

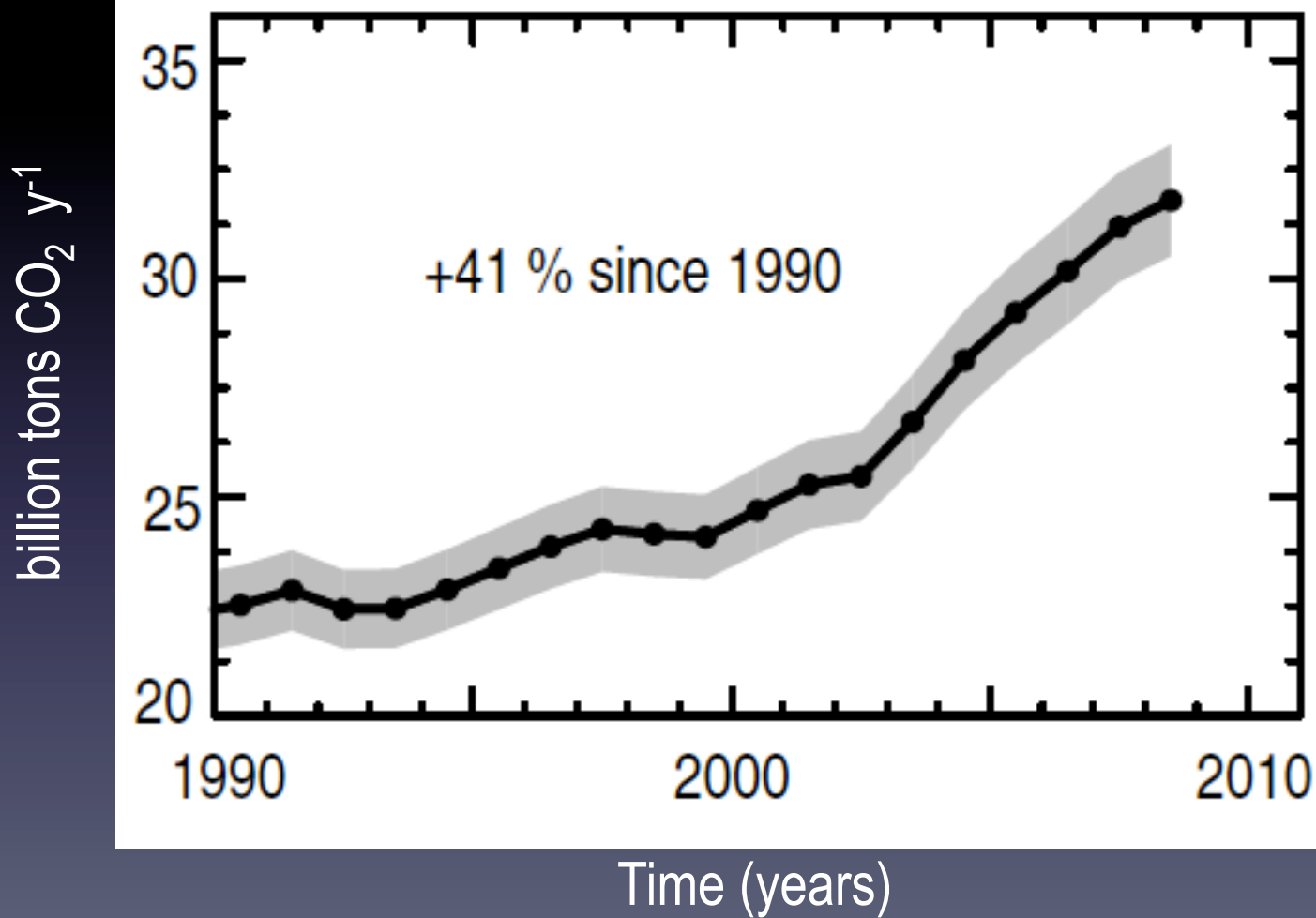
Speaking Truth to Power: Science and the UN Climate Negotiations (Copenhagen, 2009)

Richard C. J. Somerville

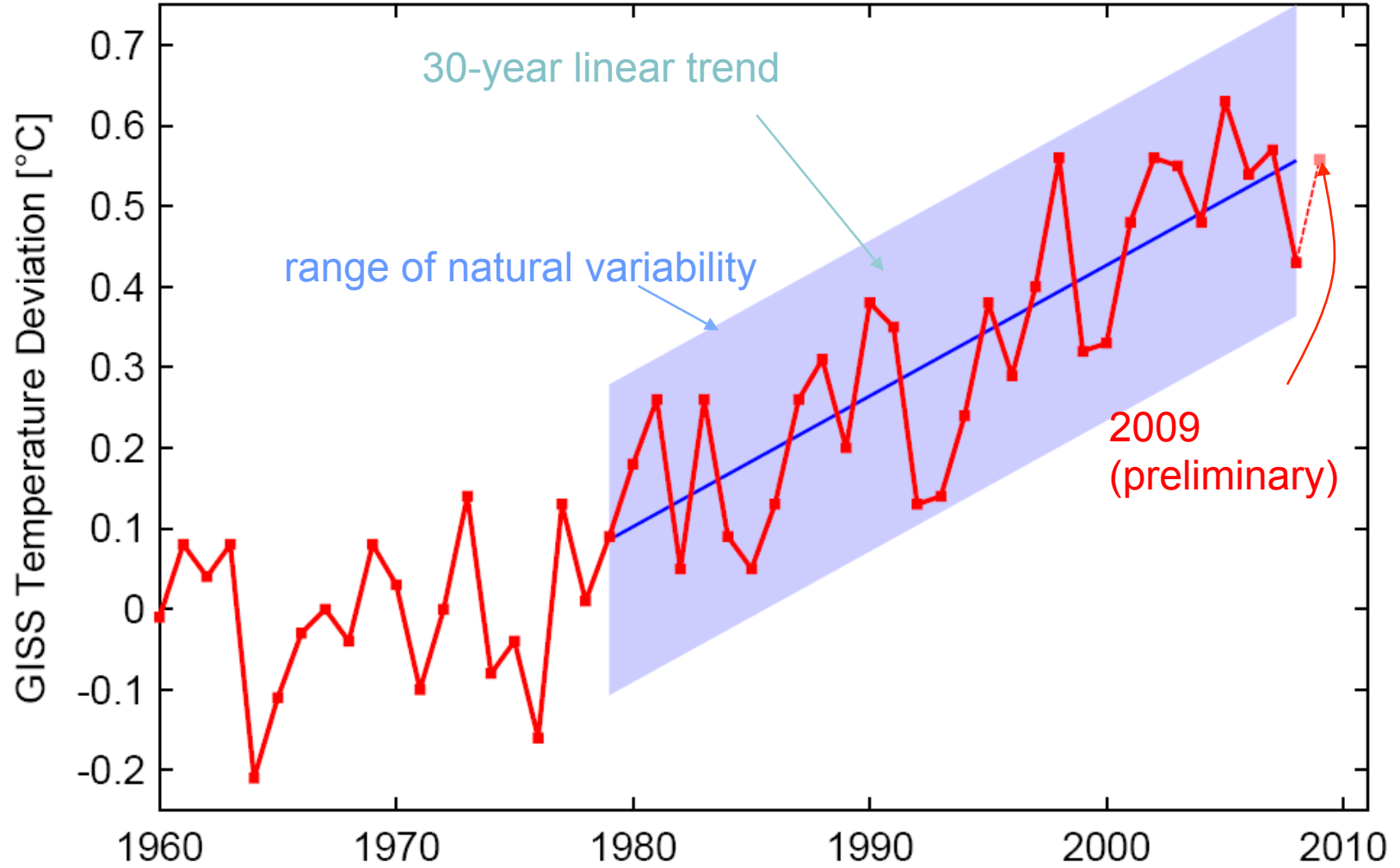
Scripps Institution of Oceanography
University of California, San Diego

www.copenhagendiagnosis.org

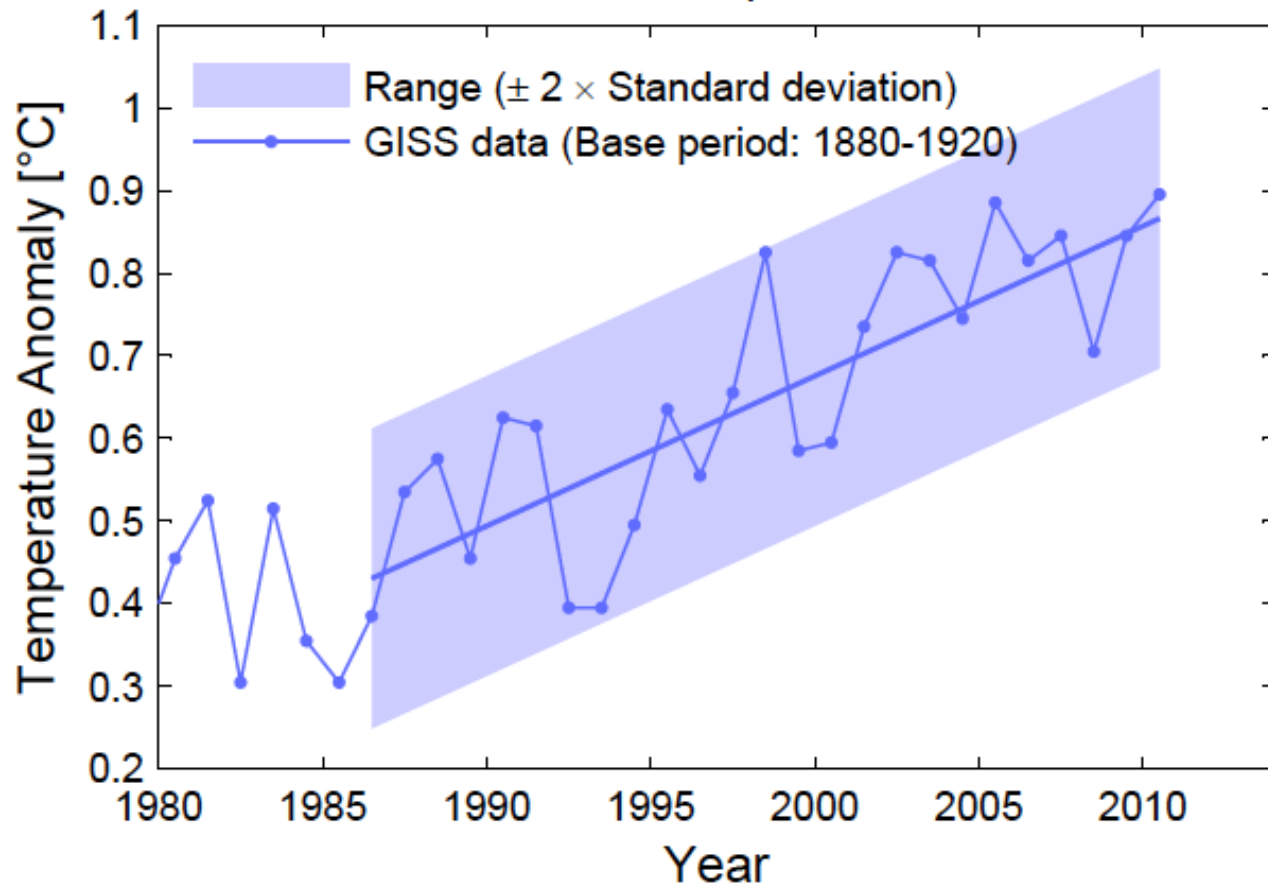
Fossil Fuel CO₂ Emissions



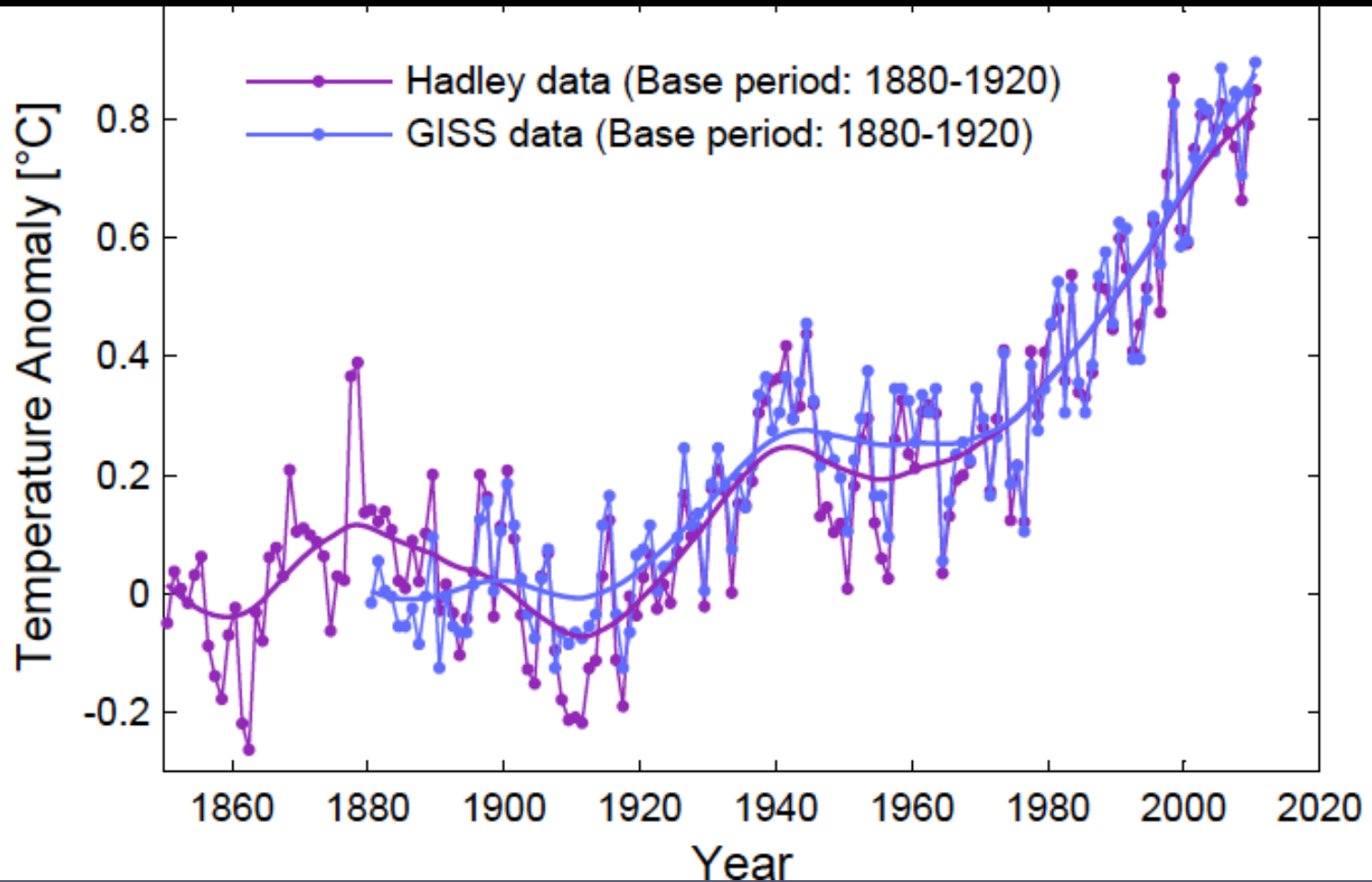
Global Temperature Change Since 1960

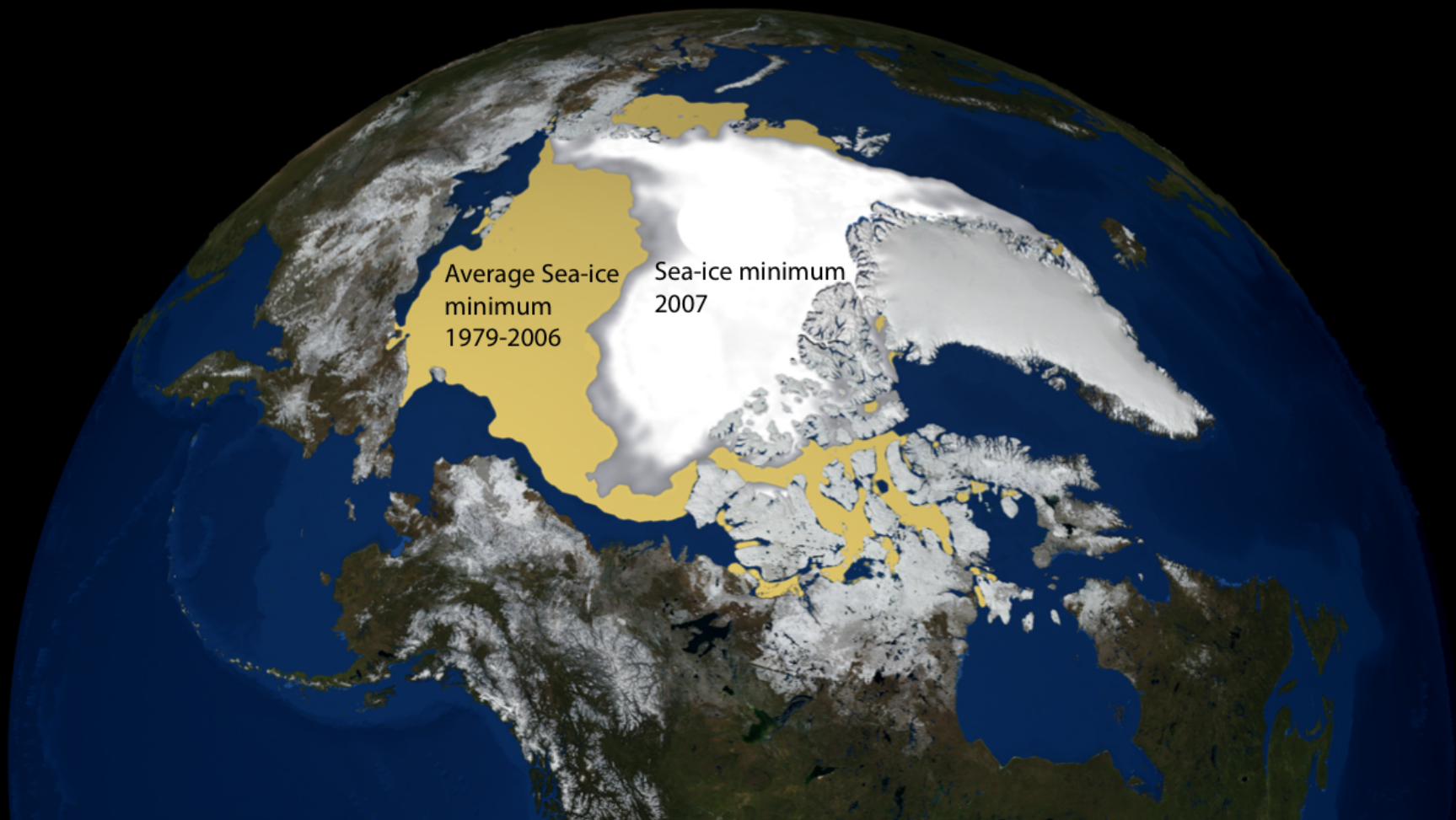


Linear Trend between 1986 & 2010:
0.1814°C per dec



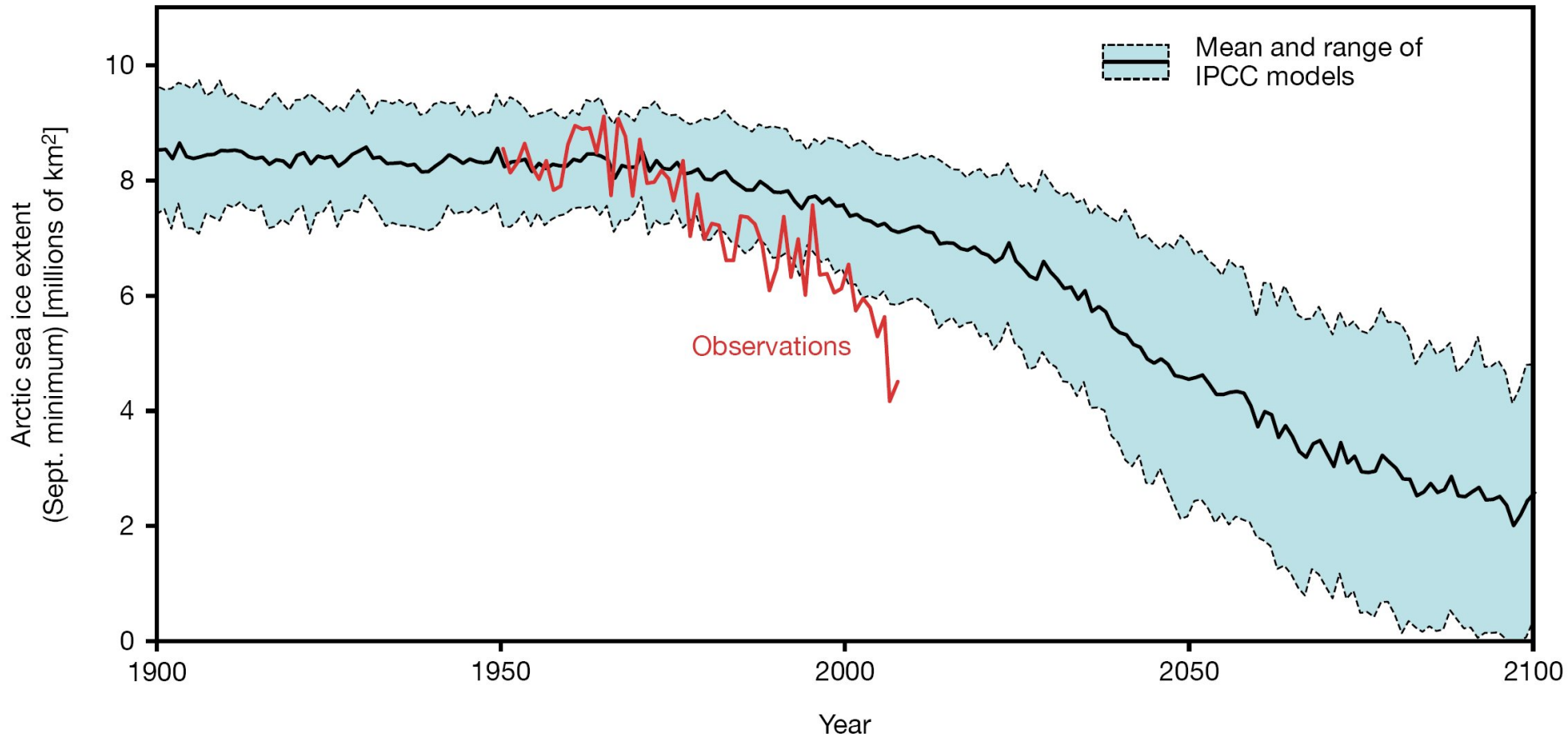
Temperature 1850 - 2010



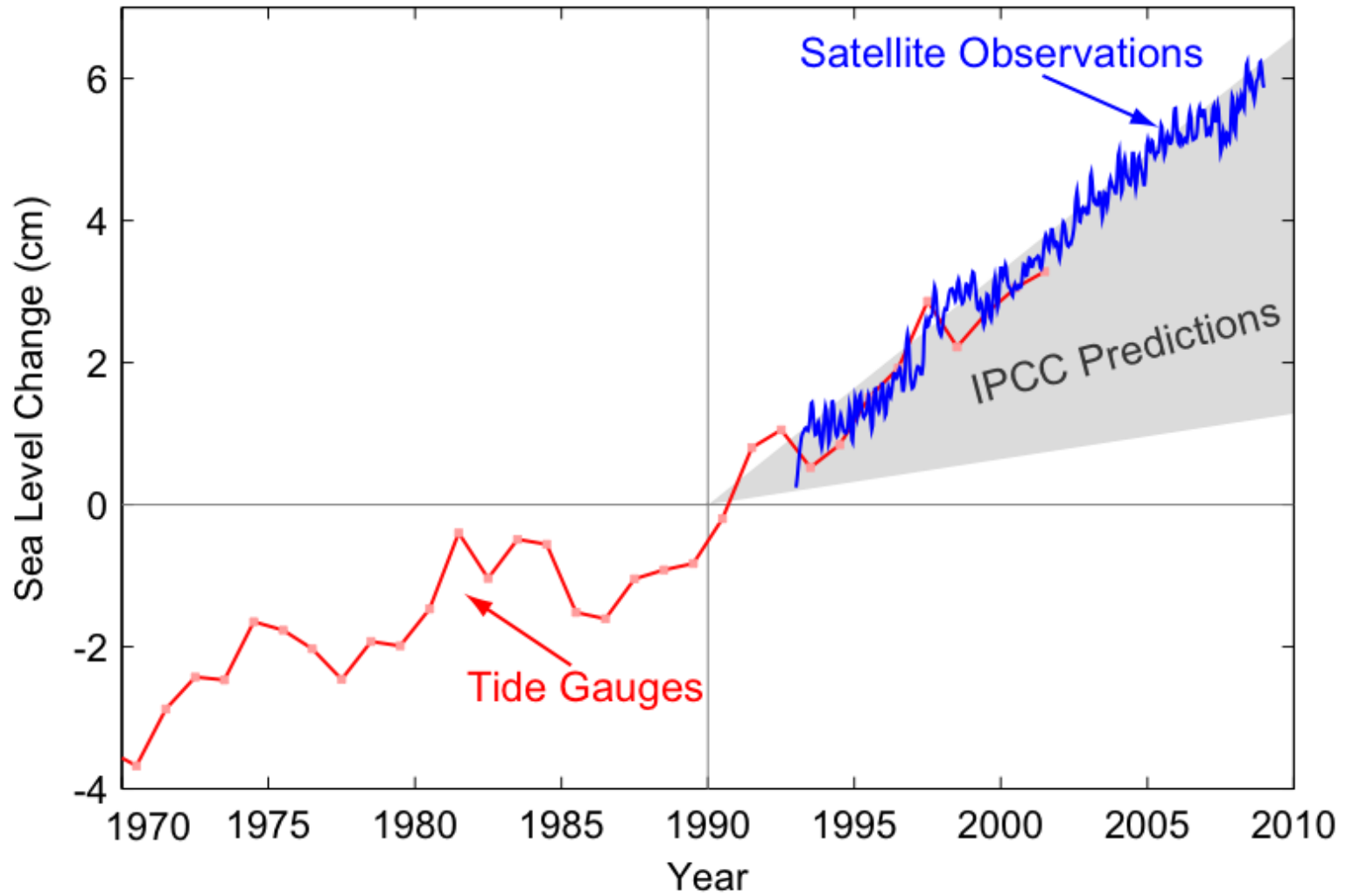


Minimum Arctic sea-ice extent from 1979 to 2007

Observed and Modeled Arctic Sea-ice Extent



Sea-level change 1970-2010



“The balance of evidence suggests a discernible human influence on global climate.” - IPCC (1995).

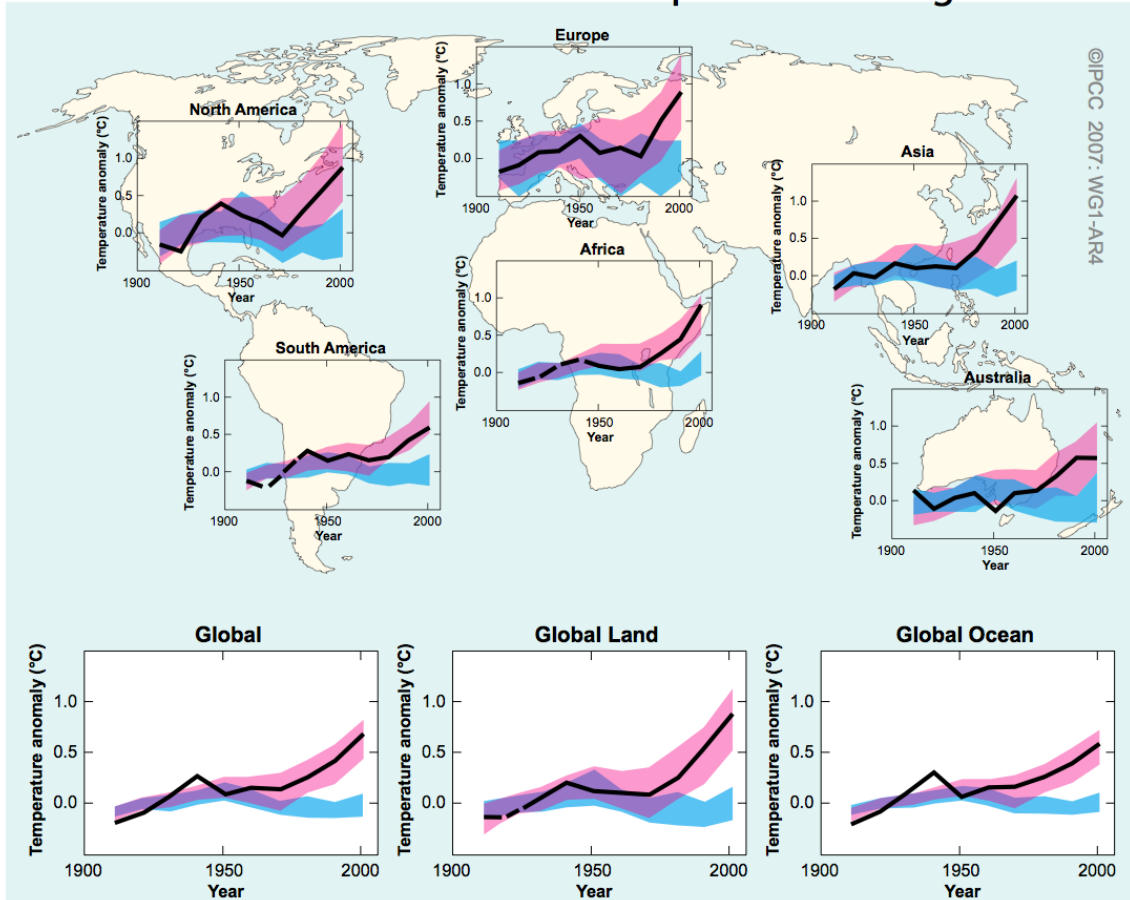
“There is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities.” - IPCC (2001).

IPCC = Intergovernmental Panel on
Climate Change

“Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.”

- IPCC, 2007.

Global and Continental Temperature Change

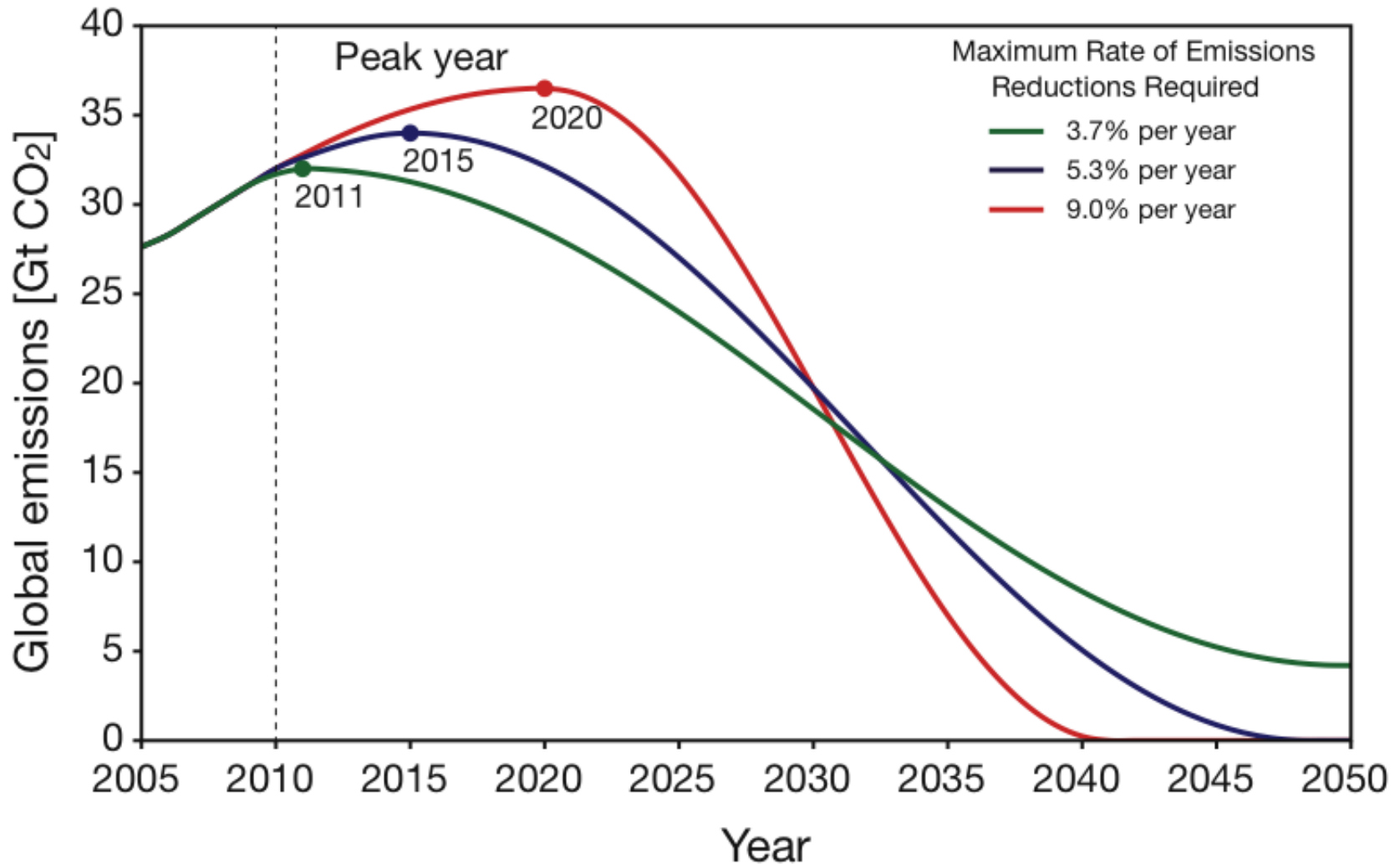


“Most of the observed increase in globally averaged temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations.”

- IPCC, 2007.

(‘*very likely*’ means at least 90% probable)

IPCC reports are at: www.ipcc.ch



Emissions pathways to give 67% chance of limiting global warming to 2° Celsius or 3.6° Fahrenheit above 19th century pre-industrial temperatures

The decision that climate change should be limited to 2 degrees Celsius warming above pre-industrial (19th century) levels is a subjective judgment by governments.

Once that decision is made, however, science shows that global emissions of greenhouse gases must be greatly and quickly reduced: the world must act ***within the next decade***.

The urgency is thus scientific, not political.

"For a prescribed maximum increase of 50 percent above the preindustrial carbon dioxide level, the production could grow by about 50 percent **until the beginning of the next century, but should then decrease rapidly.**"

From "Predicting Future Atmospheric Carbon Dioxide Levels" by U. Siegenthaler and H. Oeschger, *Science*, 27 January **1978**.

We have known for over 30 years that major emissions reductions would be required NOW.

Communication problems

- Scientists rarely communicate well.
- Society has a science illiteracy problem.
- A disinformation campaign is effective.
- In some countries, this topic is politicized.
- Policy positions infect views on science.
- Media coverage of science is often poor.
- The IPCC report is “ore” to be processed.

Should scientists be policy advocates?

I think some should, some of the time.

"What's the use of having developed a science well enough to make predictions, if in the end, all we're willing to do is stand around and wait for them to come true!"

- F. Sherwood Rowland, concerning ozone,
1984

(quoted by Paul Brodeur, *The New Yorker*, June 9, 1986, p. 81)

www.copenhagendiagnosis.com

www.climatecentral.org

www.realclimate.org

www.ipcc.ch

www.skepticalscience.com

www.richardsomerville.com

