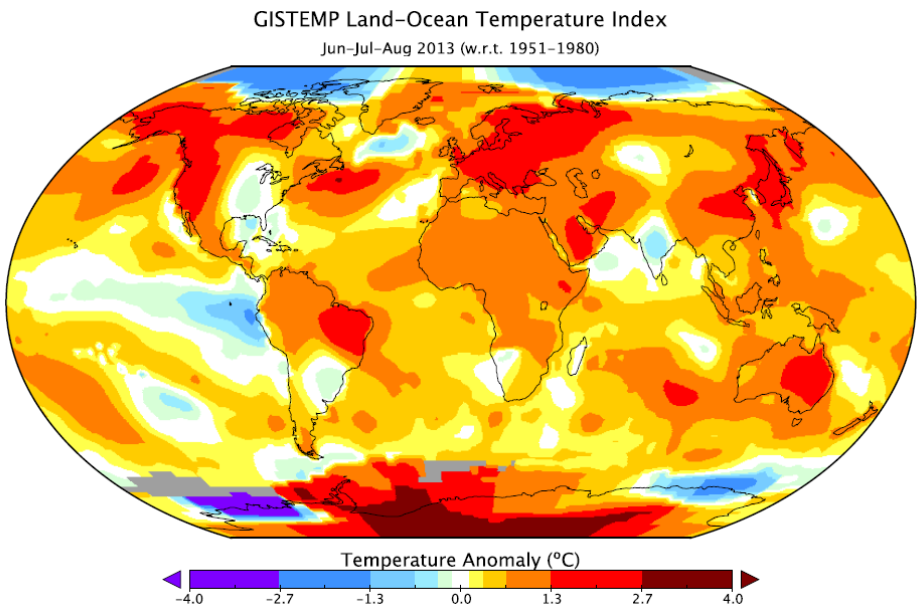
NOAA



Anomaly (1951-80 base period): 0.55°C
Anomaly (20th Century average): 0.59°C

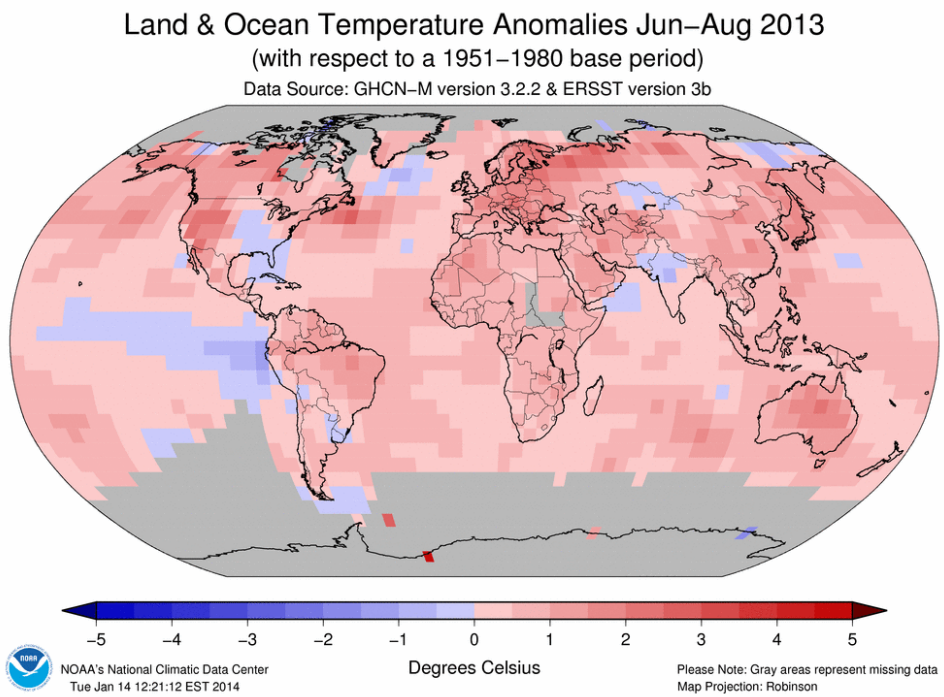
June – August 2013

NASA



Anomaly (1951-80 base period): 0.58°C
Anomaly (20th Century average): 0.61°C

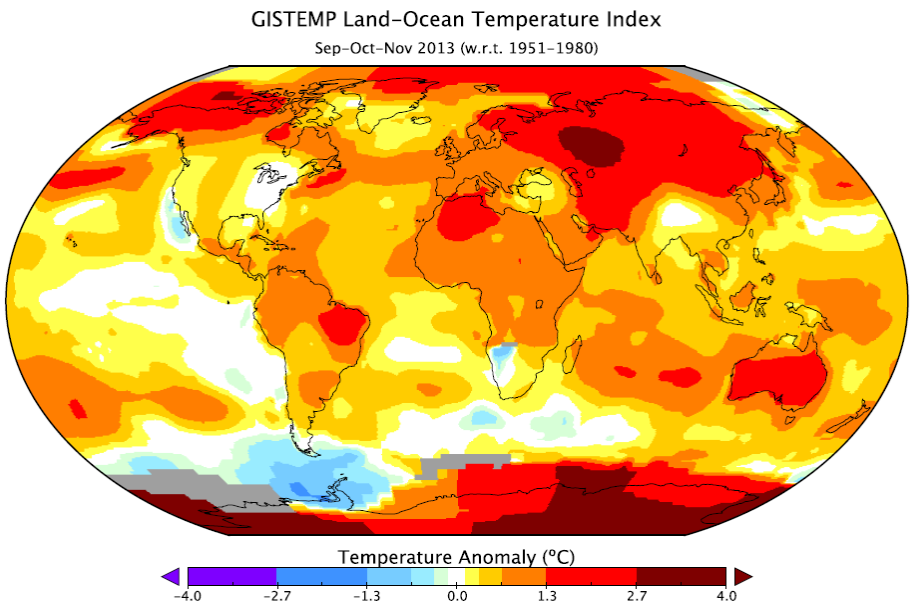
NOAA



Anomaly (1951-80 base period): 0.57°C
Anomaly (20th Century average): 0.62°C

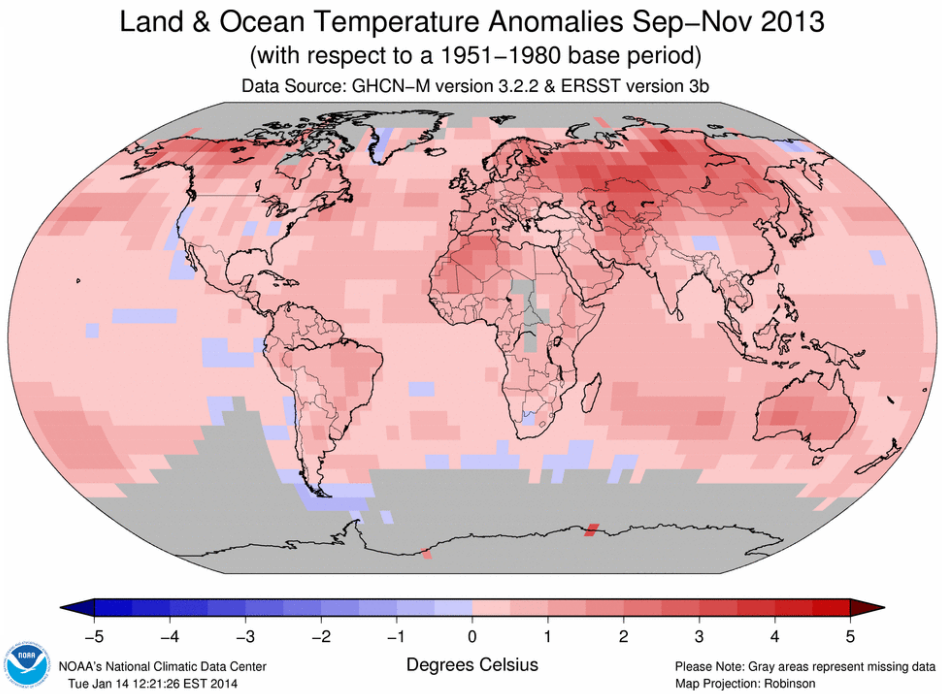
September – November 2013

NASA



Anomaly (1951-80 base period): 0.72°C
Anomaly (20th Century average): 0.74°C

NOAA



Anomaly (1951-80 base period): 0.64°C
Anomaly (20th Century average): 0.68°C

NOAA/NASA Top Ten Years on Record

NASA

Rank	Year	51-80 Anomaly
1 (tie)	2010	0.67°C
1 (tie)	2005	0.66°C
3	2007	0.63°C
4 (tie)	2002	0.62°C
4 (tie)	1998	0.62°C
6 (tie)	2003	0.61°C
6 (tie)	2013	0.60°C
6 (tie)	2009	0.60°C
6 (tie)	2006	0.60°C
9 (tie)	2012	0.58°C

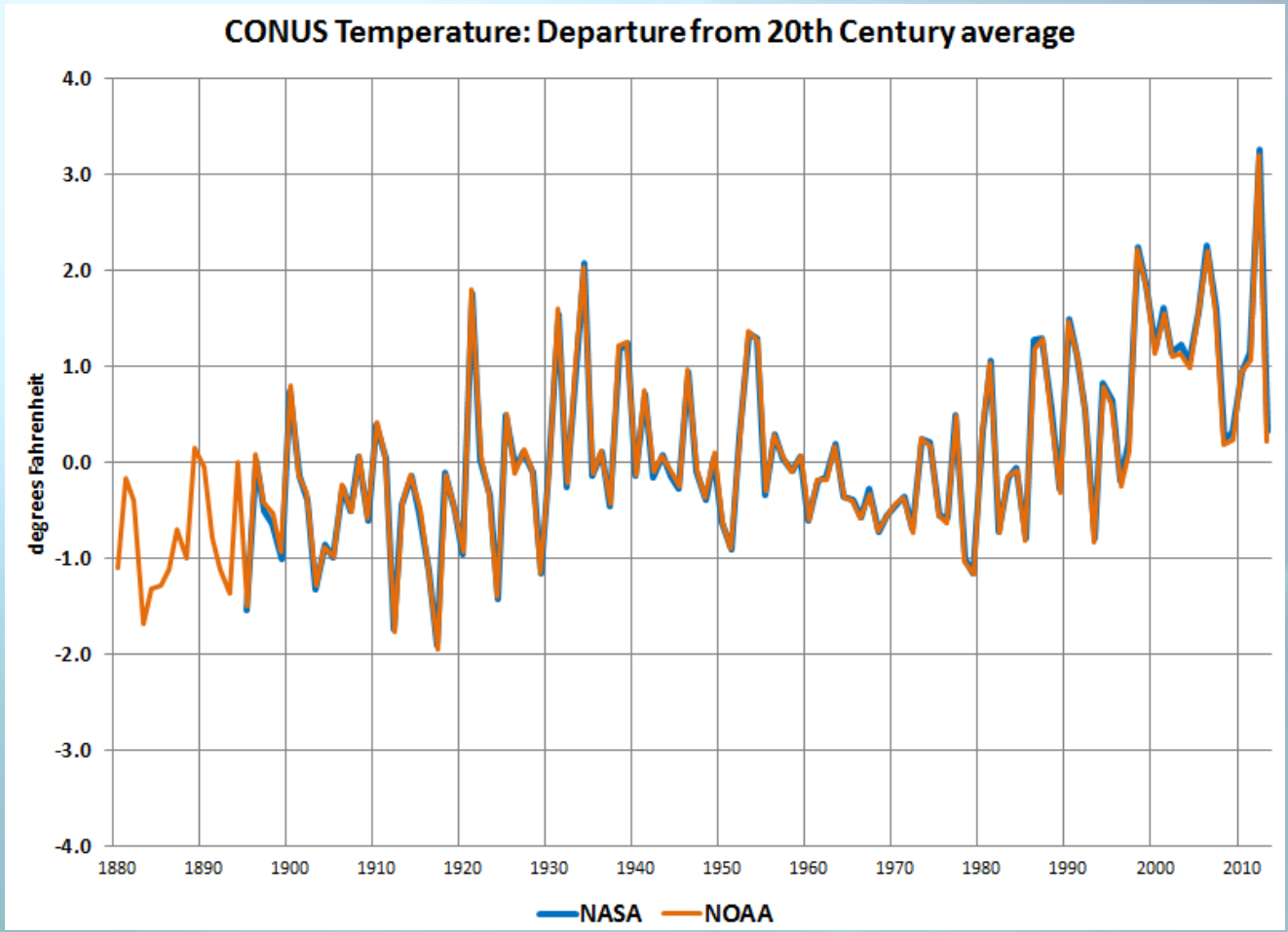
NOAA

Rank	Year	51-80 Anomaly
1	2010	0.62°C
2	2005	0.61°C
3	1998	0.59°C
4 (tie)	2003	0.58°C
4 (tie)	2013	0.58°C
6	2002	0.57°C
7 (tie)	2006	0.56°C
7 (tie)	2009	0.56°C
9	2007	0.55°C
10	2004	0.54°C

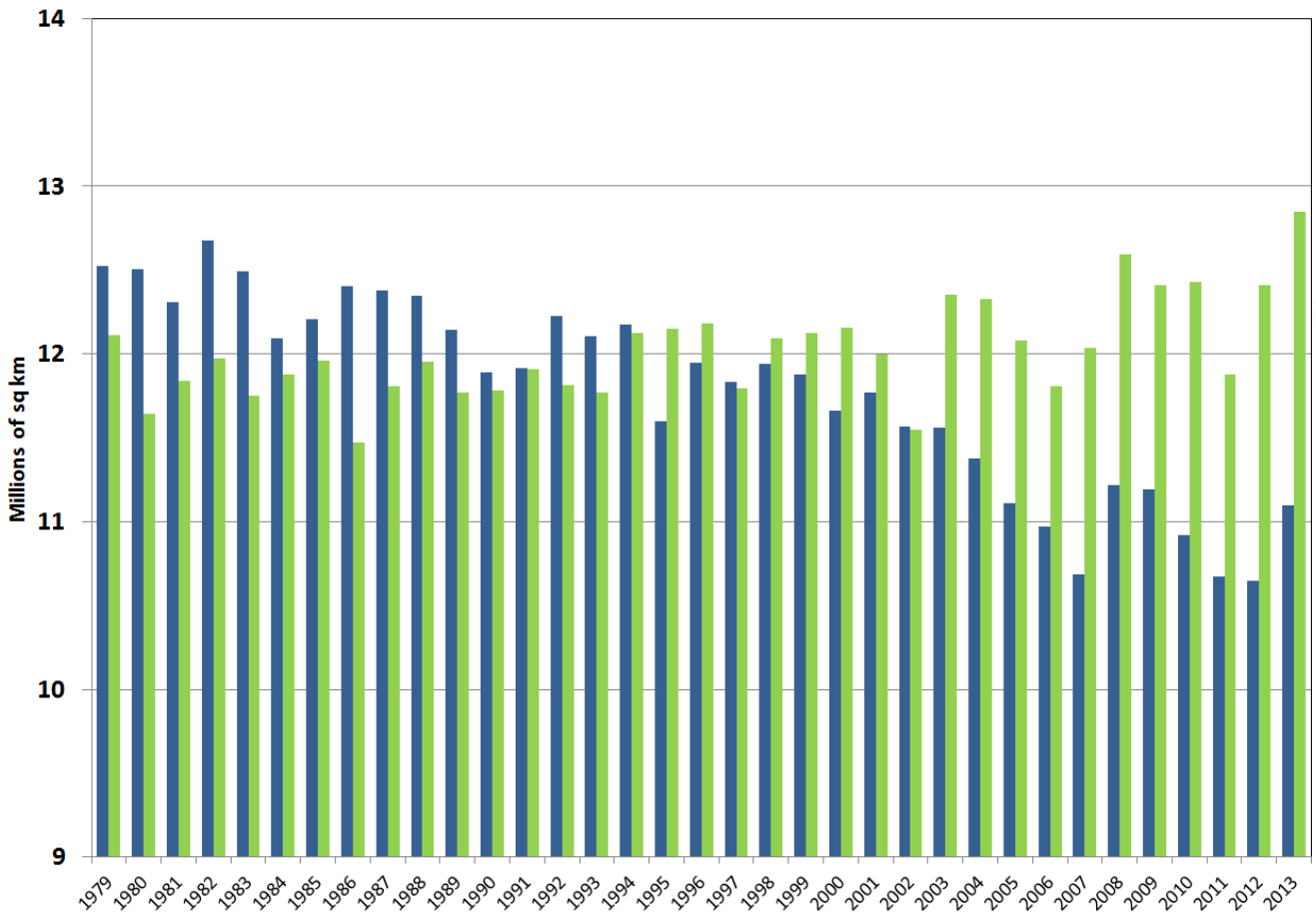
NOAA Warmest Years on Record

Year	Among Warmest Five Years	Among Warmest Ten Years
2010	Likely	Very Likely
2005	Likely	Very Likely
1998	Likely	Very Likely
2003	More Likely than Not	Very Likely
2013	**More Likely than Not**	**Likely**
2002	More Unlikely than Likely	Very Likely
2006	Unlikely	Likely
2009	Unlikely	Likely
2007	Unlikely	Likely
2004	Unlikely	More Likely than Not

Contiguous United States Temperature



Polar Sea Ice Extent



Annual average sea ice extent: Arctic (**blue**) and Antarctic (**green**)

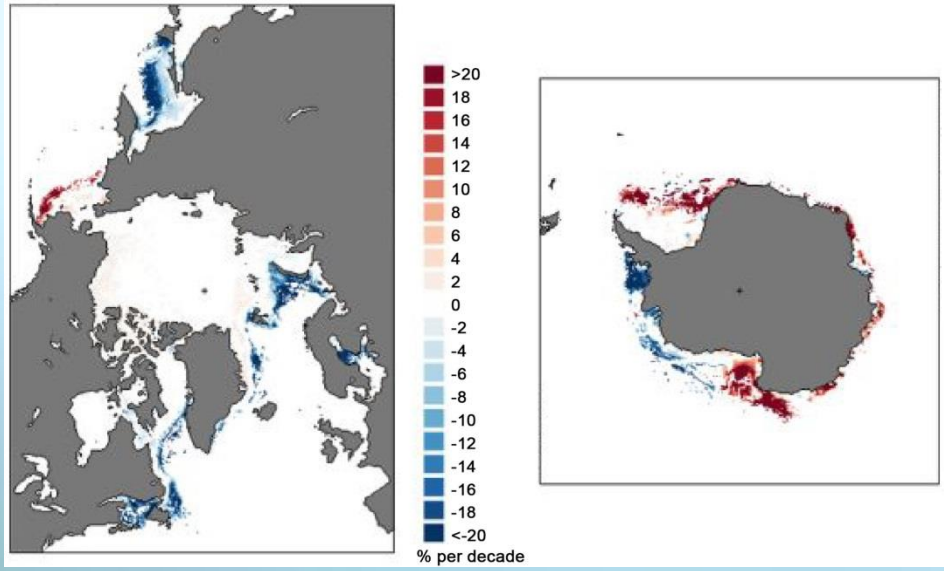
Calculated from data processed at the National Snow & Ice Data Center

- **Arctic in 2013:**
  - Average March extent: 5th smallest on record
  - Average Sept. extent: 6th smallest on record
  - much below normal throughout the year
- **Antarctic in 2013:**
  - Average March extent: 2nd largest on record
  - Average Sept. extent: largest on record
  - above normal to much above normal throughout the year

Sea Ice Concentration Trends

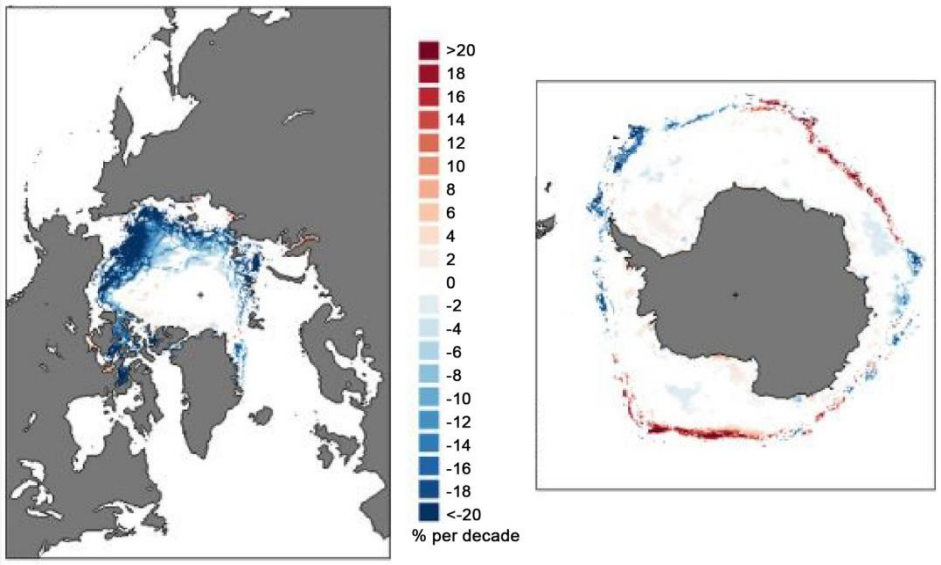
1978 - 2013

March



Calculated from data processed at the National Snow & Ice Data Center

September



Reds: Increasing Ice coverage over time
Blues: Decreasing Ice coverage over time

Thank you

Questions?

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