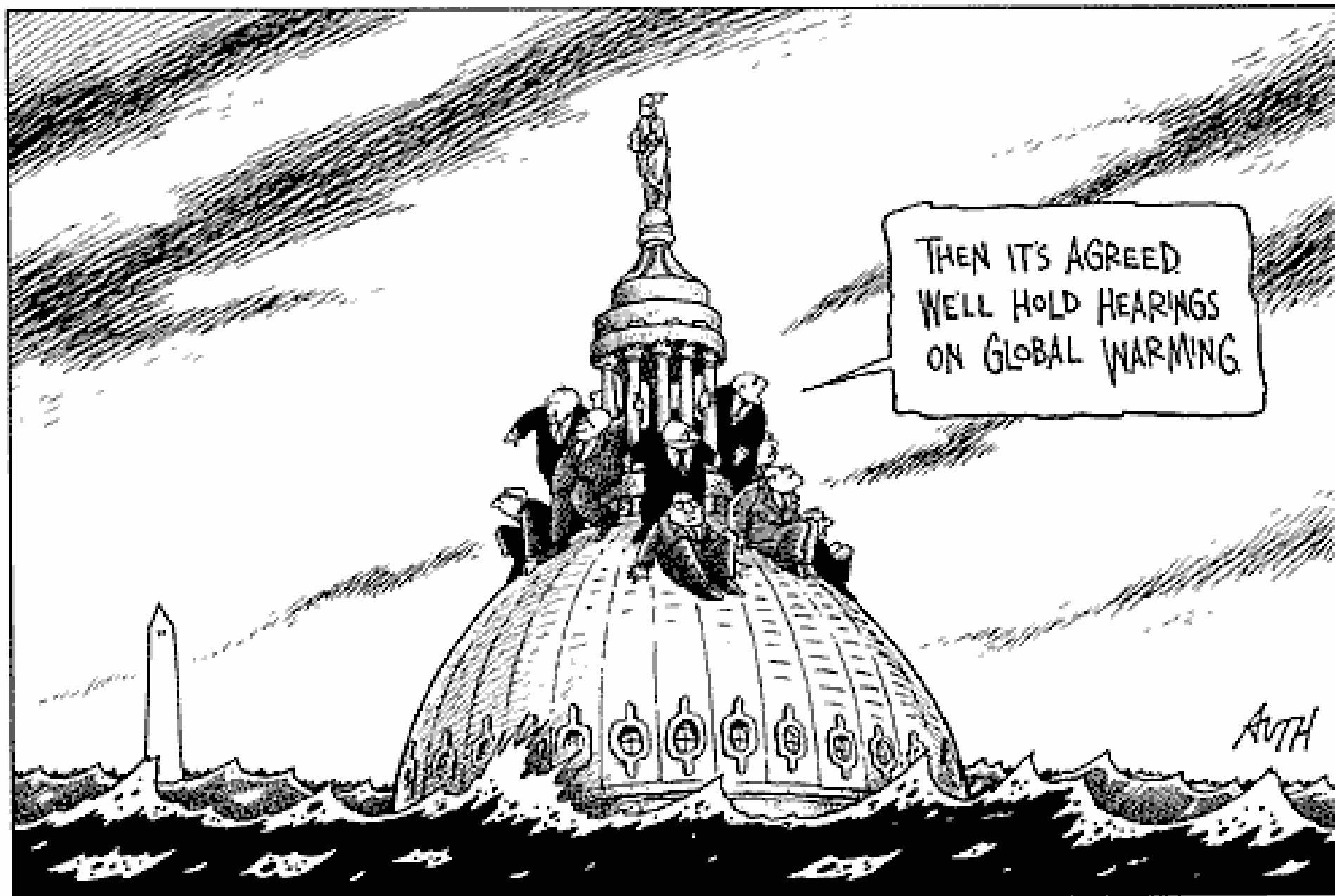
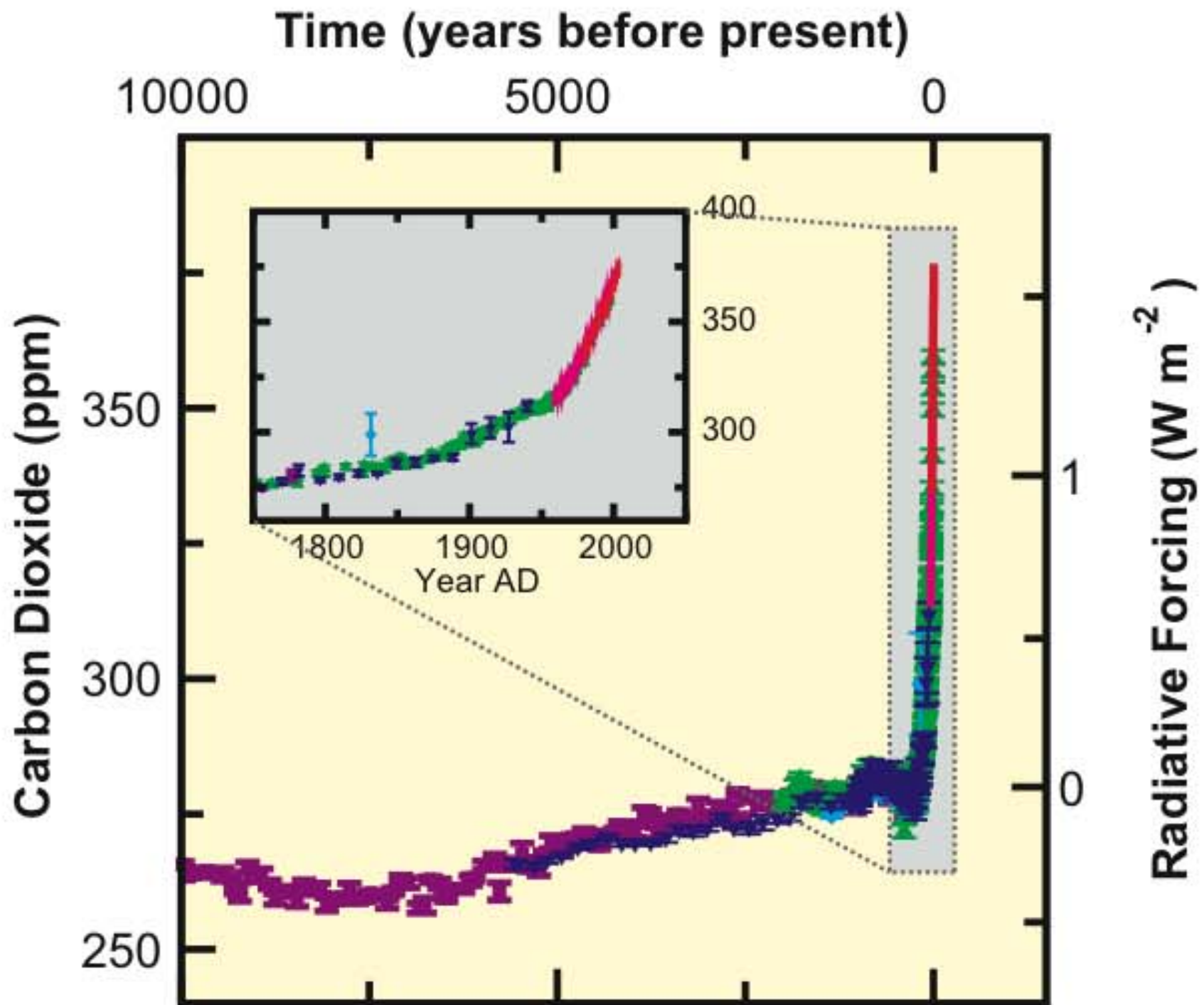


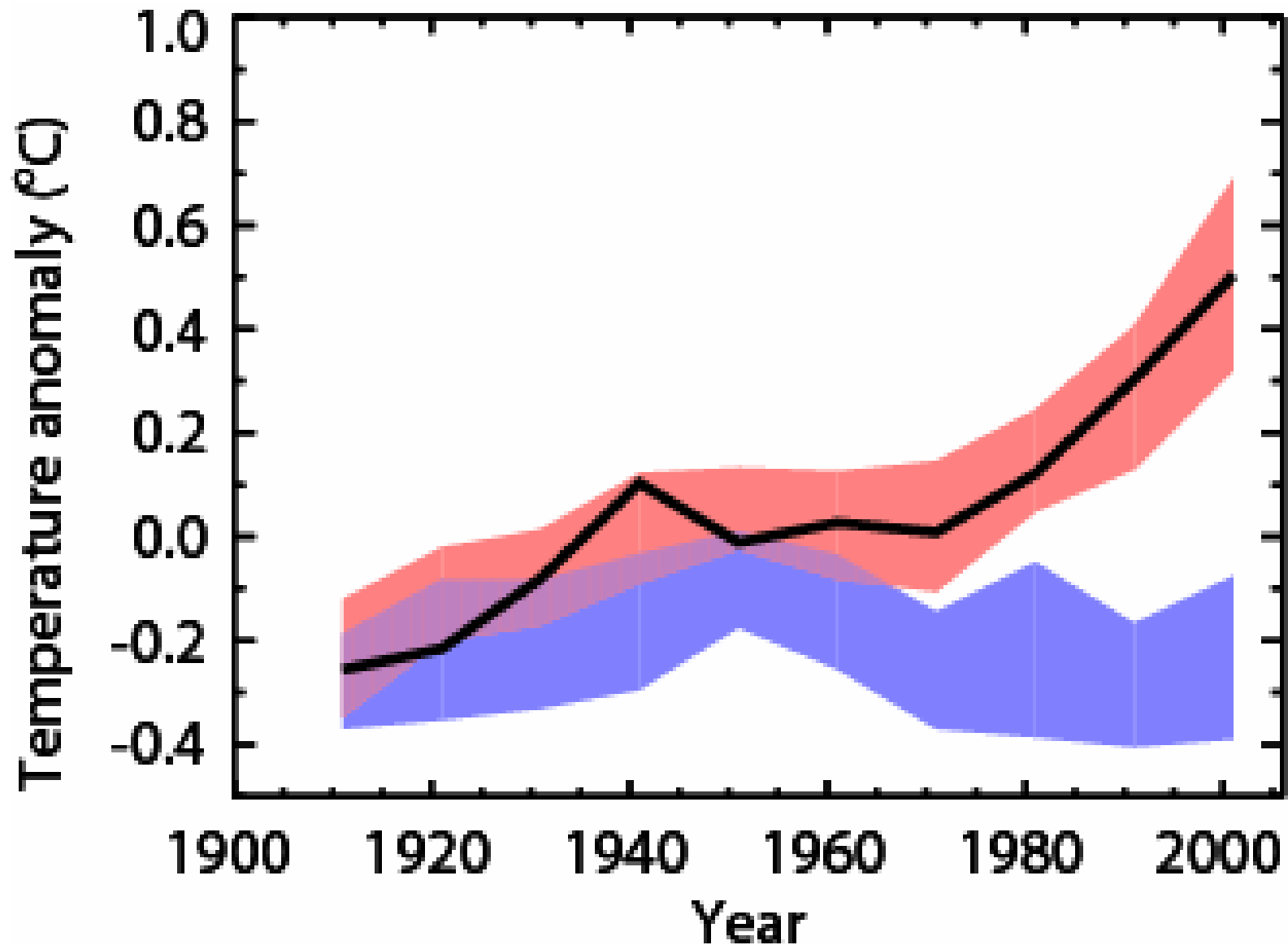
CLIMATE SCIENCE

P H I L I P M O T E





Global mean temperature





Larsen B
Ice shelf
Antarctica

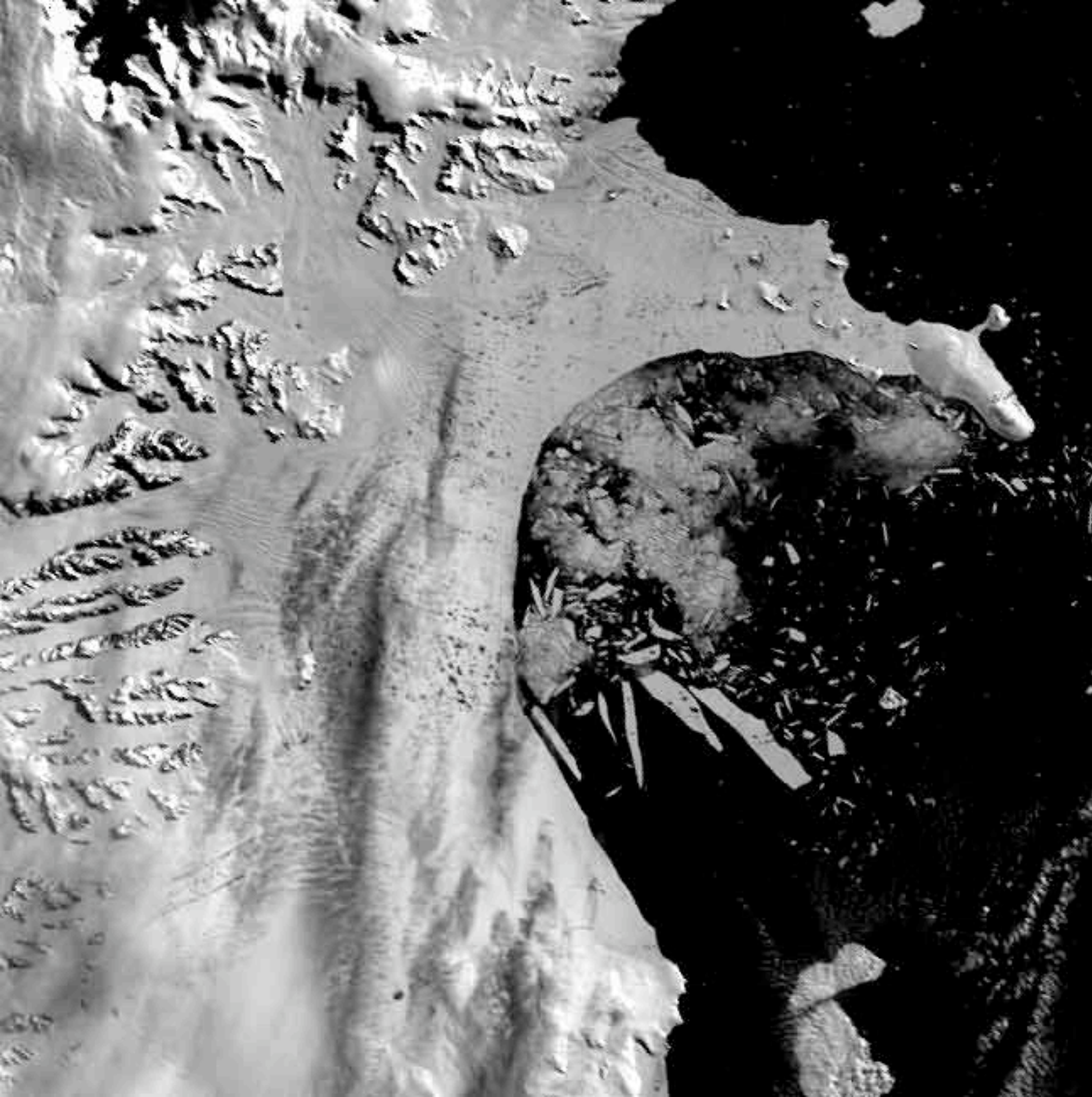
January 31, 2002

MODIS data
Courtesy
NSIDC

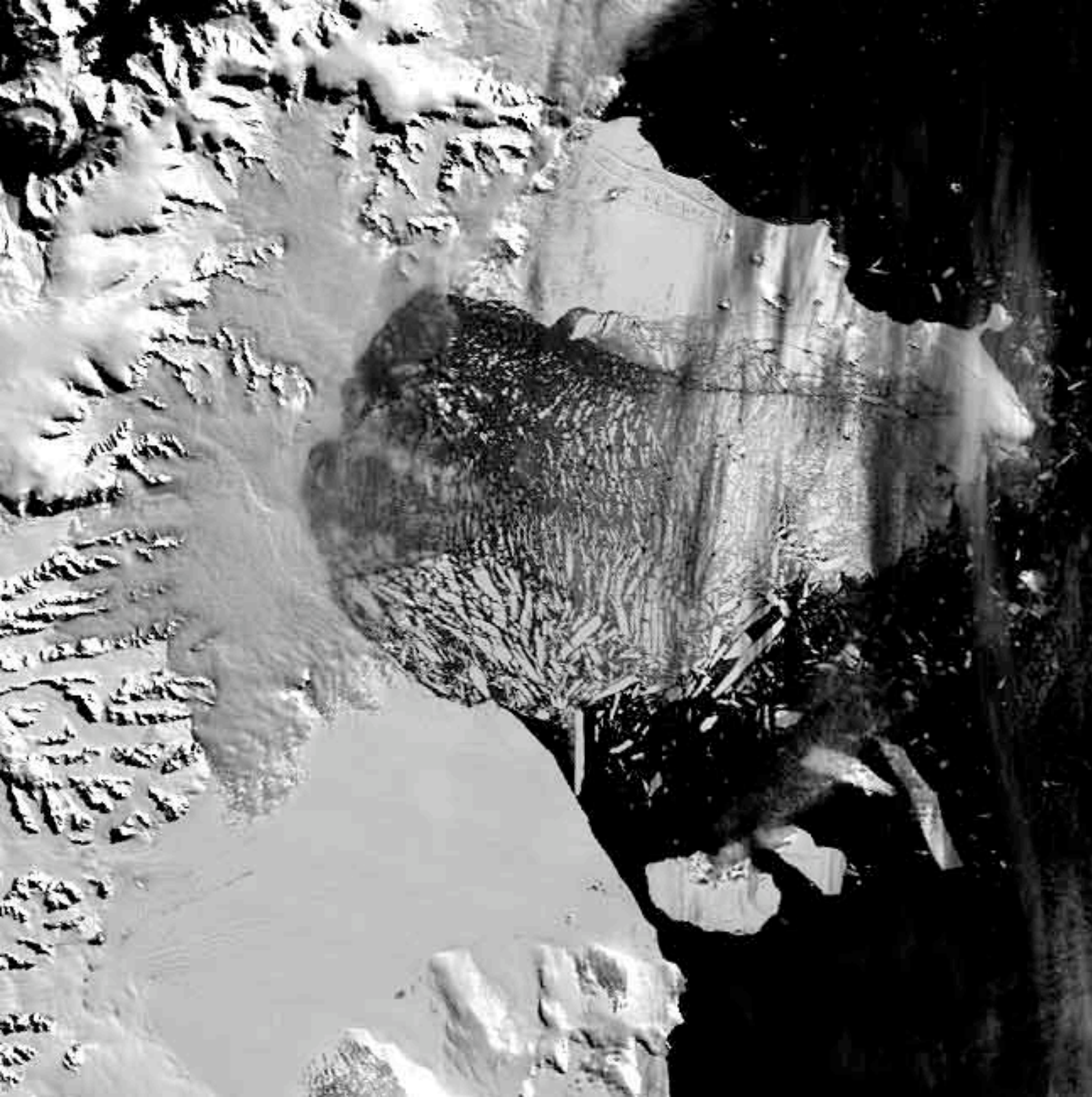
February 17



February 23



March 5



Increased CO₂/Decreased pH: Effect on Corals



Increased CO₂ may have a direct effect on hard corals to build reefs

Corals cannot secrete stable forms of calcium carbonate (especially aragonite) at lower pH

BIOSPHERE-2: Coral calcification rates may be **reduced** by 21% - 40% during 1880 – 2065 due to changes in atmospheric CO₂

Knock on effect on whole coral ecosystem

Extensive cold water corals have recently been discovered on the European Shelf

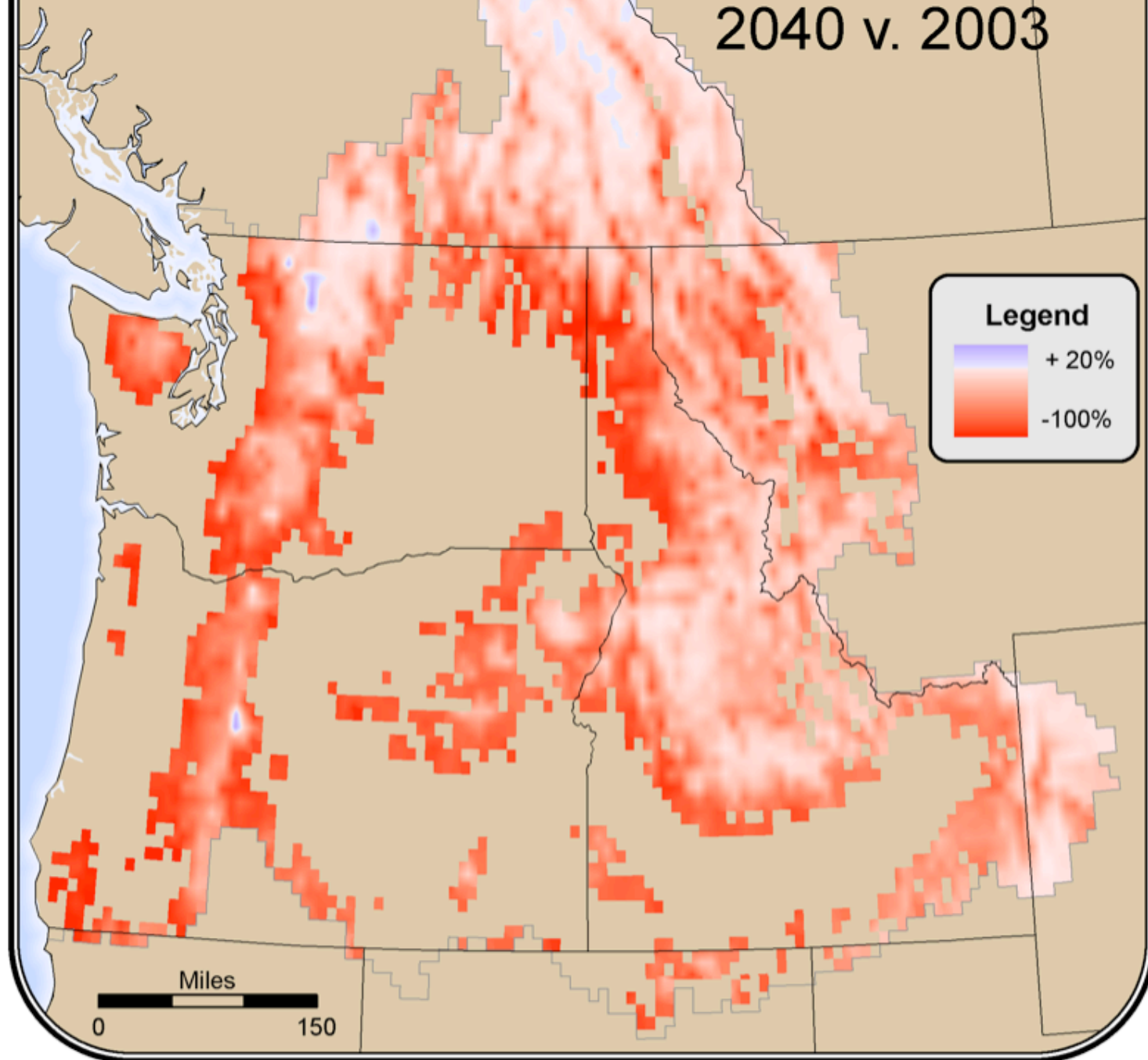


Kinsey 1991; Andersson 2003; Suzuki 2003; Leclercq 2000; Langdon et al. 2003



Hurricane Catarina – first recorded South Atlantic tropical storm, March 2004



% Change April 1 Snowpack 2040 v. 2003



REASONS FOR CONCERN

- ✱ Even average projected changes will cause problems - snowmelt, ocean acidification, sea level rise
- ✱ Low-probability outcomes very worrisome
- ✱ T  CO₂  transportation