

A satellite view of Earth showing the Western Hemisphere, including North and South America, the Atlantic Ocean, and the Pacific Ocean. A semi-transparent green rectangular box is overlaid on the left side of the image, containing the title and author information in white text.

Jordsystemmodeller: konkretisering af vandstandsstigninger for at håndtere dem

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I vil høre om...

- Lidt om klimamodller
- Observerede forandringer i klimasystemet
- Havniveau ændringer
- Fremtidens havniveau fra helikopterperspektivet
- Fremtidens havniveau med fødderne på jorden

Nations Unies

Conférence sur les Changements Climatiques 2015

COP21/CMP11

Paris France



Parisaftalen i 2015

Hvad er status i dag?

1,2°C global opvarmning siden industrialiseringen, hvilket er menneskeskabt

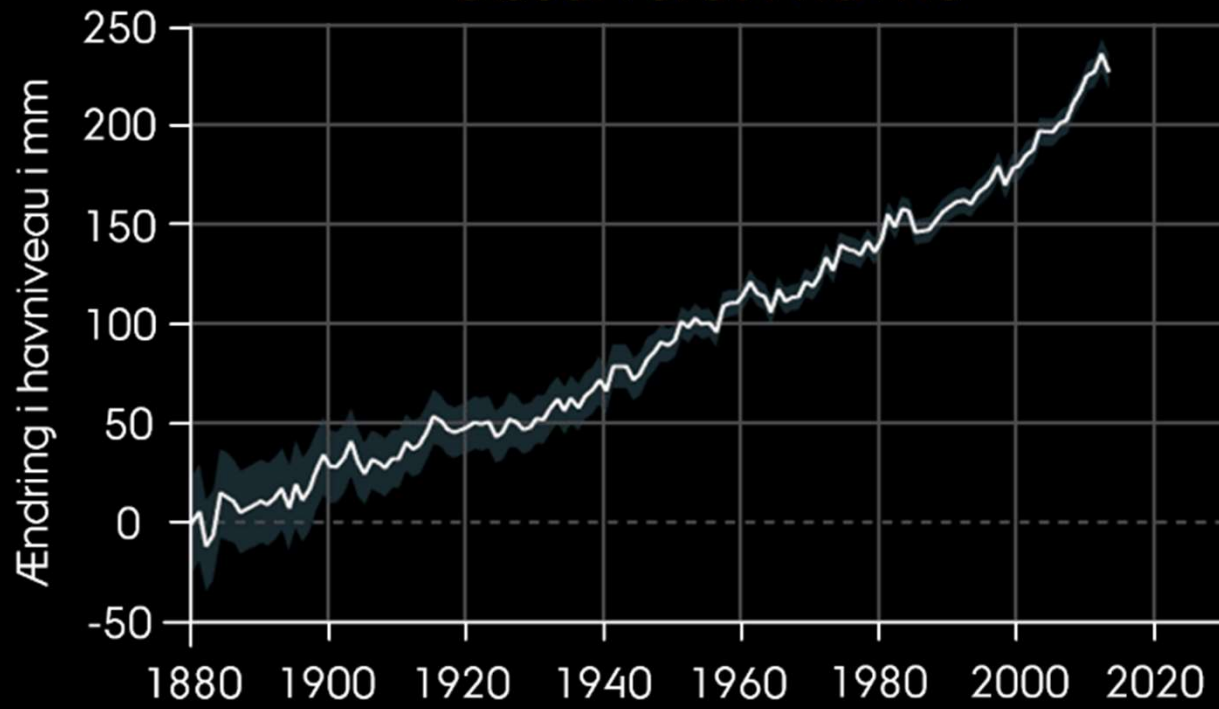
Opvarmningen:

- stiger nu med **0,2°C pr. årti**: (med den hast, når vi 1,5°C i 2030'erne)
- er større over land end over hav
- Den globale vandstand er steget **20 cm** siden år 1900

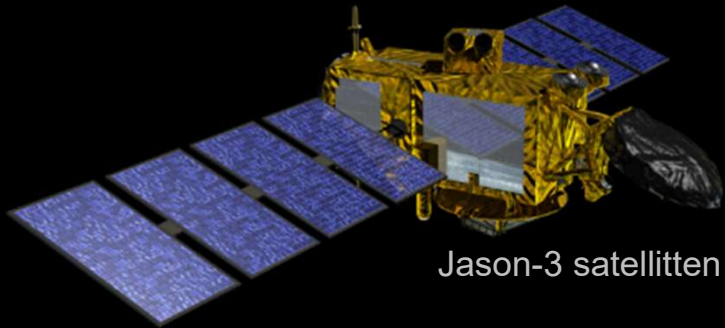


Ændring i havniveau

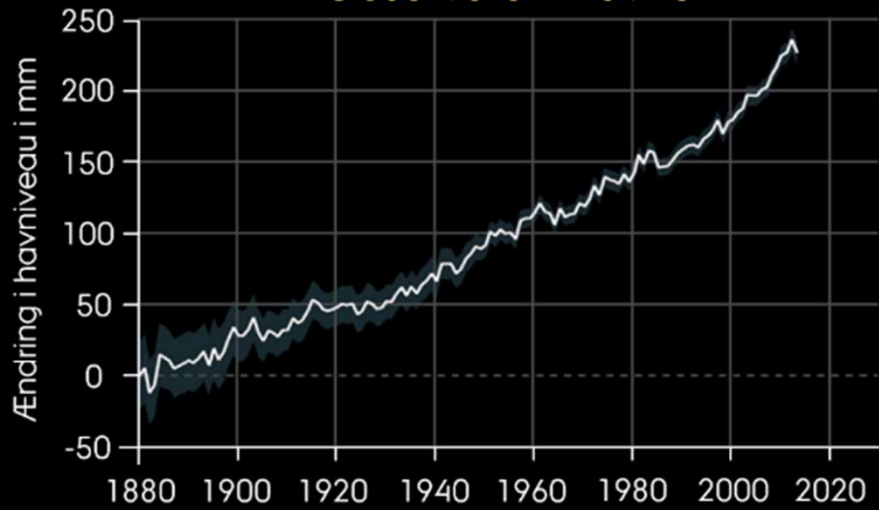
Observeret i havne



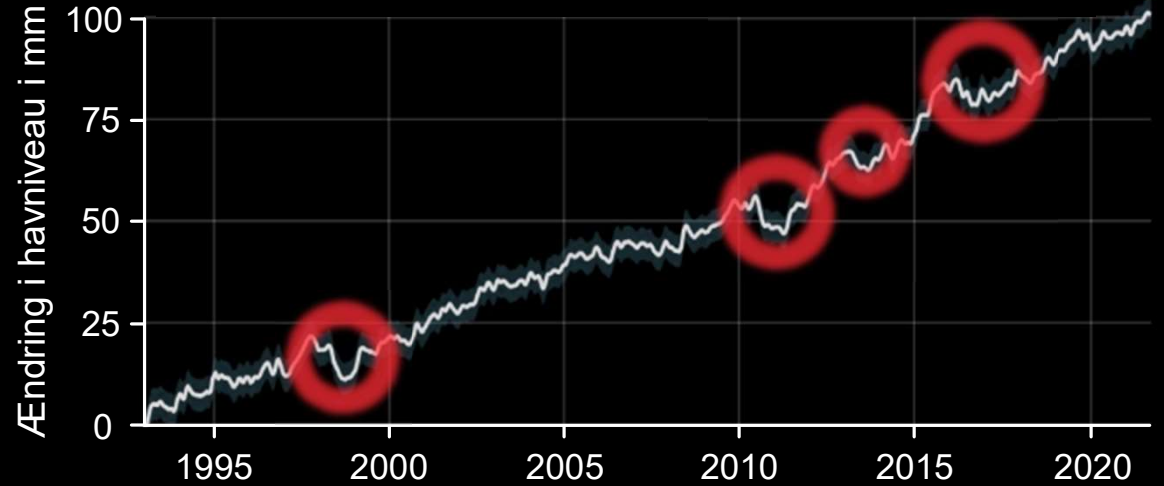
Ændring i havniveau



Observeret i havne



Observeret med satellit



HISTORISK VANDSTAND



Lolland. Xylography fra Illustreret Tidende, 1. december, 1872.



NASA

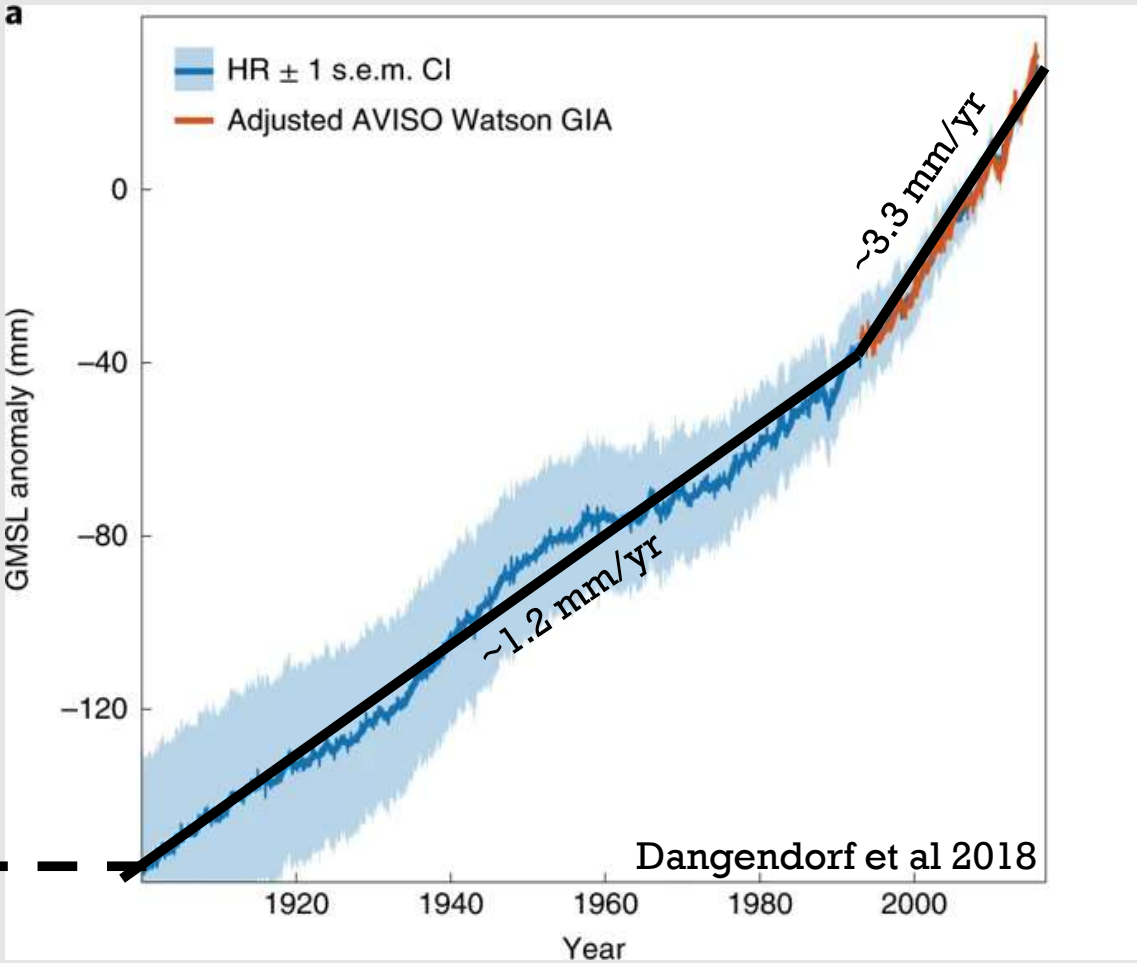


Apollo 17



DKRZ

Havneau



Globalt havniveau

Verden varmer op og det giver højere vandstand

1

Jordens
isskjalde
smelter

2

Havene
udvides

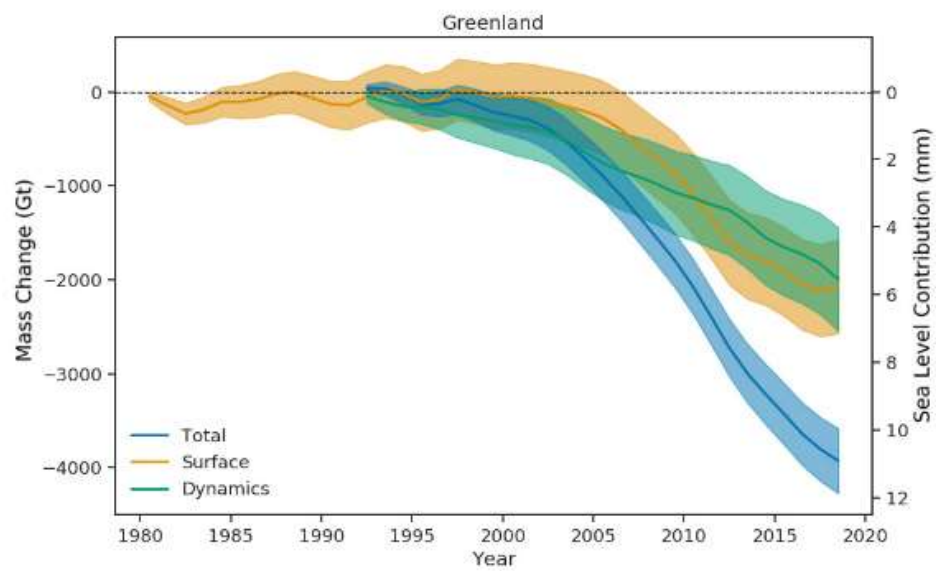
Sea level budget



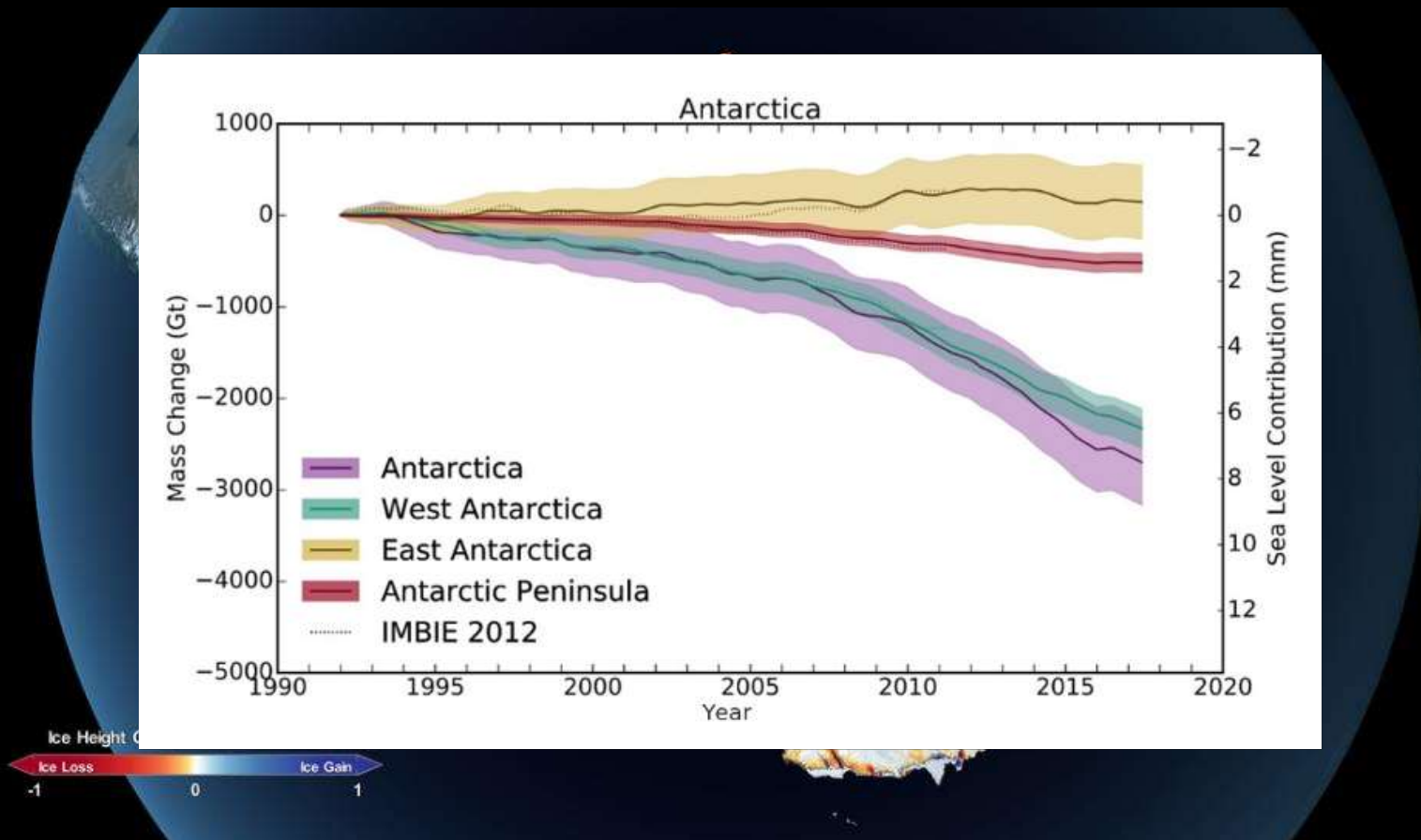
(+ground water pumping
+reservoir storage
+hydrological cycle)

Grønlands Indlandsis

Øget overflade smelt og et dynamisk respons af iskappen



Antarktis (navnlig WAIS)

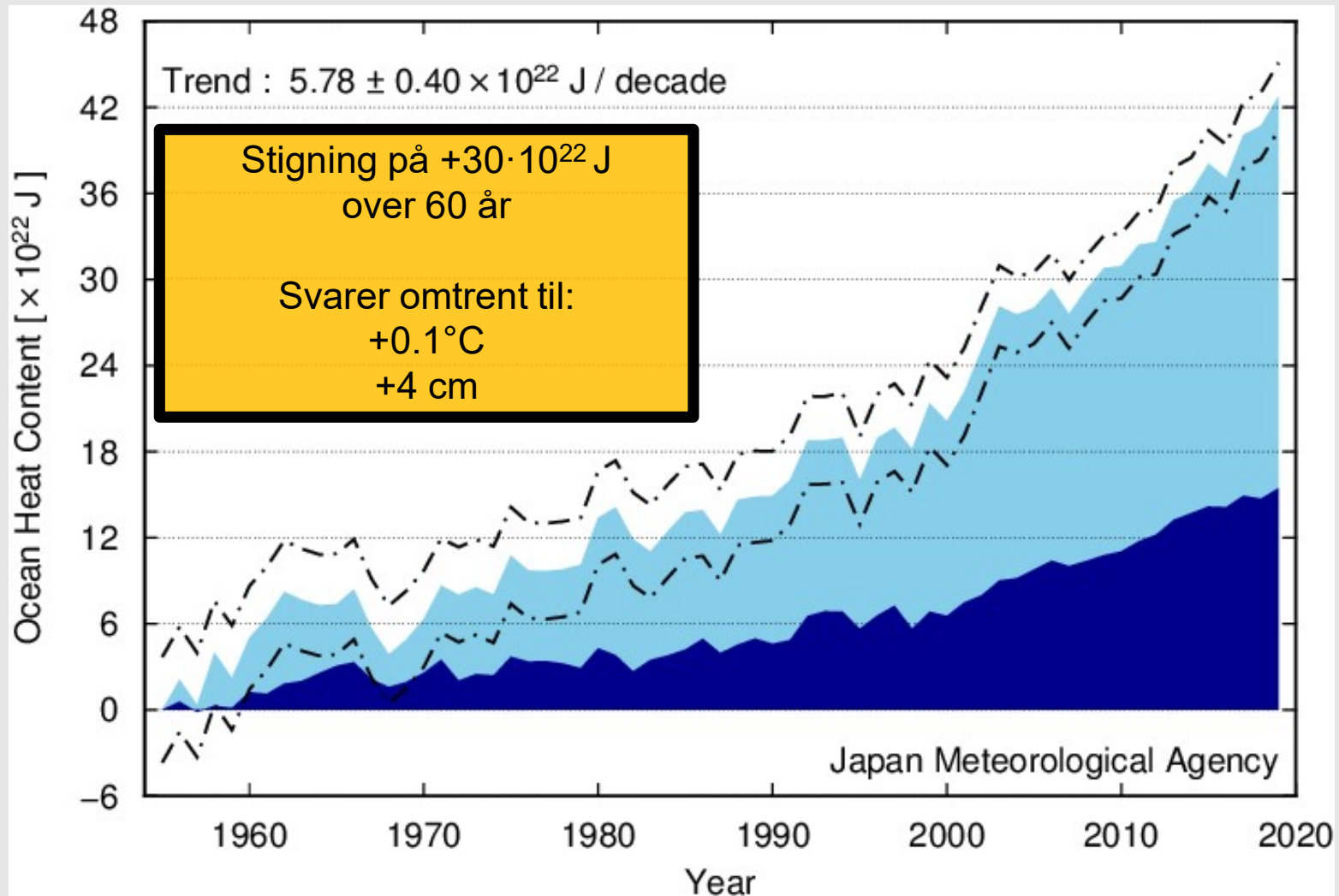


200.000 gletsjere og iskapper



Small total volume (>0.5m)
But very important because they can react fast to climate change

Global Ocean Heat Content



Havniveauet stiger 3,2 mm/år

Nuværende budget

25% fra Greenland

10% fra Antarctica

30% fra Steric expansion (udvidelse)

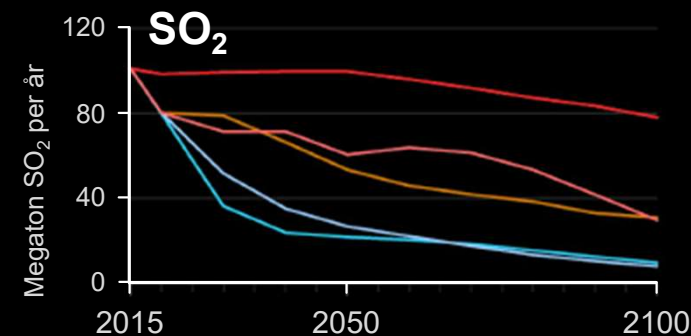
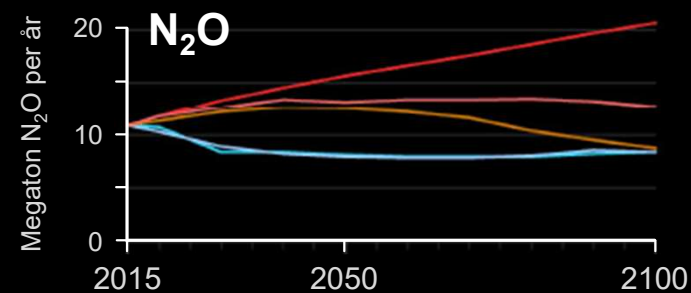
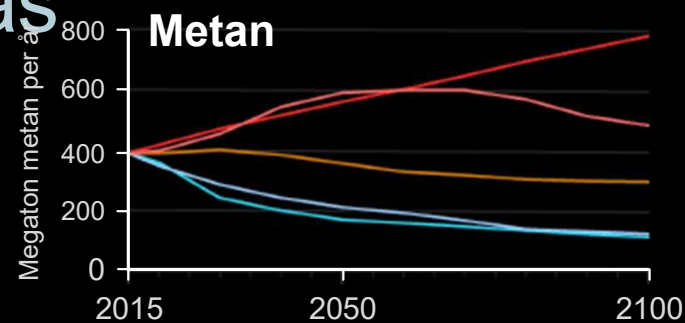
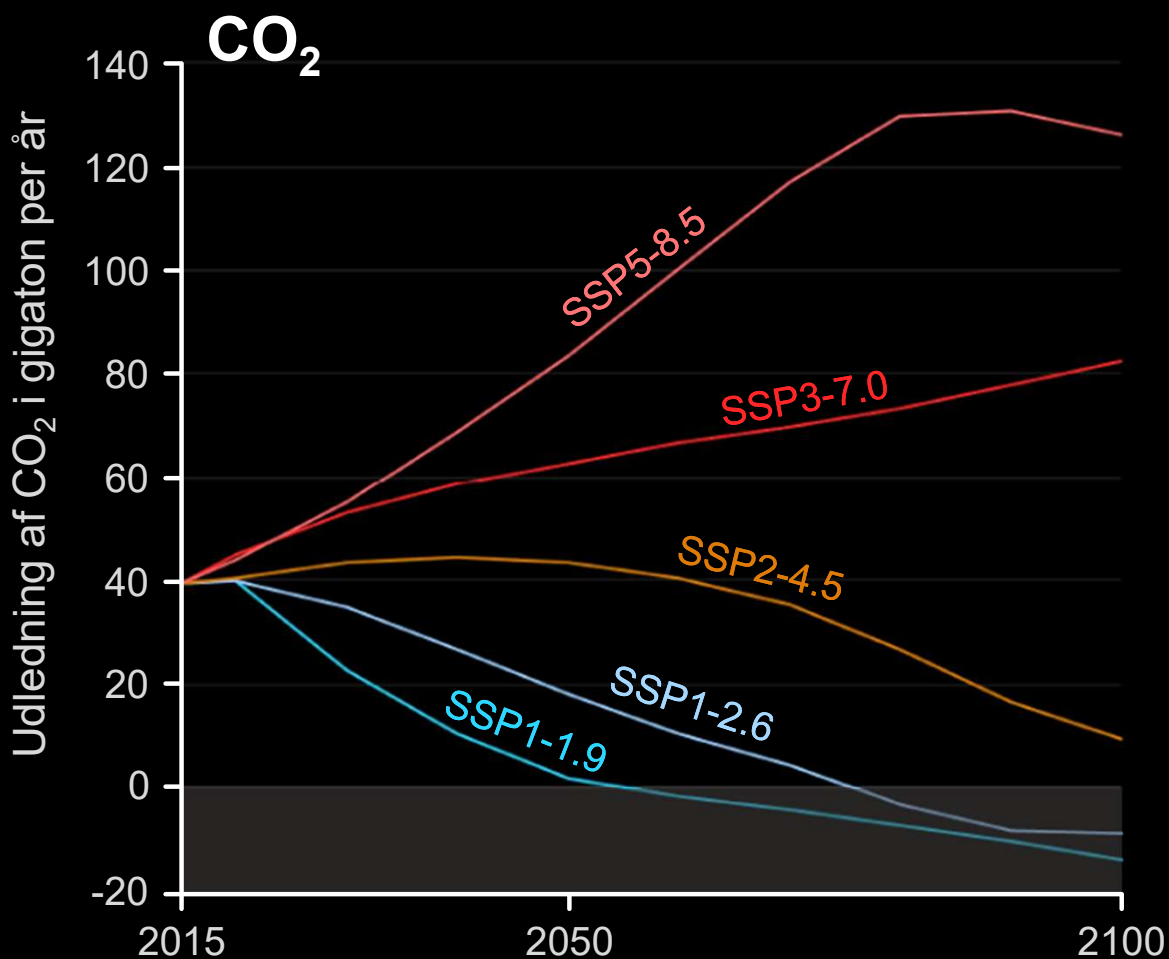
25% mindre gletsjere

(+mindre bidrag)

Mennesket har påvirket klimaet

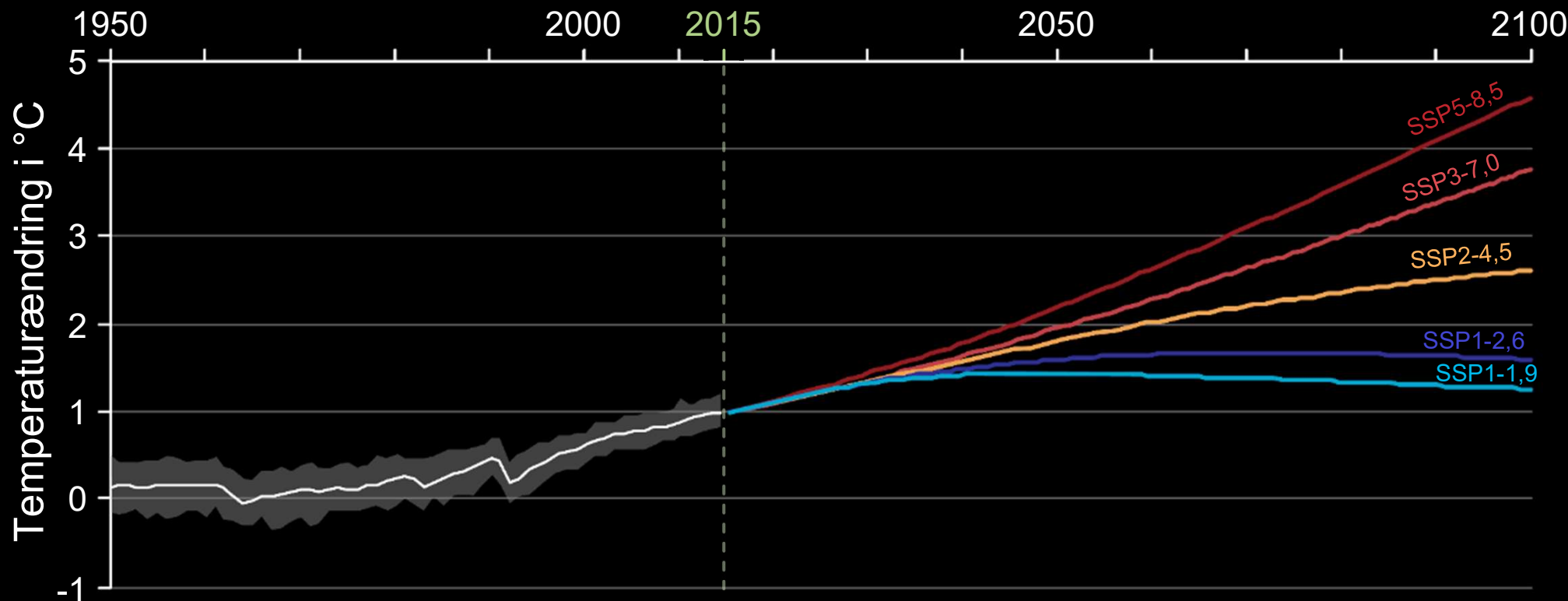


Scenarier for udslip af drivhusgas

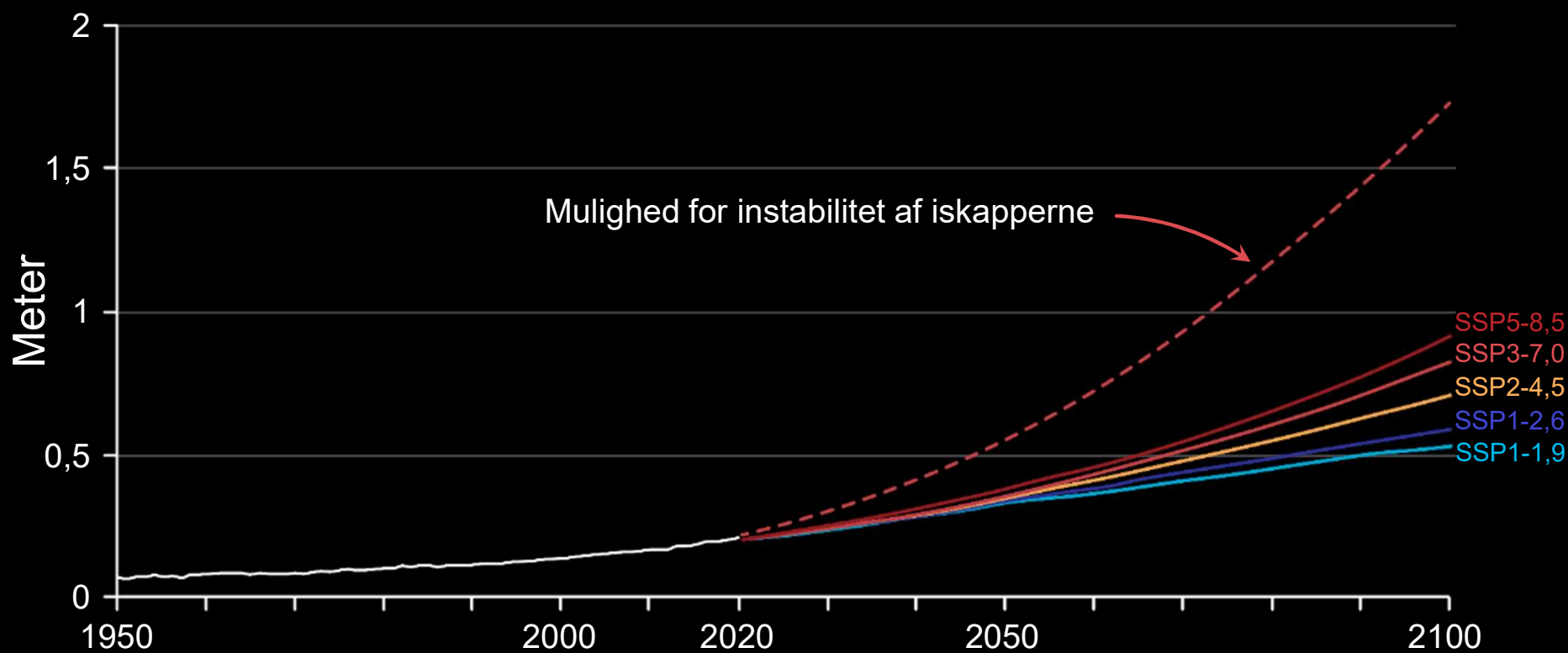


Ændringen i global temperatur

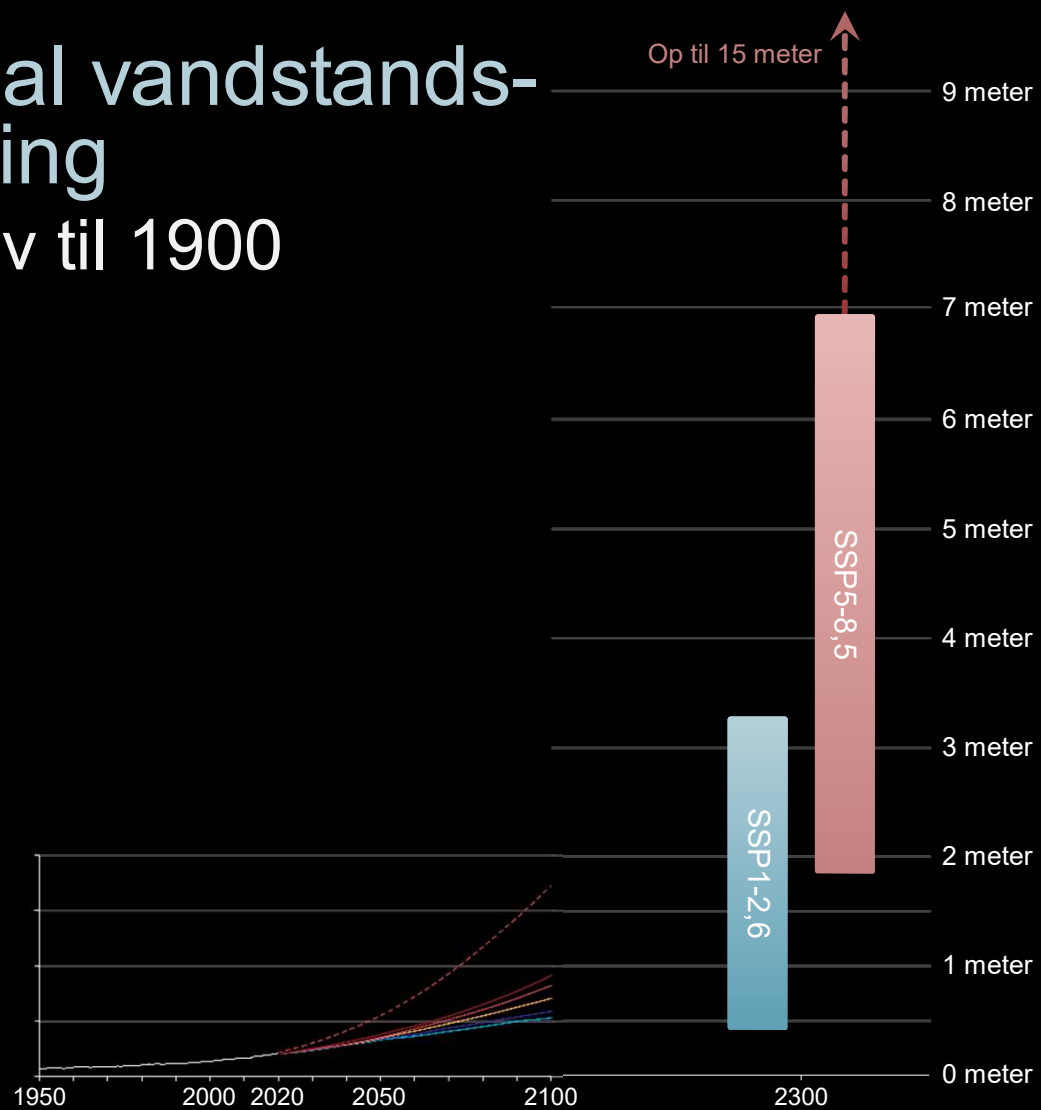
Relativ til 1850-1900



Global vandstandsstigning Relativ til 1900



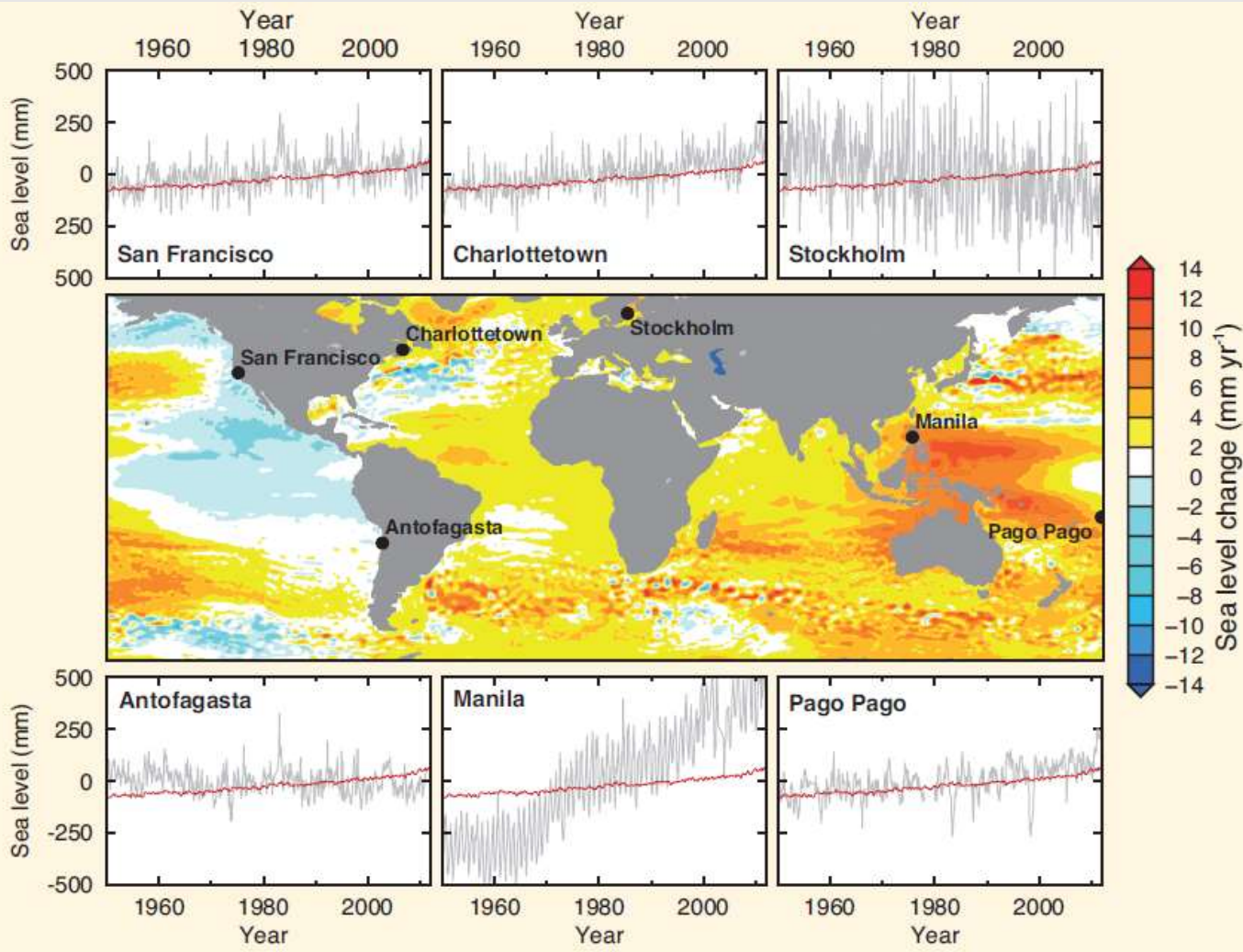
Global vandstands- stigning Relativ til 1900

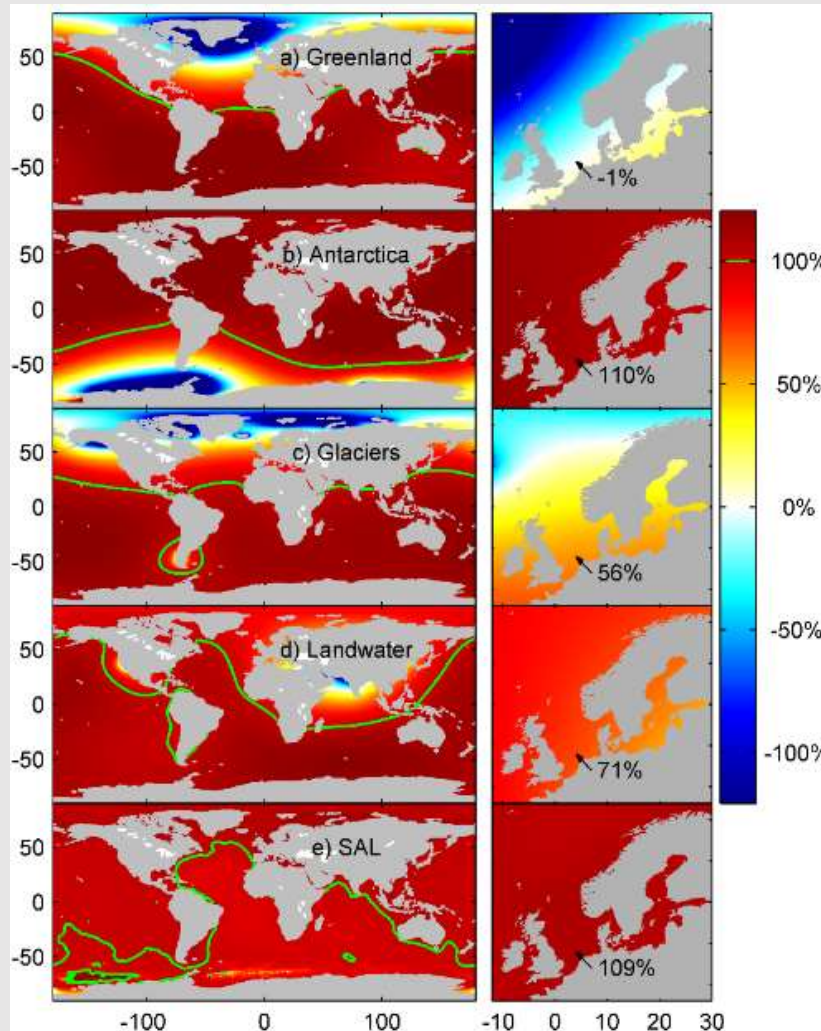


Regional vandstand (IPCC)

It is *very likely* that in the 21st century and beyond, sea level change will have a strong regional pattern, with some places experiencing significant deviations of local and regional sea level change from the global mean change. Over decadal periods, the rates of regional sea level change as a result of climate variability can differ from the global average rate by more than 100% of the global average rate. By the end of the 21st century, it is *very likely* that over about 95% of the world ocean, regional sea level rise will be positive, and most regions that will experience a sea level fall are located near current and former glaciers and ice sheets. About 70% of the global coastlines are projected to experience a relative sea level change within 20% of the global mean sea level change. {13.6.5, Figures 13.18 to 13.22}

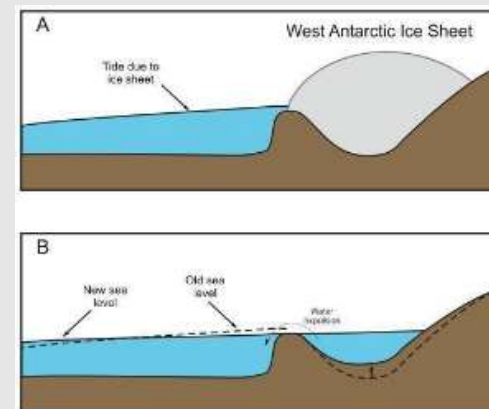
Regionalt

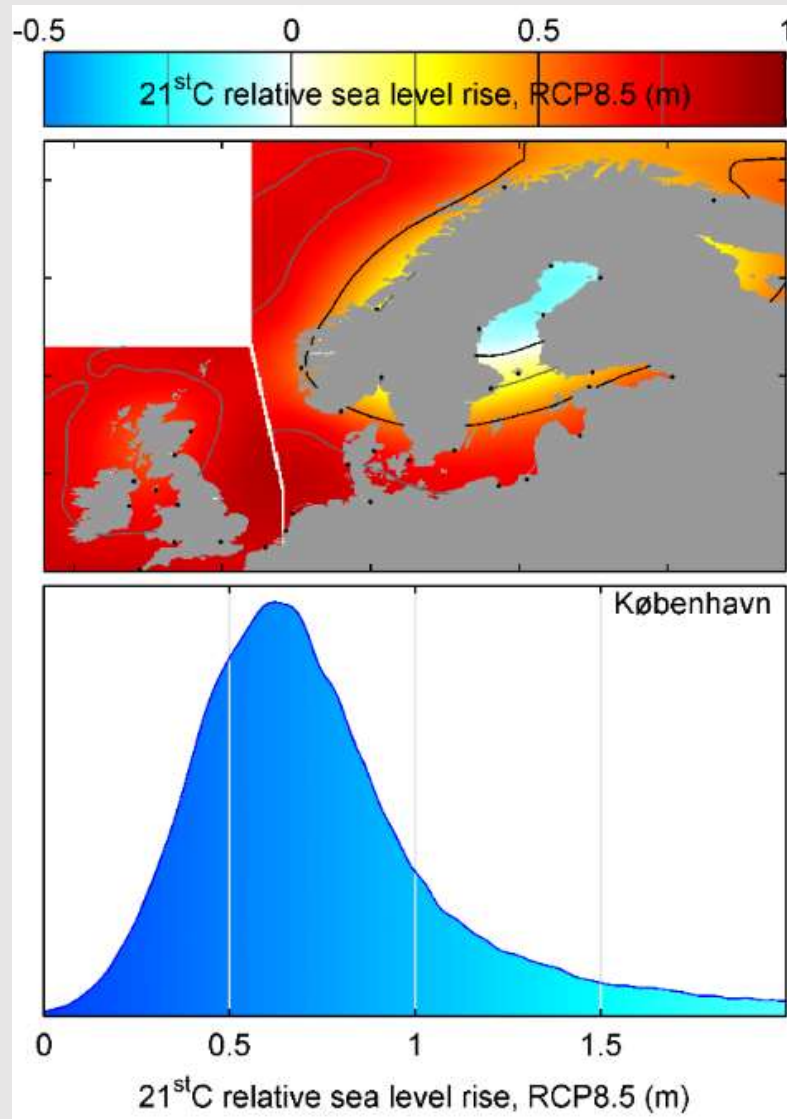




Regionale fremskrivninger AR5 rcp8.5

- Static-equilibrium (Geoid) Fingerprints
- Dynamic Sea Level Rise
- Glacial Isostatic Adjustment





Huge waves engulf the seafront in Porthleven, Cornwall.
Photograph: Annabel May Oakley-Watson/REX

Resumé: beregninger af fremtidens klima



Fortsat udslip af drivhusgasser medfører:

- Forandringer i alle klimasystemets komponenter
- Fortsatte havniveau stigninger.

At begrænse klimaændringer vil kræve:

- Store og vedvarende reduktioner i udledning af drivhusgasser.



CLIMATE

CENTRAL

Tak for
opmærksomheden.....

