

Introduction Methodology Results Conclusions

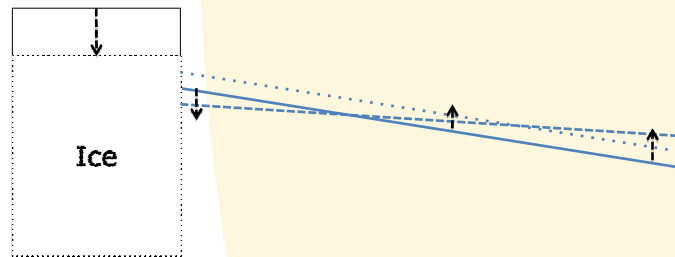
Introduction

- Sea-level change is not a uniform process
- Causes of regional variability:
 - Steric variations (temperature and salinity changes)
 - Ocean dynamics (circulation changes)
 - Gravitational effects (land ice mass changes)
 - Glacial Isostatic Adjustment (GIA)

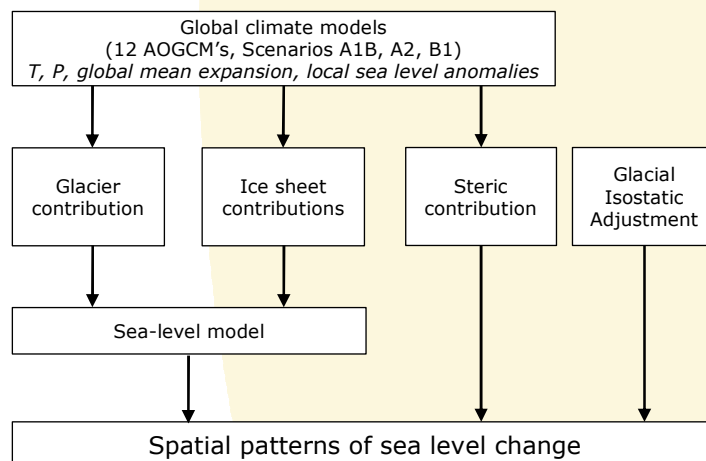
Universiteit Utrecht

IMAU

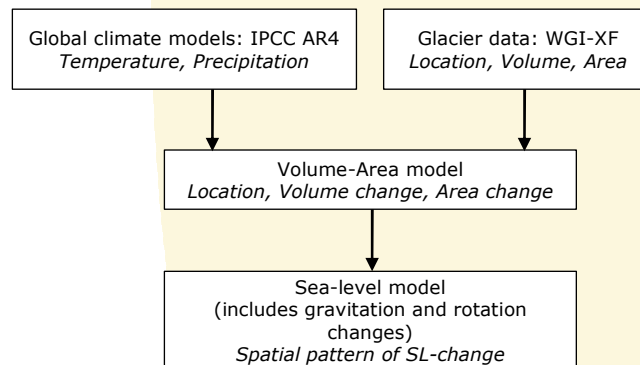
Gravitational effect



Methodology



Example – glacier contribution



Universiteit Utrecht



Global mean

- All results shown are IPCC SRES scenario A1B

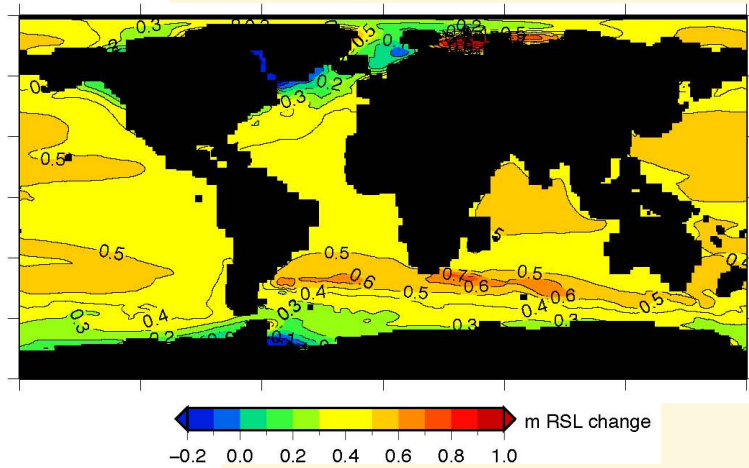
Contribution	Ensemble mean global mean sea-level change (m \pm 1 sigma)
Steric	0.21 \pm 0.09
Glaciers	0.17 \pm 0.04
Greenland ice sheet	0.08 \pm 0.02
Antarctic ice sheet	0.01 \pm 0.02
GIA	-0.004 \pm 0.003
Total	0.46 \pm 0.11



Universiteit Utrecht



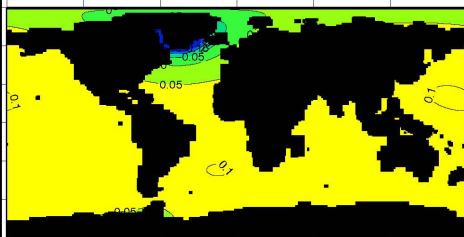
Total projection



Universiteit Utrecht



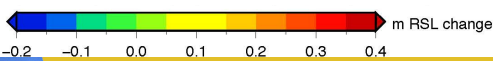
Spatial patterns (contributions)



AIS & GIS

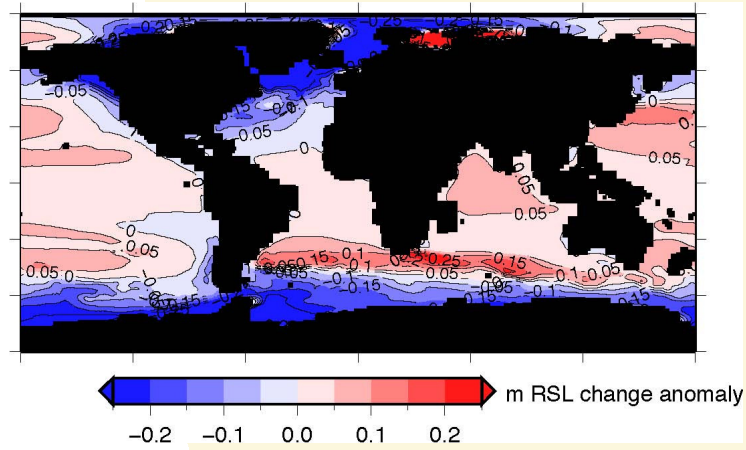
Glaciers

Steric



GIA

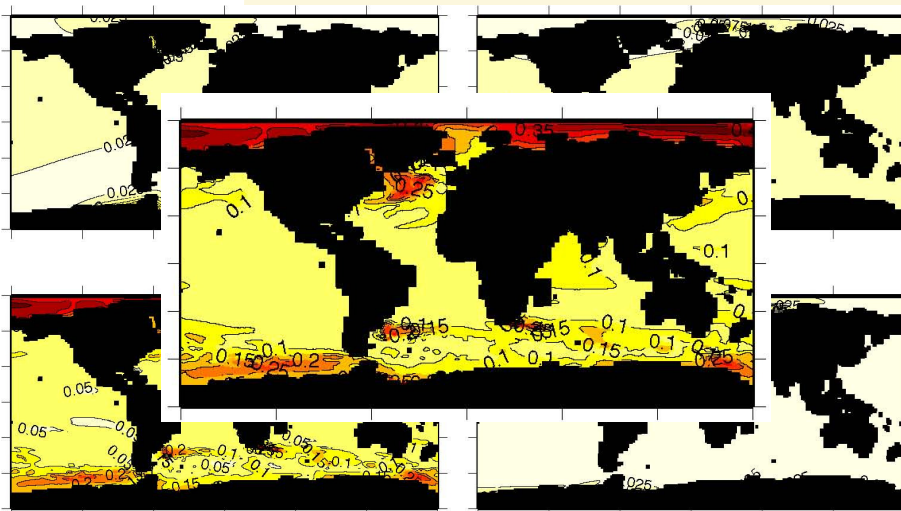
Anomaly w.r.t. global mean



Universiteit Utrecht



Standard deviations



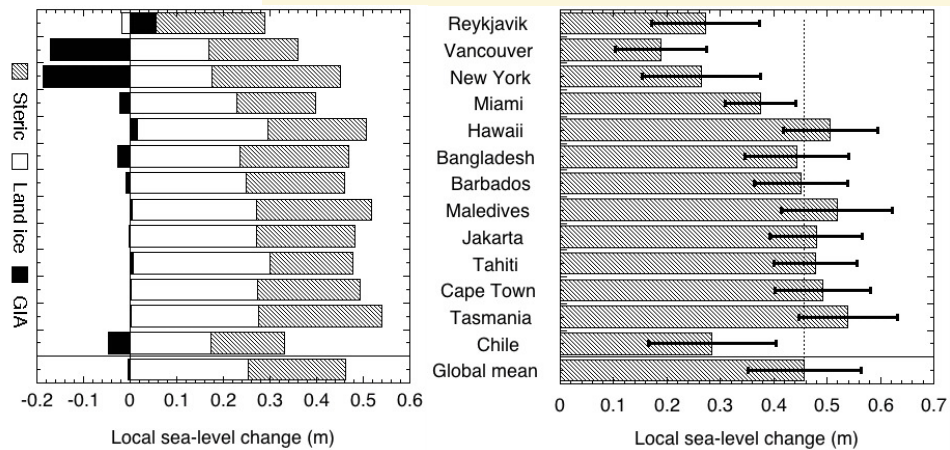
Steric

0.0 0.1 0.2 0.3 0.4 0.5 m RSL change

GIA



Coastal locations



Universiteit Utrecht



Conclusions

- Sea-level change is spatially highly variable
- Largest contributions:
 - Steric contribution
 - Land ice mass changes
- GIA not negligible, large in some locations
- Uncertainty dominated by steric contribution

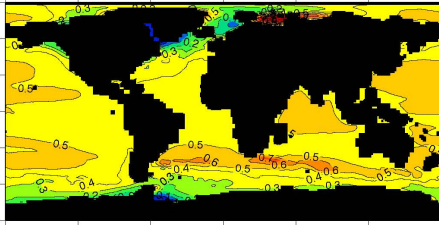


Universiteit Utrecht

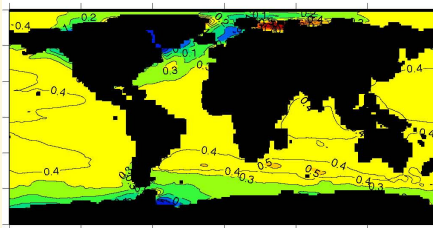


Scenarios

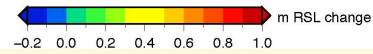
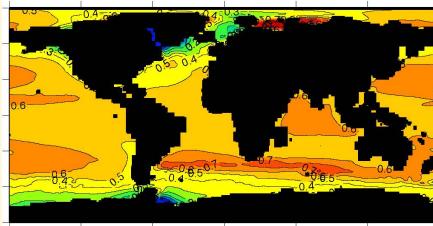
A1B



B1



A2

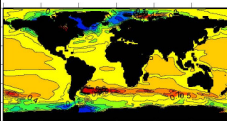


Universiteit Utrecht

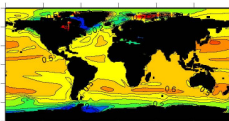


Total projection per AOGCM

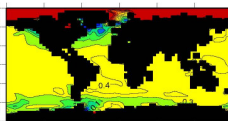
BCCR-BCM2.0



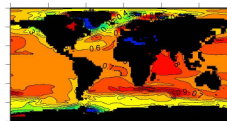
GFDL-CM2.0



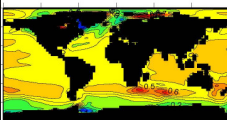
GISS-ER



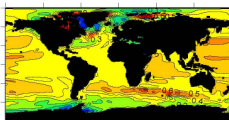
MIROC3.2(hires)



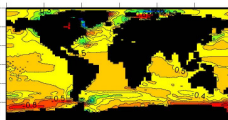
CGCM3.1(T47)



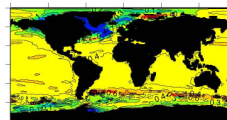
GFDL-CM2.1



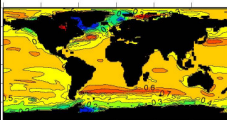
GISS-AOM



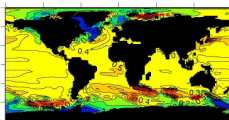
NCAR-PCM



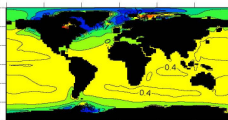
ECHAM5/MPI-OM



GISS-EH



MRI-CGCM2.3.2



UKMO-HadCM3

