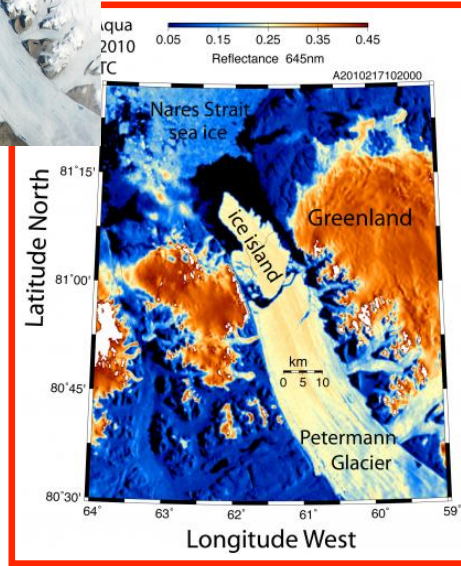
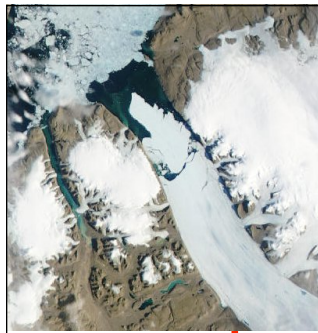


Briefing to U.S. House of
Representatives
Select Committee on Energy
Independence and Global Warming

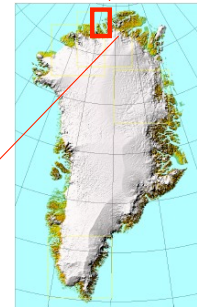
Dr. Robert Bindschadler
Senior Research Scientist
University of Maryland Baltimore County

August 9, 2010

100 sq. mile iceberg
calved from Peterman
Glacier on August 5, 2010



A reminder that
ice sheets are
dynamic



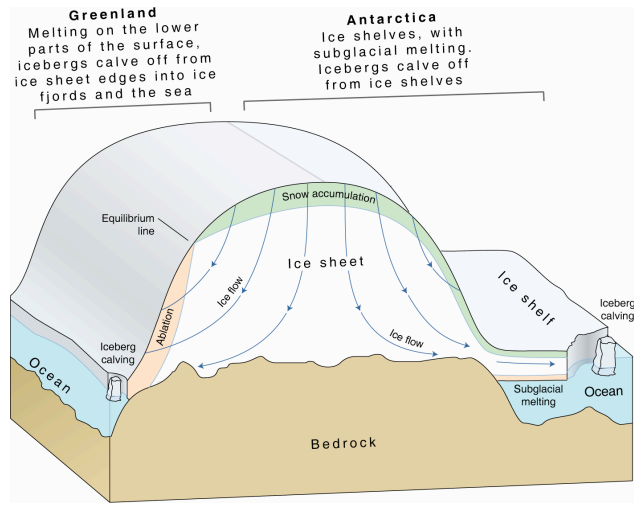
Impact?

- Short answer:
 - Peterman Glacier will speed up (x2 likely) contributing more ice to rising sea level
 - Warming signature has reached the northern edge of Greenland ice sheet

Impact?

- Short answer:
 - Peterman Glacier will speed up (x2 likely) contributing more ice to rising sea level
 - Warming signature has reached the northern edge of Greenland ice sheet
- More important question:

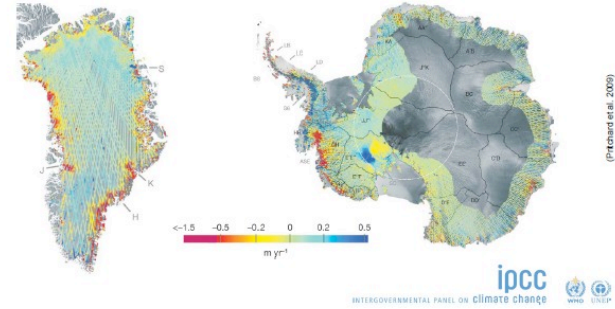
What are ice sheets going to do?



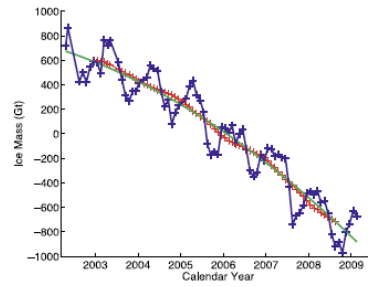
Snowfall, melting and calving continue to happen—what matters is which is bigger?

Satellite data
give us the
answer

2. Extensive thinning on the margins of Greenland and Antarctica



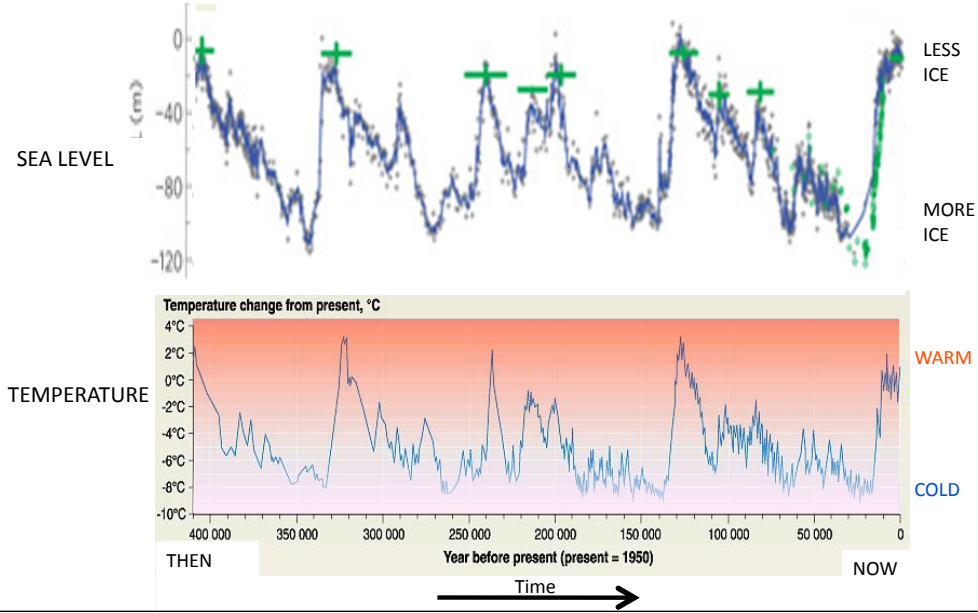
Increasing rate of
Greenland ice loss



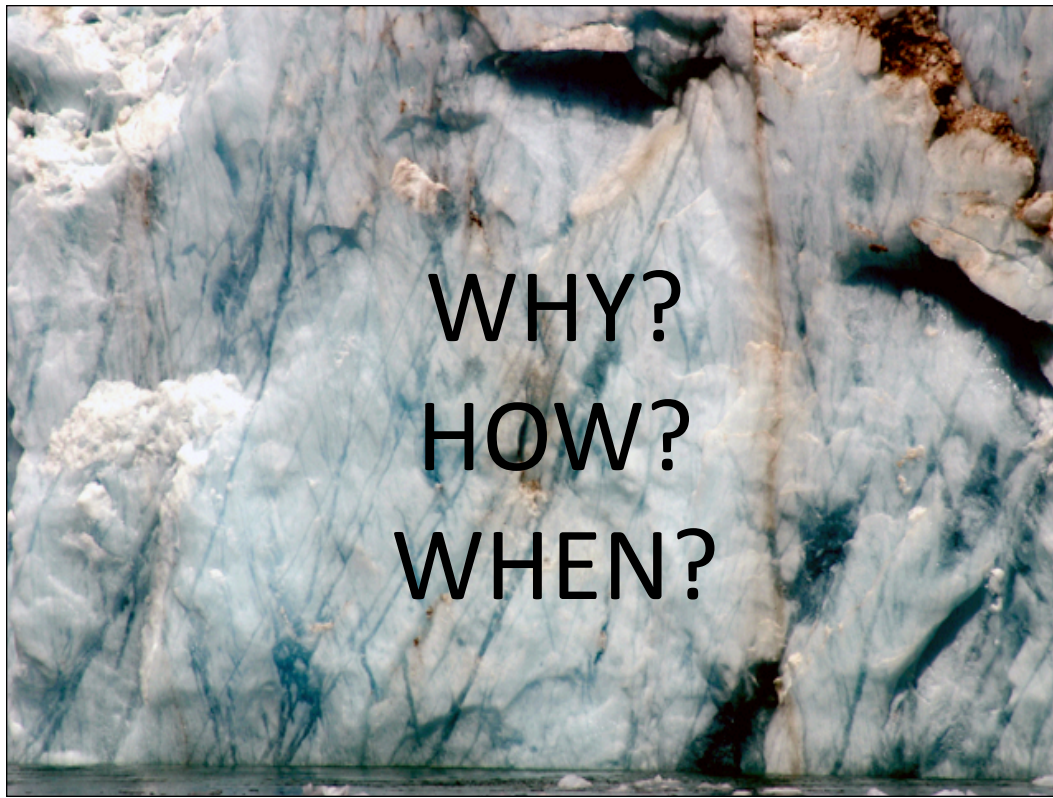
Velicogna, 2009

Ice loss at
margins
dominates

Higher sea level in warmer climates

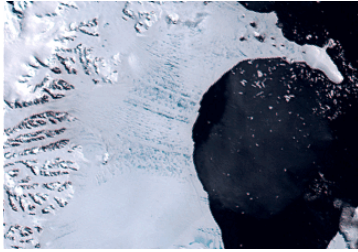


Ice sheets grow and shrink



WHY?
HOW?
WHEN?

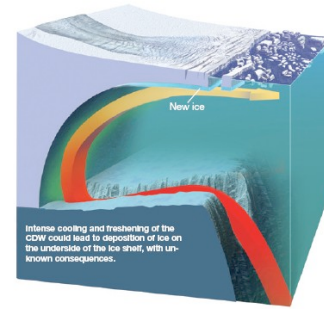
Water is Killing Ice Sheets



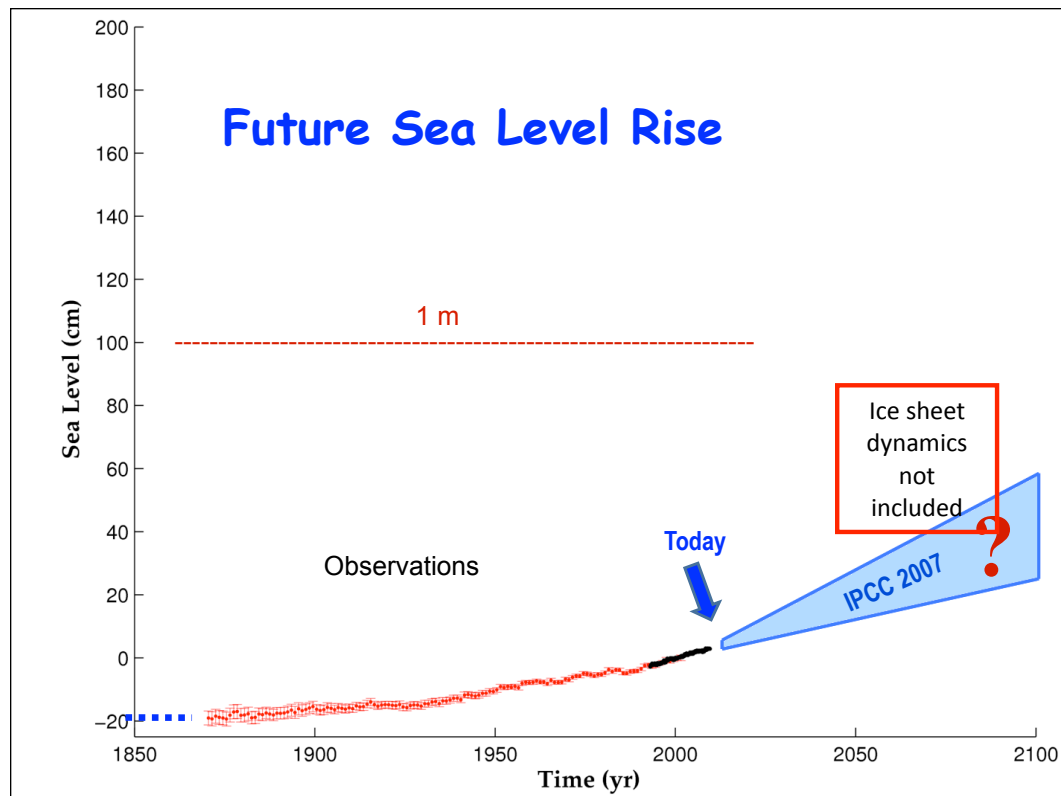
Ice shelf disintegration

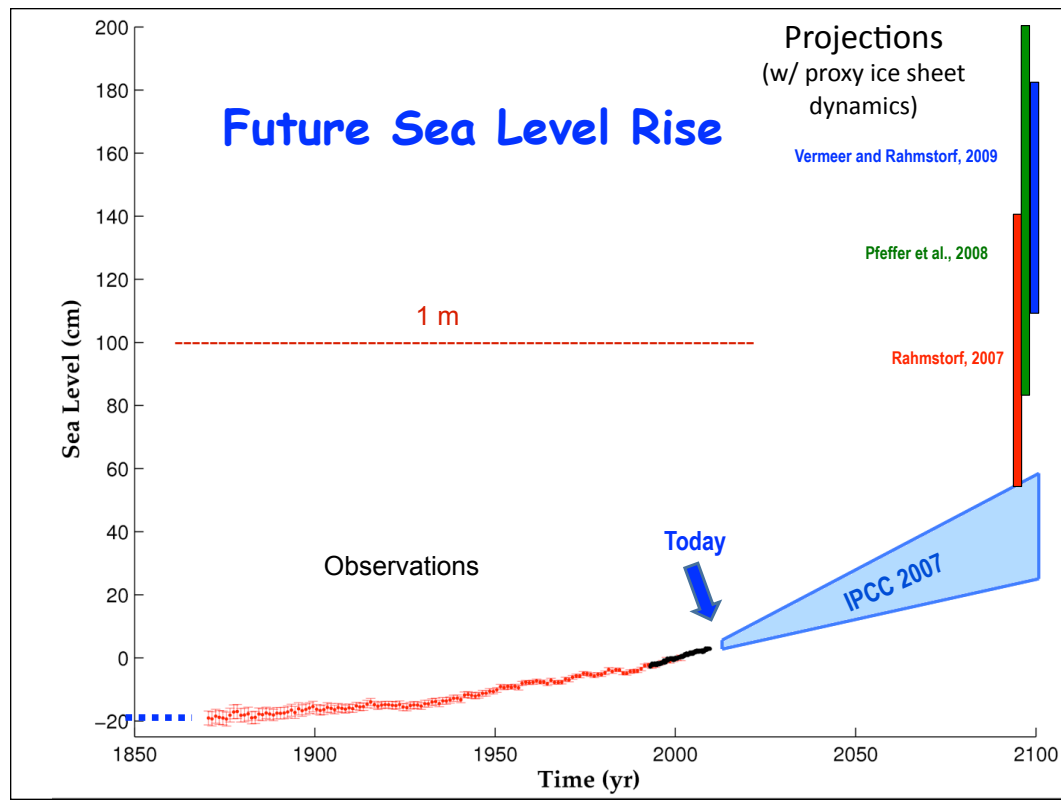


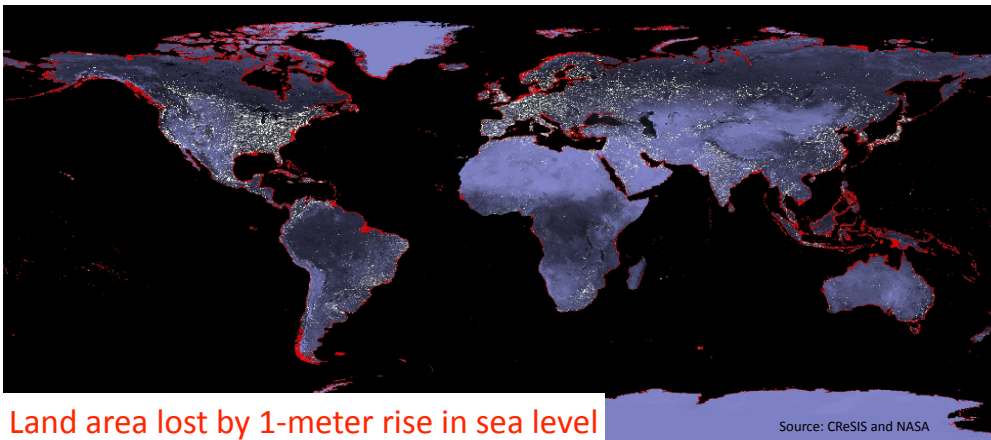
Self-lubrication



Ocean-driven melting

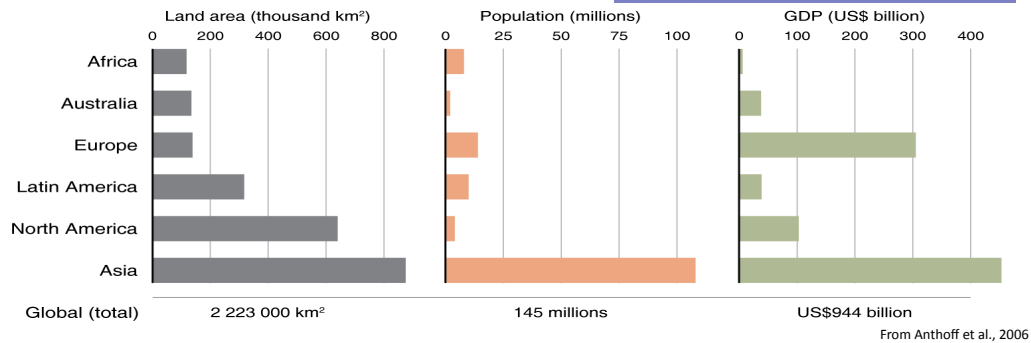






Land area lost by 1-meter rise in sea level

Source: CReSIS and NASA



From Anthoff et al., 2006

Let's Keep Talking

- Scripps workshop on planning for sea level rise (March 2010)
- IPCC workshop on sea level rise and ice sheet instabilities (June 2010)
- AGU special sessions on sea level rise science and public policy (December 2010)
- (hard work by research community to get the right answers)
-
- IPCC AR5 (2013)