How fossil fuel emissions are now killing the biosphere

Latest data

November 2016

Dr. Peter Carter

Expert reviewer for the IPCC

StateofOurClimate.com

CLIMATE SYSTEM EMERGENCY INSTITUTE

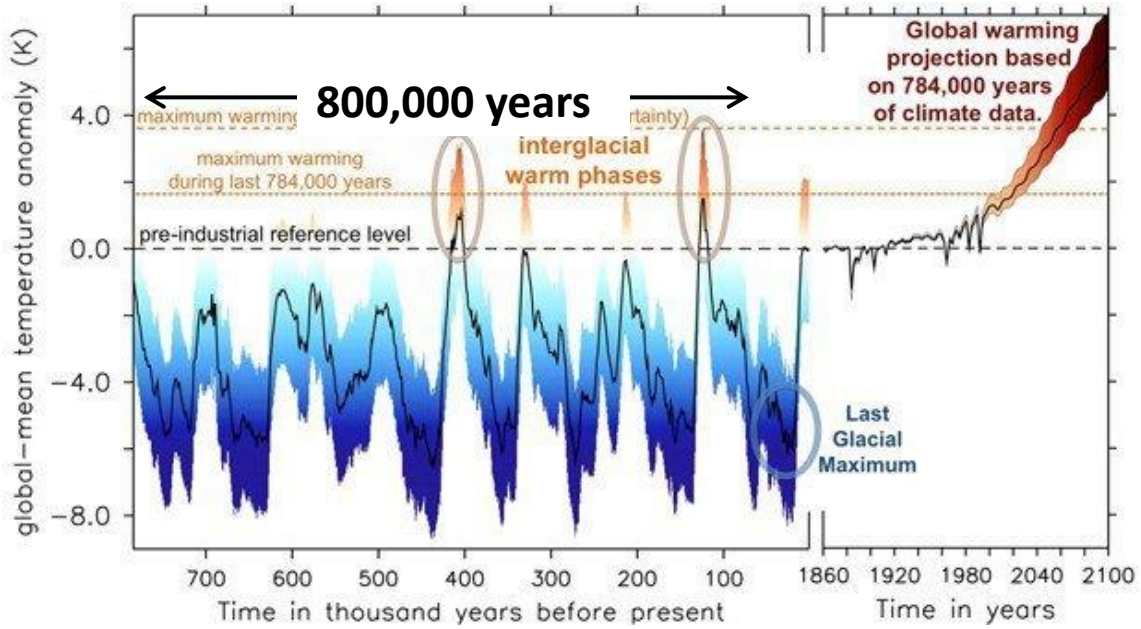
The Health and Human Rights Approach to Greenhouse Gas Pollution

Climate change already dramatically disrupting all elements of nature

Sciencedaily November 10, 2016

The study found a staggering 80 percent of ecological processes that form the foundation for healthy marine, freshwater and terrestrial ecosystems already show signs of distress and response to climate change.

"The level of change we have observed is quite astonishing considering we have only experienced a relatively small amount of climate change to date. Policy makers and politicians must accept that if we don't curb greenhouse gas emissions, an environmental catastrophe is likely." (Author Dr. James Watson)

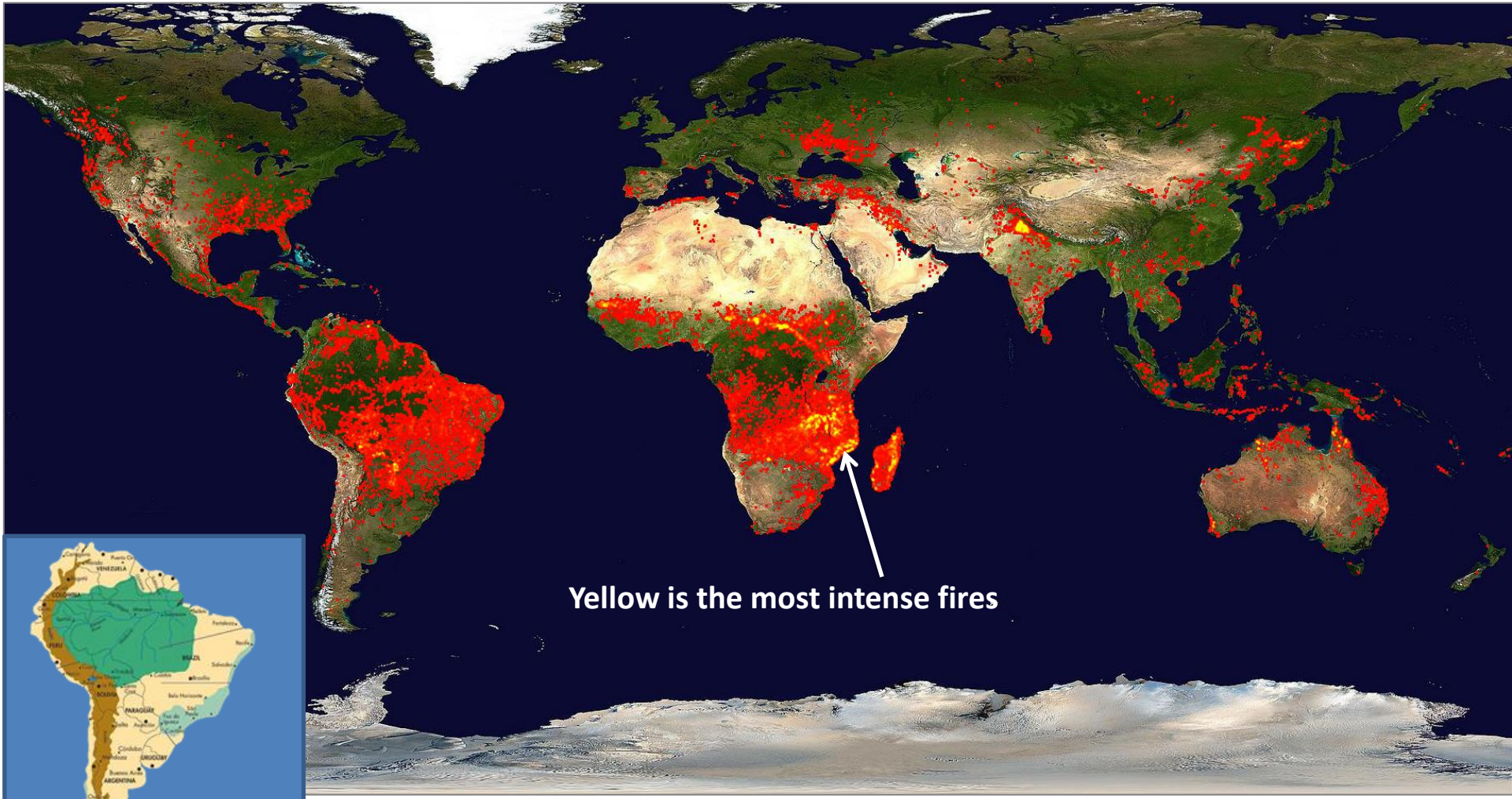


James E. M. Watson et al. Nov 2016 The broad footprint of climate change from genes to biomes to people. *Science*

World Fire Map MODIS (satellite)

26 October 2016

Global warming increases wild fires

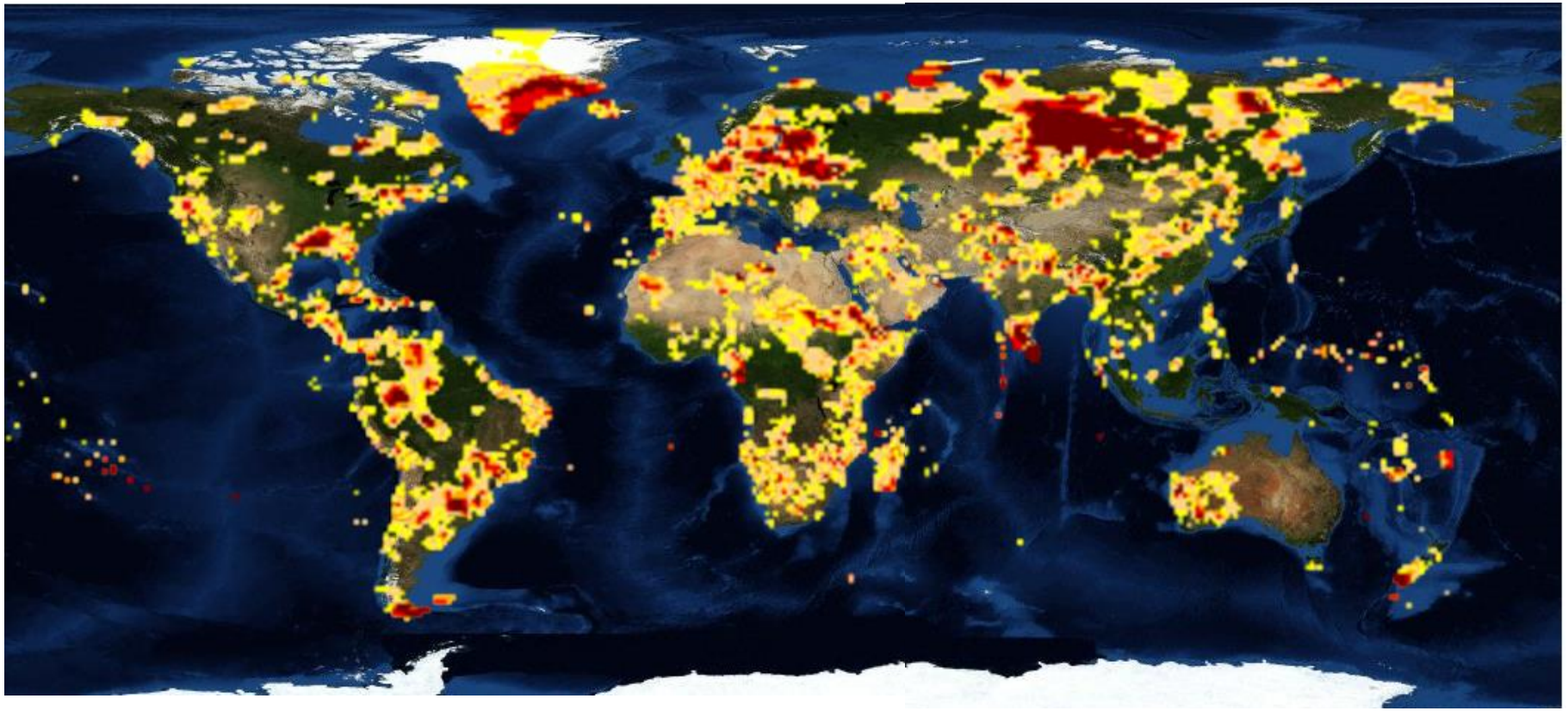


It Is spring in the southern hemisphere

Peter Carter Climate Emergency Institute

World drought for August through October 2016

Global warming increases drought

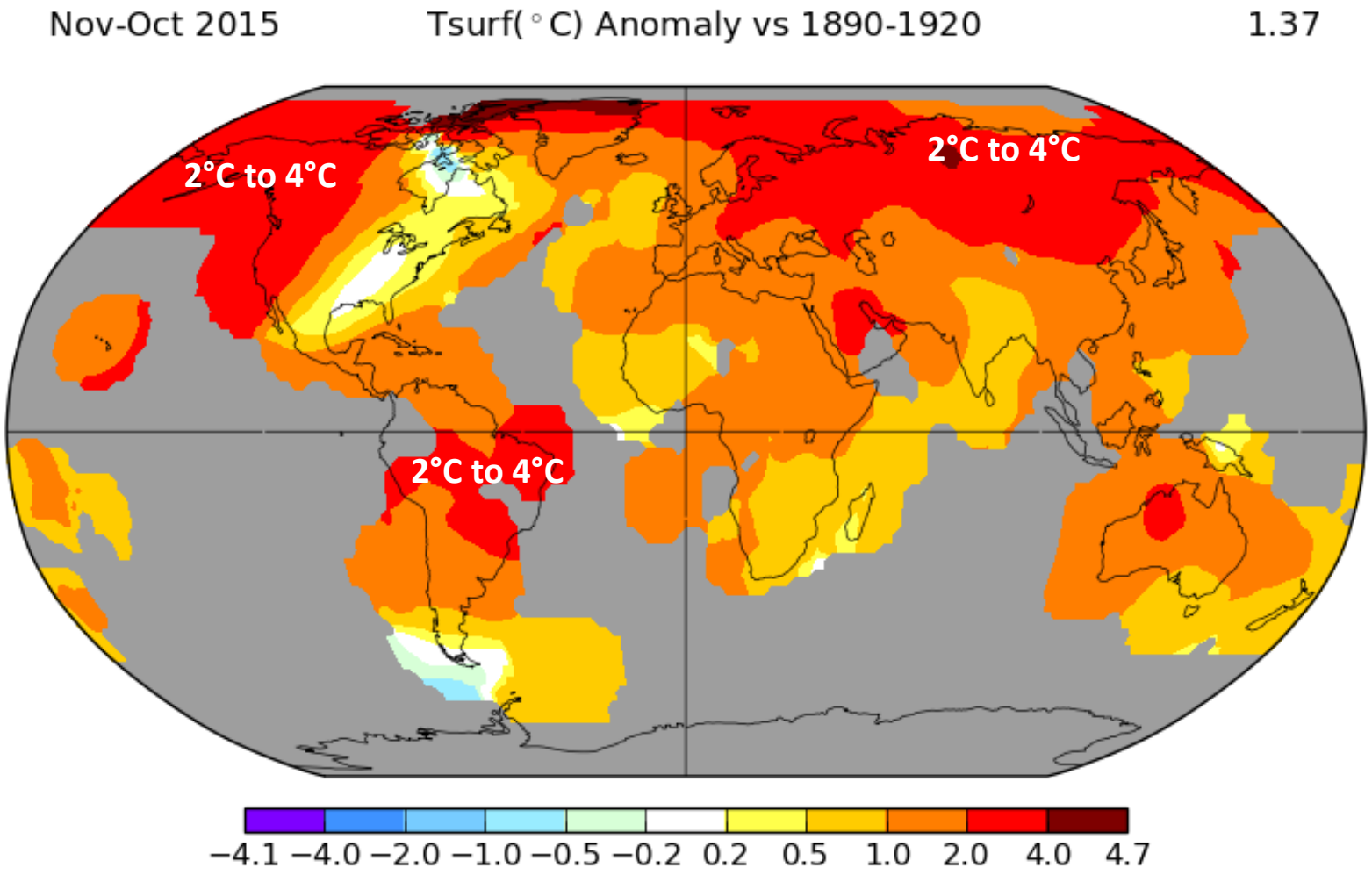


National Integrated Drought Information System

Global Drought Information System
www.drought.gov

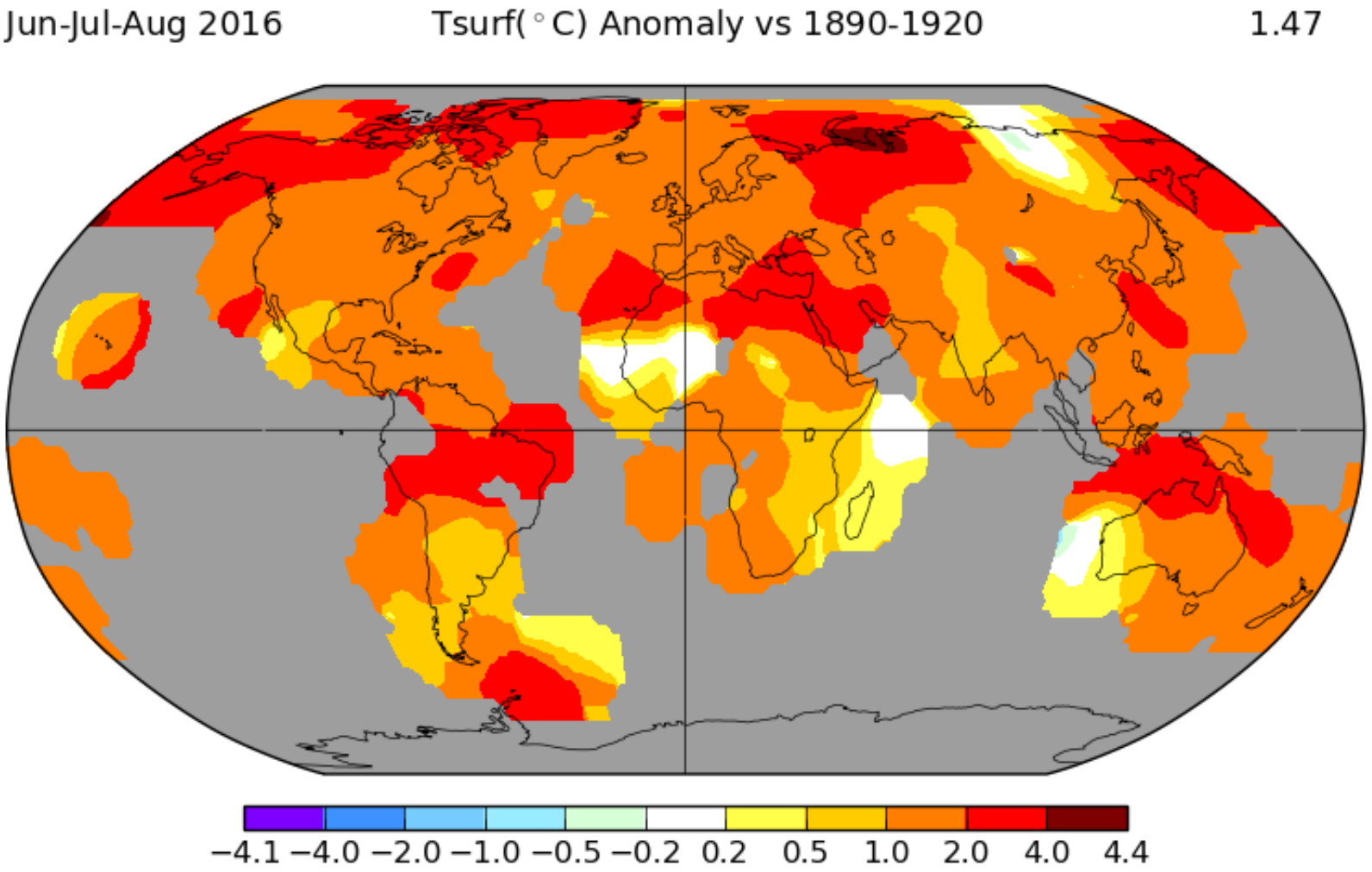
Peter Carter Climate Emergency Institute

Global average land temperature increase for 2015 was +1.37°C.
Huge regions were at +2°C to 4°C.



NASA GISS Surface Temperature Analysis Global Maps from GHCN v3 Data

Global average land temperature increase for the summer of 2016 was +1.47°C. Huge regions were at +2°C to +4°C.

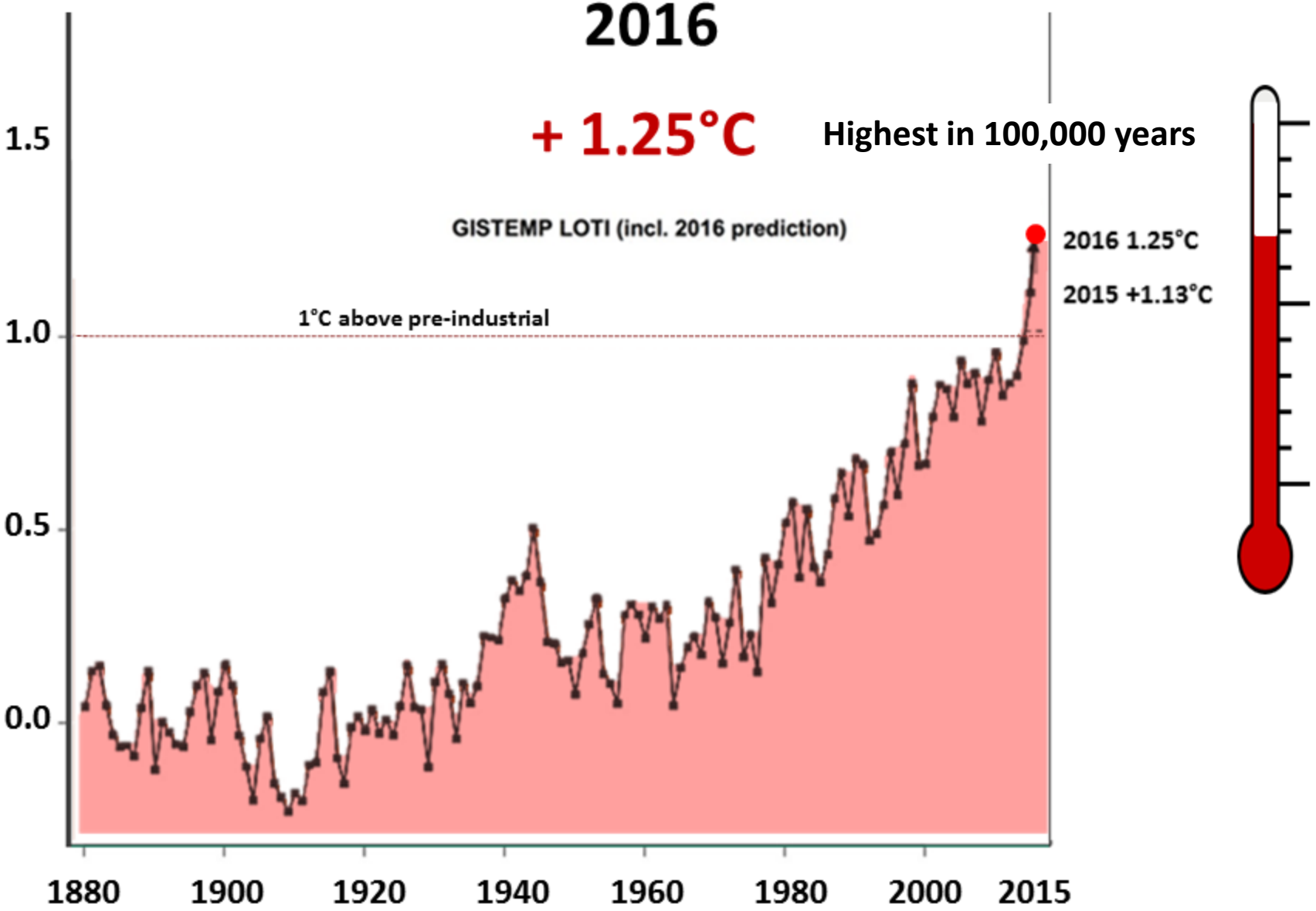


NASA GISS Surface Temperature Analysis Global Maps from GHCN v3 Data

Peter Carter StateofOurClimate.com

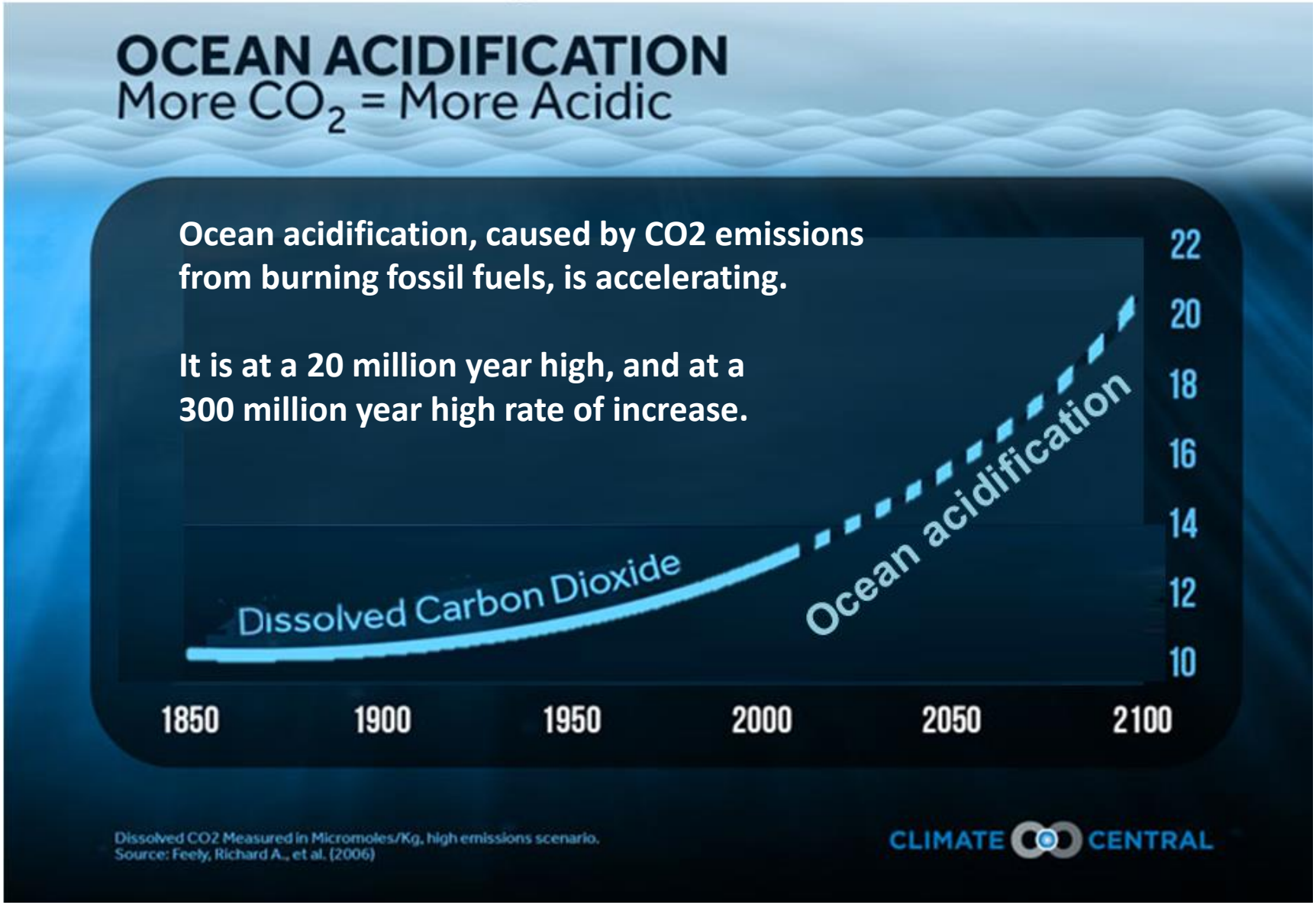
Global mean surface temperature increase 2016

+ 1.25°C **Highest in 100,000 years**

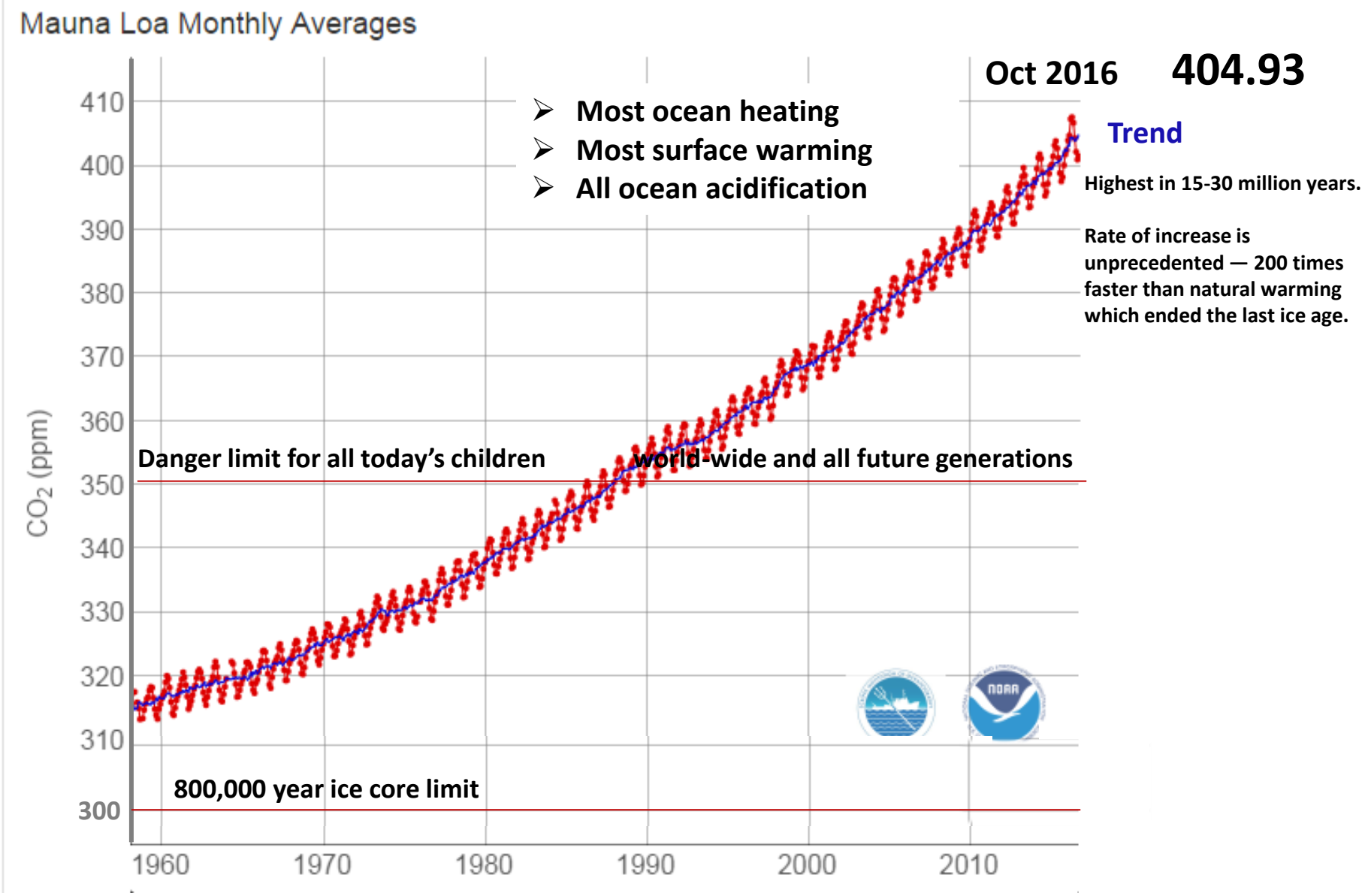


Gavin Schmidt Director NASA GISS

Accelerating ocean acidification

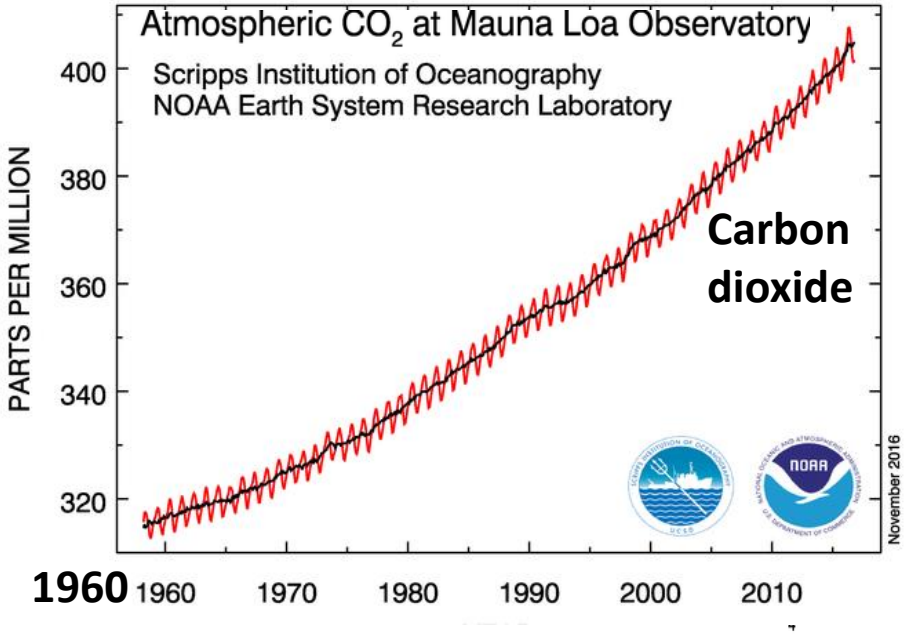


Accelerating atmospheric carbon dioxide



NOAA* full record of atmospheric CO2 and methane levels (updated November 2016)

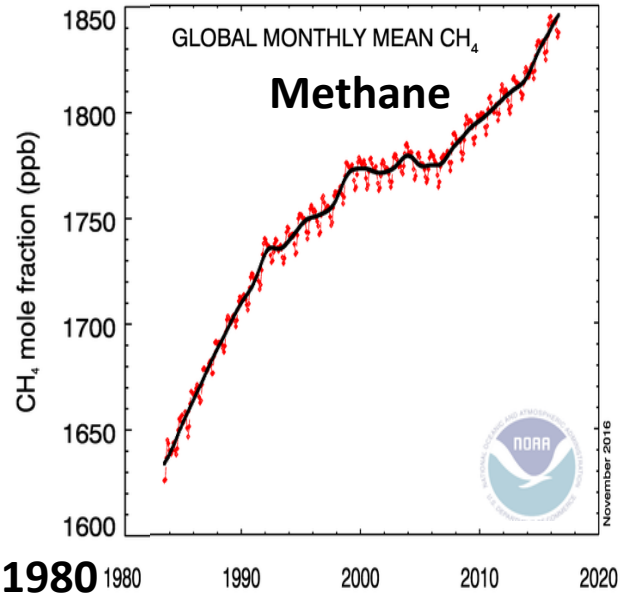
Coal and oil



Highest in 15-30 million years.

Rate of increase is unprecedented — 200 times faster than natural warming which ended the last ice age.

Natural gas (mainly methane) **and coal**



Increased over two and half times.

Has over 80 times the heating effect of CO2 for 20 years after emissions.

***NOAA – National Oceanic and Atmospheric Administration**

Peter Carter
Climate Emergency Institute