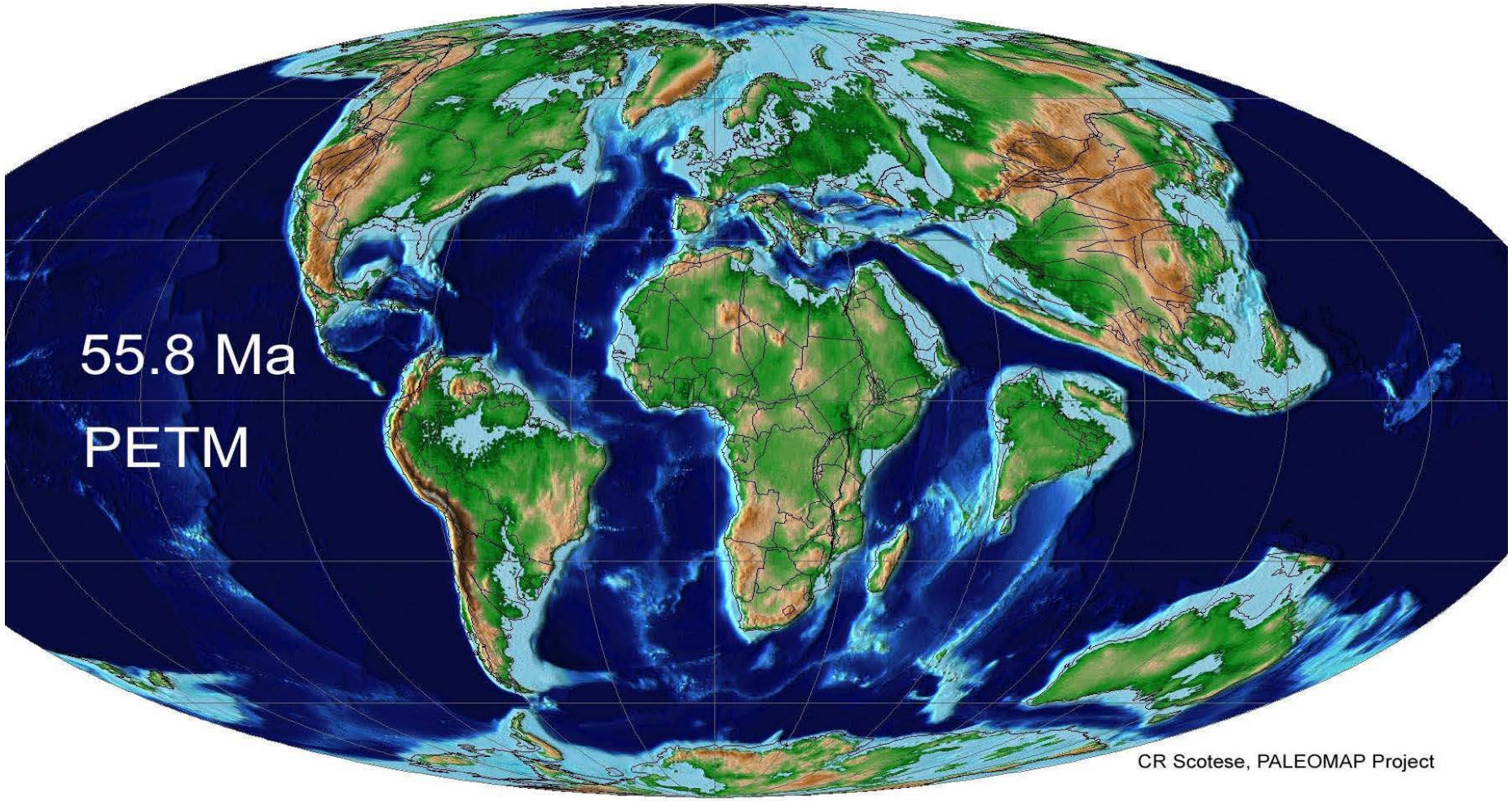
Climate Change: What Should We All Do Now? June 27, 2019

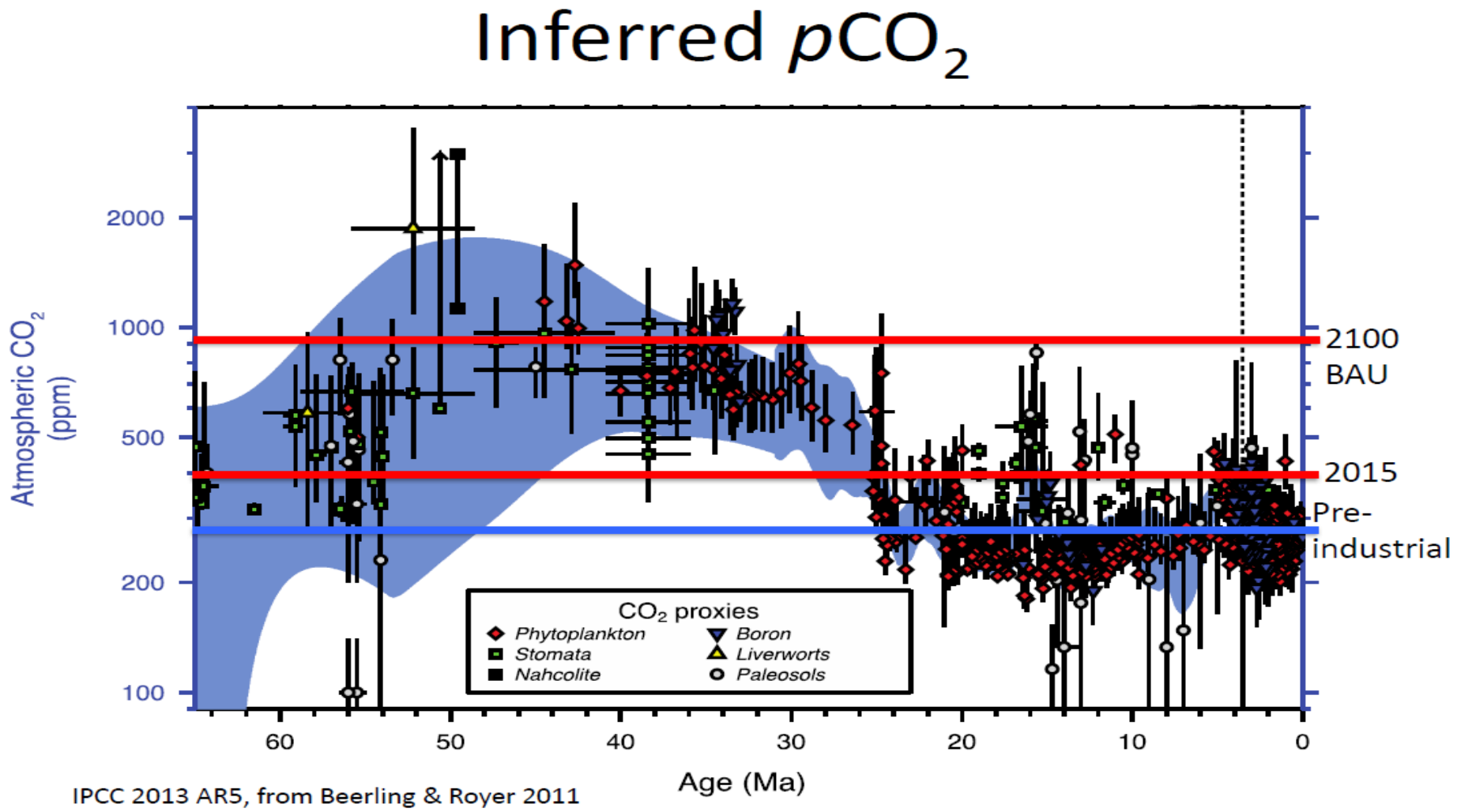
Core Samples and Proxies Tell the Story of Past Levels of CO2 Concentration

Paleogeography 56 million years ago



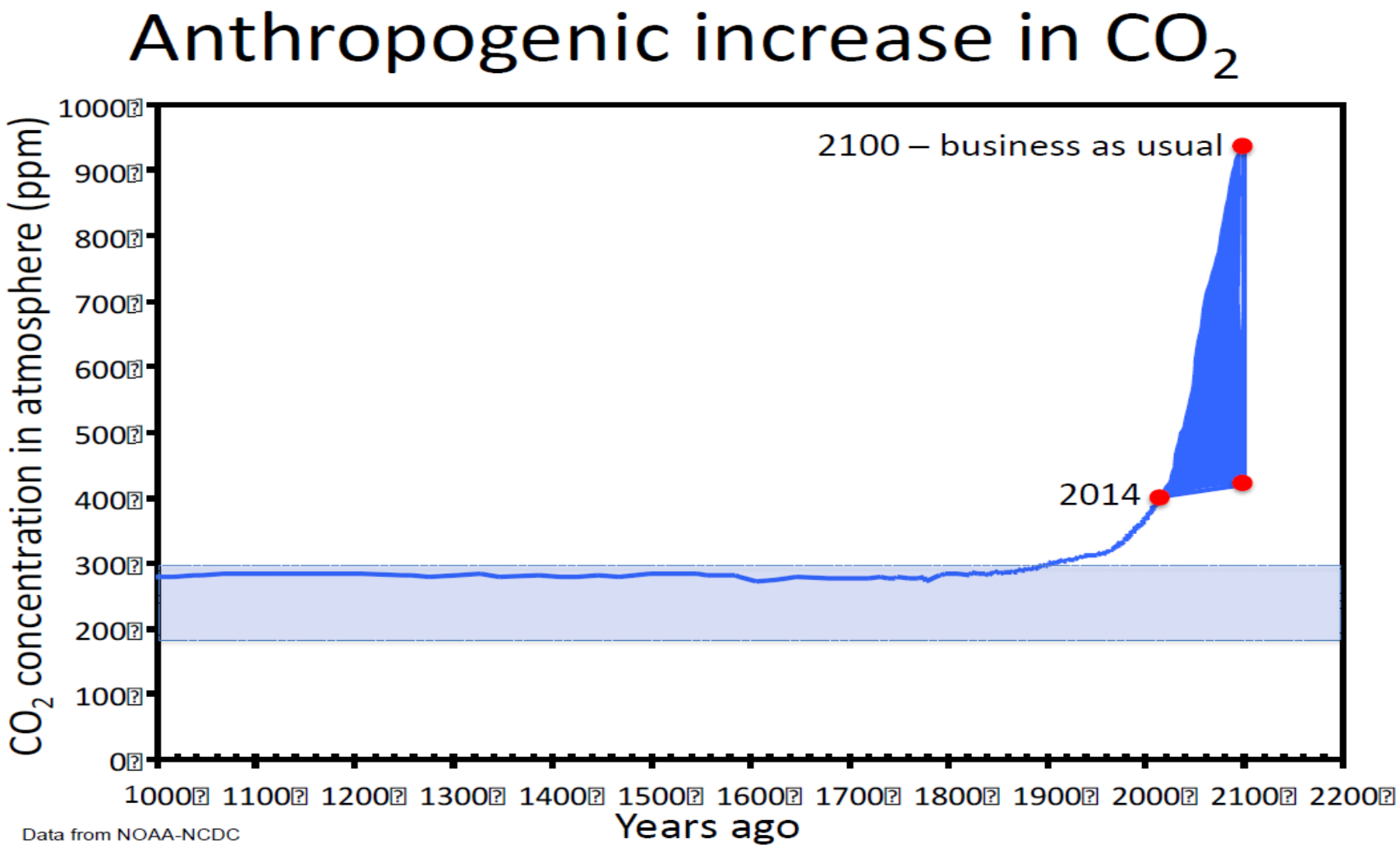
* Paleocene-Eocene Thermal Maximum

How Much CO2 Was There in the Atmosphere Millions of Years Ago?



IPCC 2013 AR5, from Beerling & Royer 2011

Where We Are Headed If We Don't Take Meaningful Actions

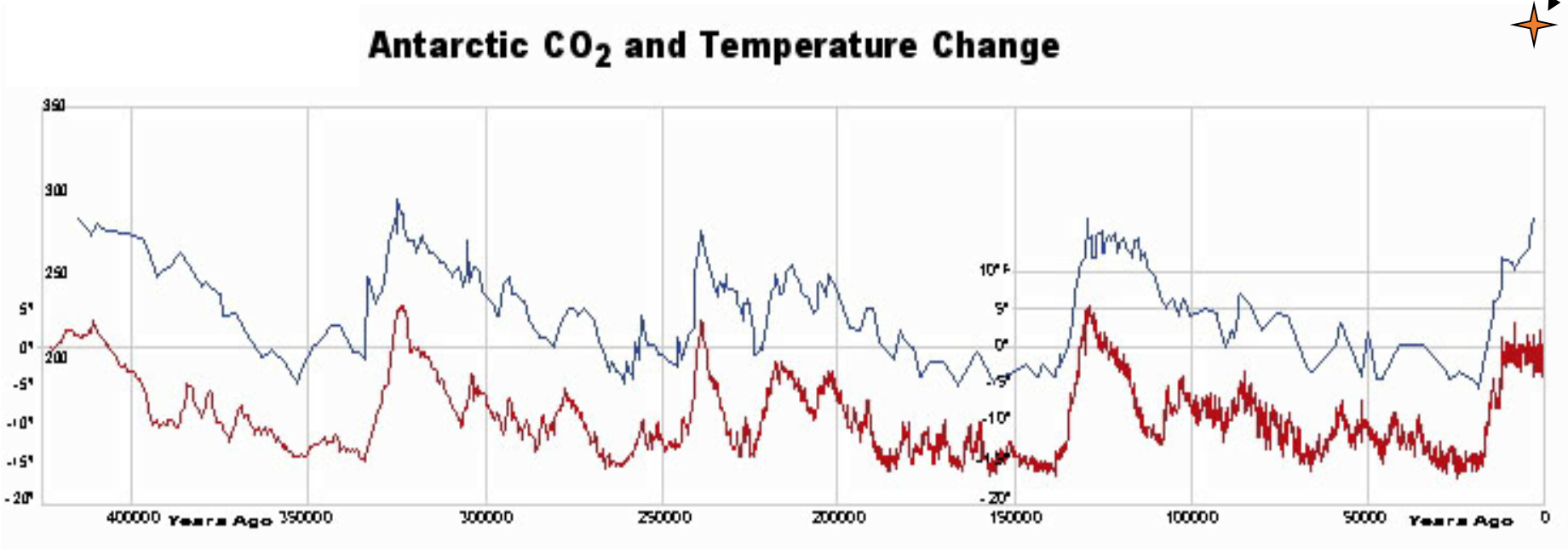


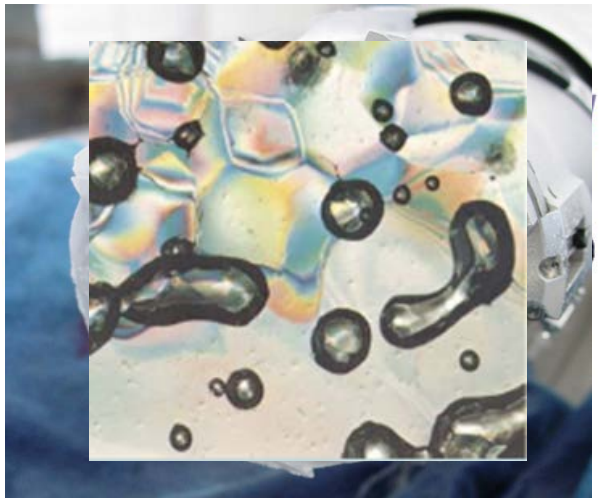
What the Northern Climes Looked Like Back Then

How do we know the climate is changing?

405 ppm

Ice Core record of past 420,000 years:





Upper, blue line = CO_2 level **Lower, red line = temperature**

Temperature and CO_2 record from Vostok, Antarctica (Petit *et al*. 1999)

Sea level +7.5m (~25ft) – 5000 CE?

(whoops! Greenland Ice Cap melted)

Should we Support these Technologies and Techniques? If so, how? State/Federal Levels?

TECHNOLOGIES/APPROACHES

- Wind onshore
- Wind offshore
- Solar – utility scale
- Solar – distributed
- Storage – batteries
- Storage – other types
- CCUS
- Nuclear
- Energy Efficiency
- Hydrogen/Fuel Cells
- EVs – Next gen transportation
- Active Adaptation Efforts

POTENTIAL SUPPORT TECHNIQUES

- R&D – ARPA-E, etc.
- Demonstration programs
- Portfolio standards (RPS, CEPS, or EEPS)
- Carbon/GHG tax
- Carbon reduction requirements (X% by Yr Y)
- Financial (e.g., tax credits, green certificates, bonds, removal of fossil subsidies)
- Grants for climate adaptation
- Building codes and standards
- Technology/appliance performance stds
- Charging stations, CAFE stds, mass transit
- Funding for programs/projects overseas

. It’s not easy being green .