

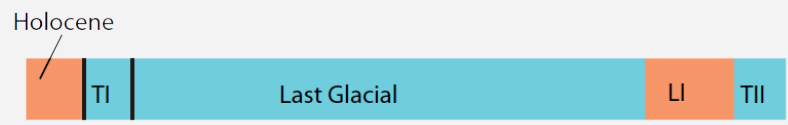
# WCC 2: Sea level rise

*CTB3300WCx: Introduction to Water and Climate*

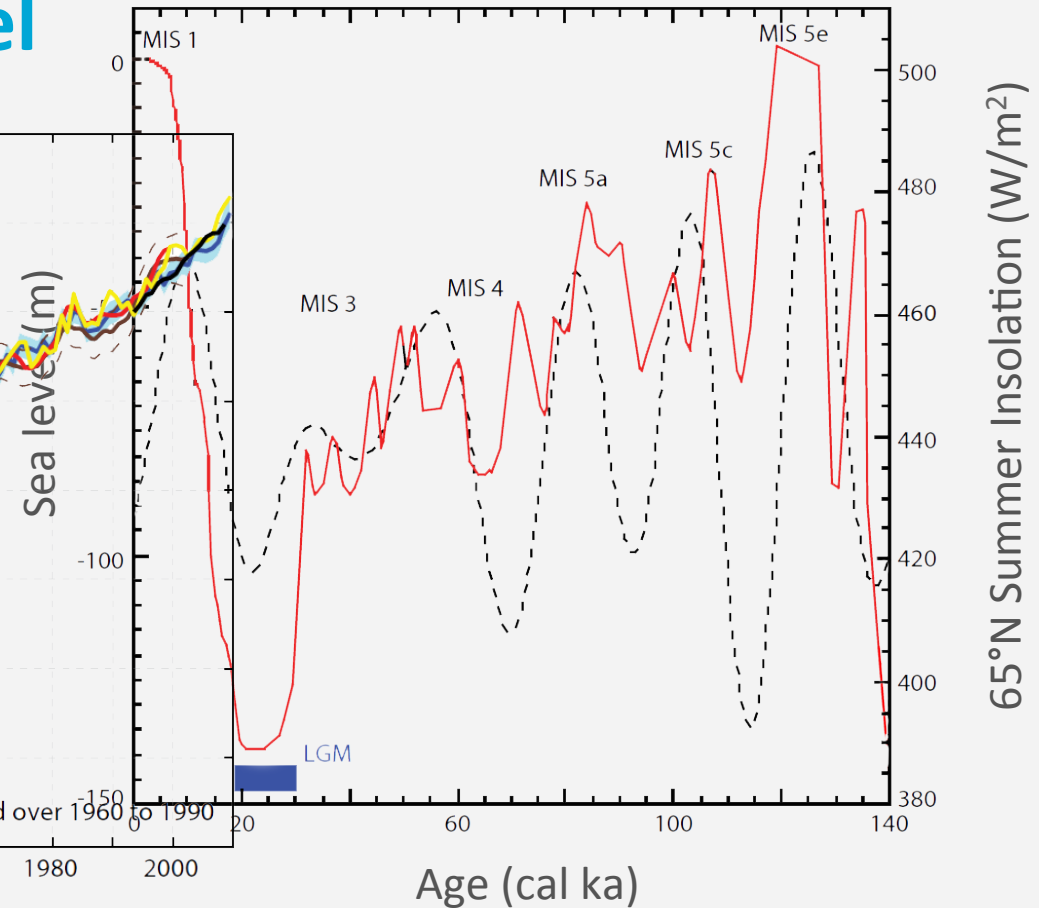
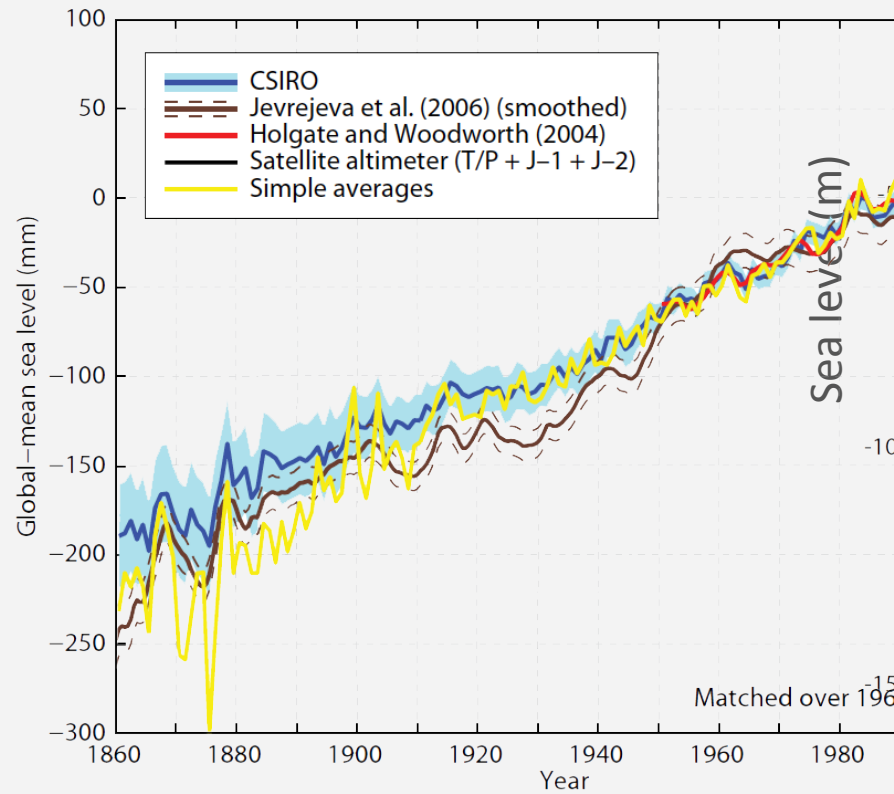
Dr. Riccardo Riva

# Contents

- Sea level rise in the past
- Causes of sea level rise
- Regional sea level changes
- Future changes



# Global mean sea level



Matched over 1960 to 1990

# Three questions

*So, sea level is rising.*

- 1. But why?*
- 2. And what about my doorstep?*
- 3. And my (grand)children?*

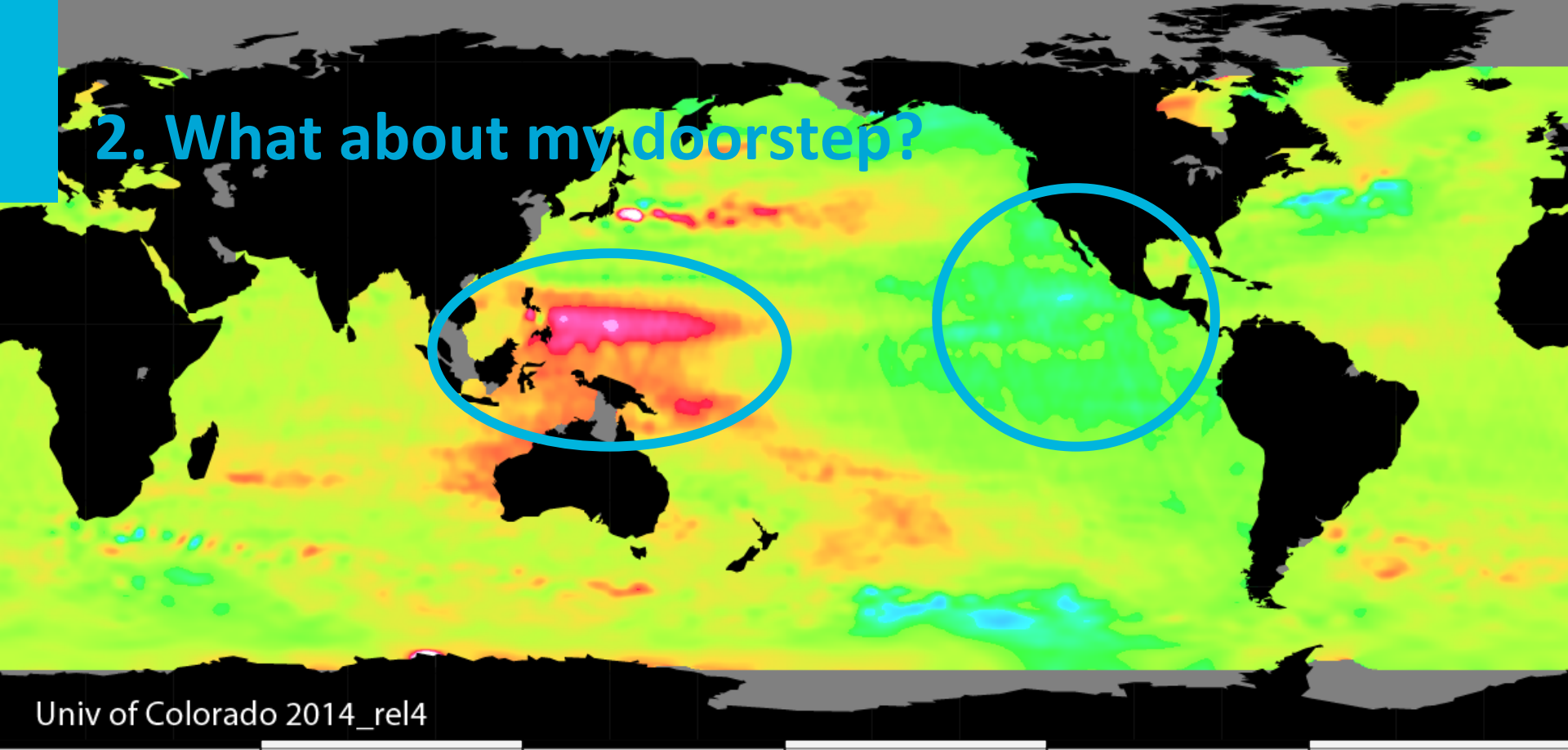
# 1. Causes of sea level rise

*Thermal Expansion*

*Mass changes*

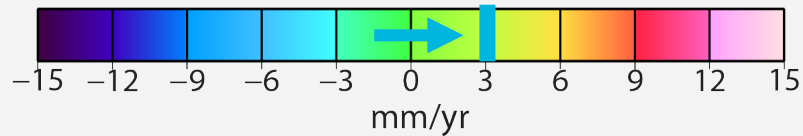


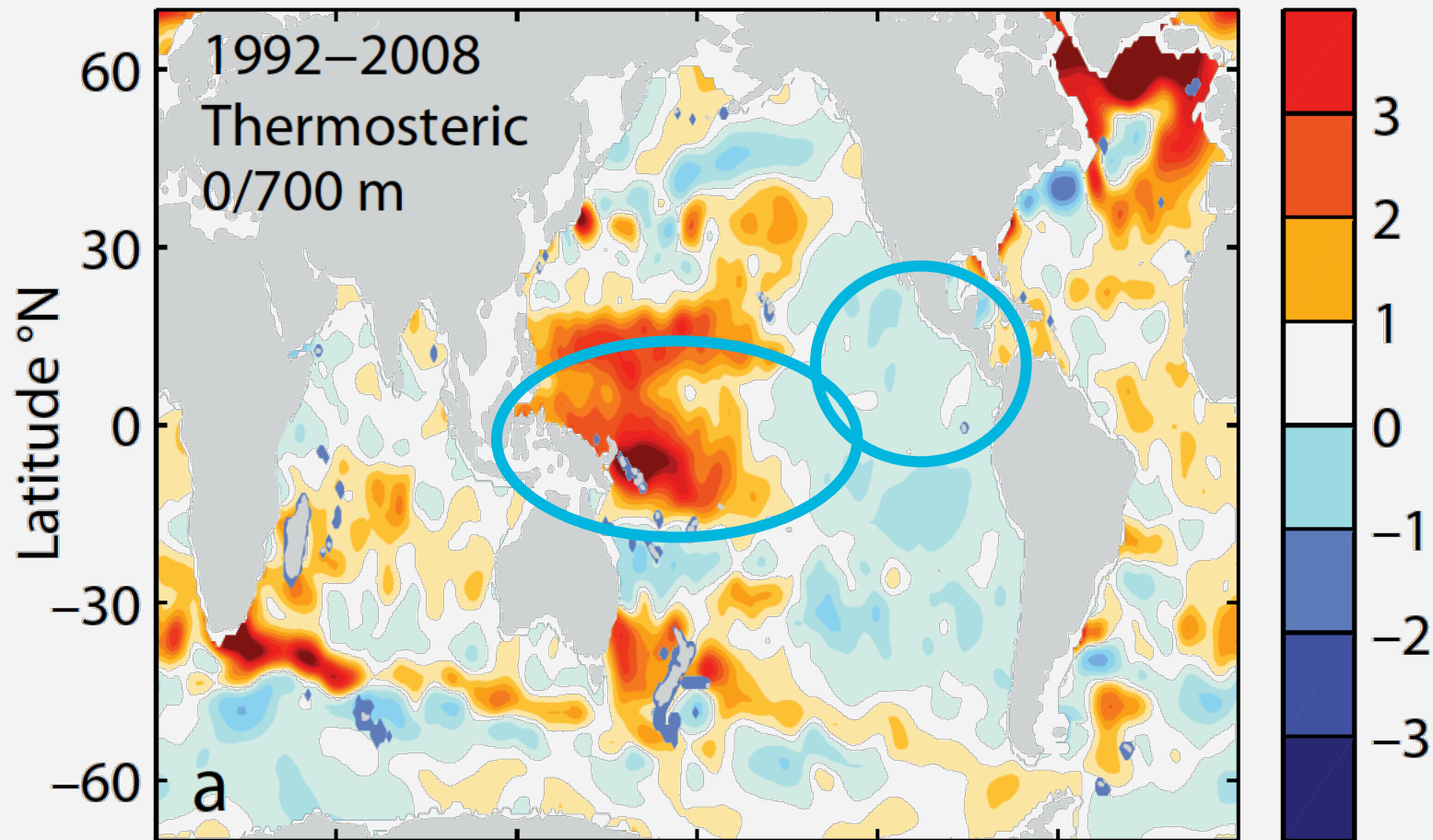
## 2. What about my doorstep?



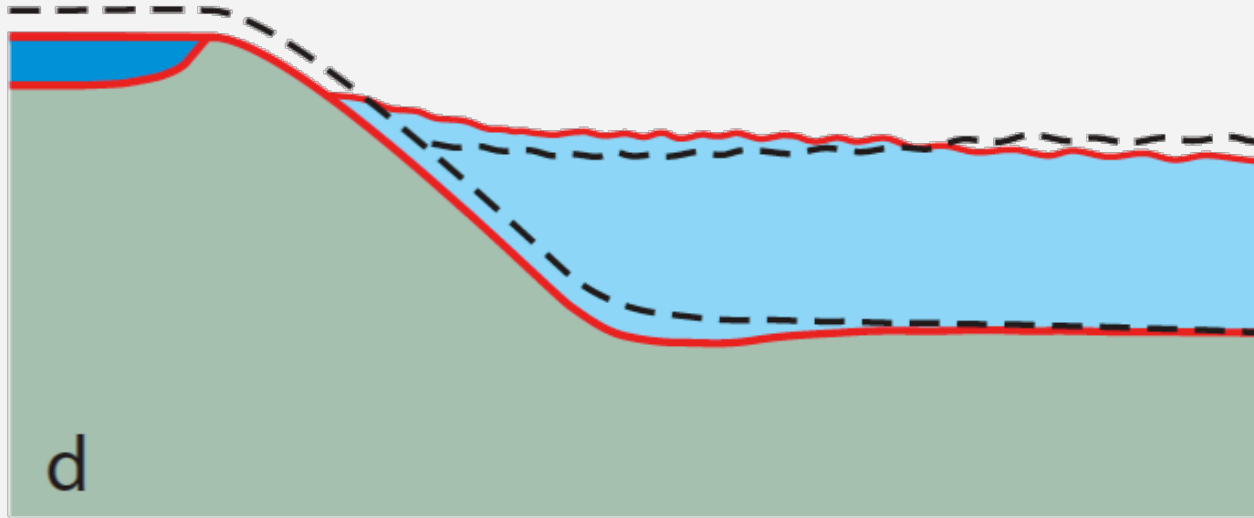
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Average sea level rise: **3.2 mm/yr ± 0.4**

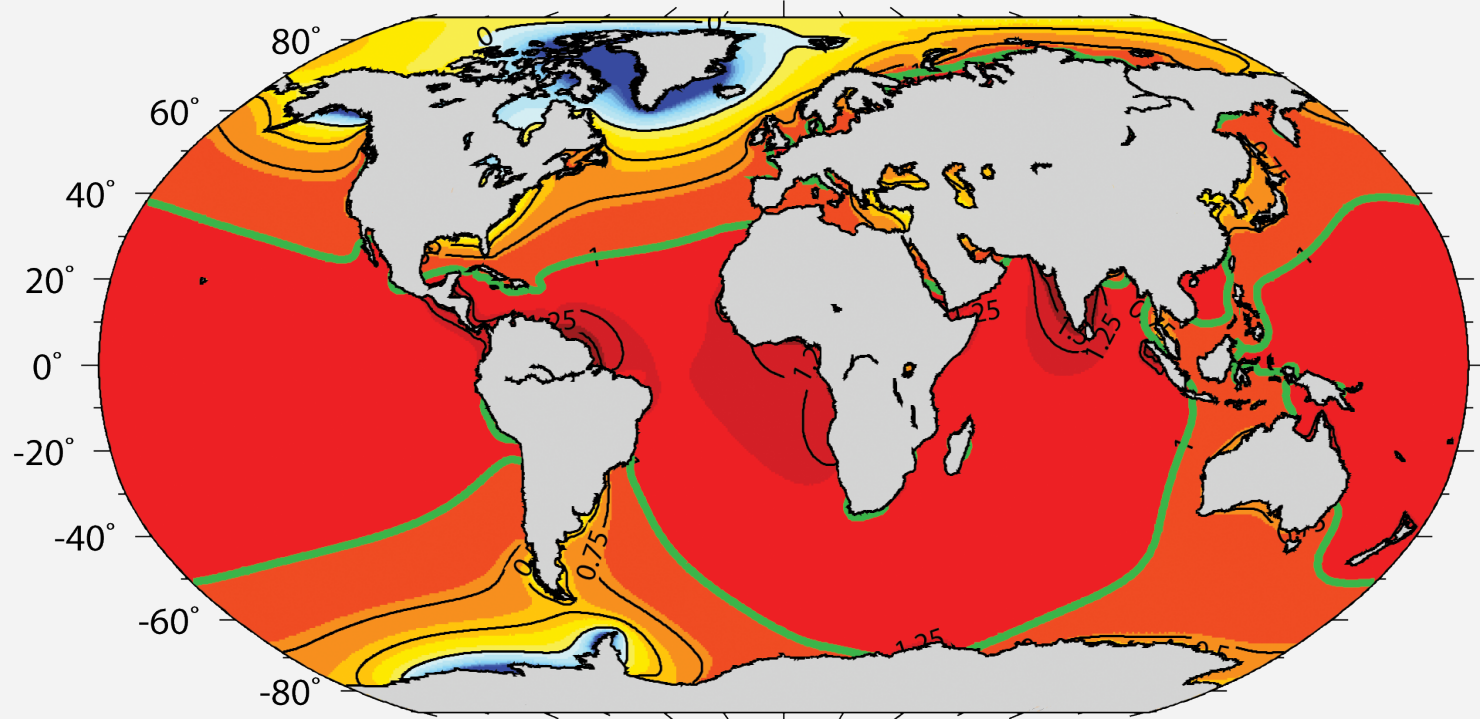




# Water redistribution over land



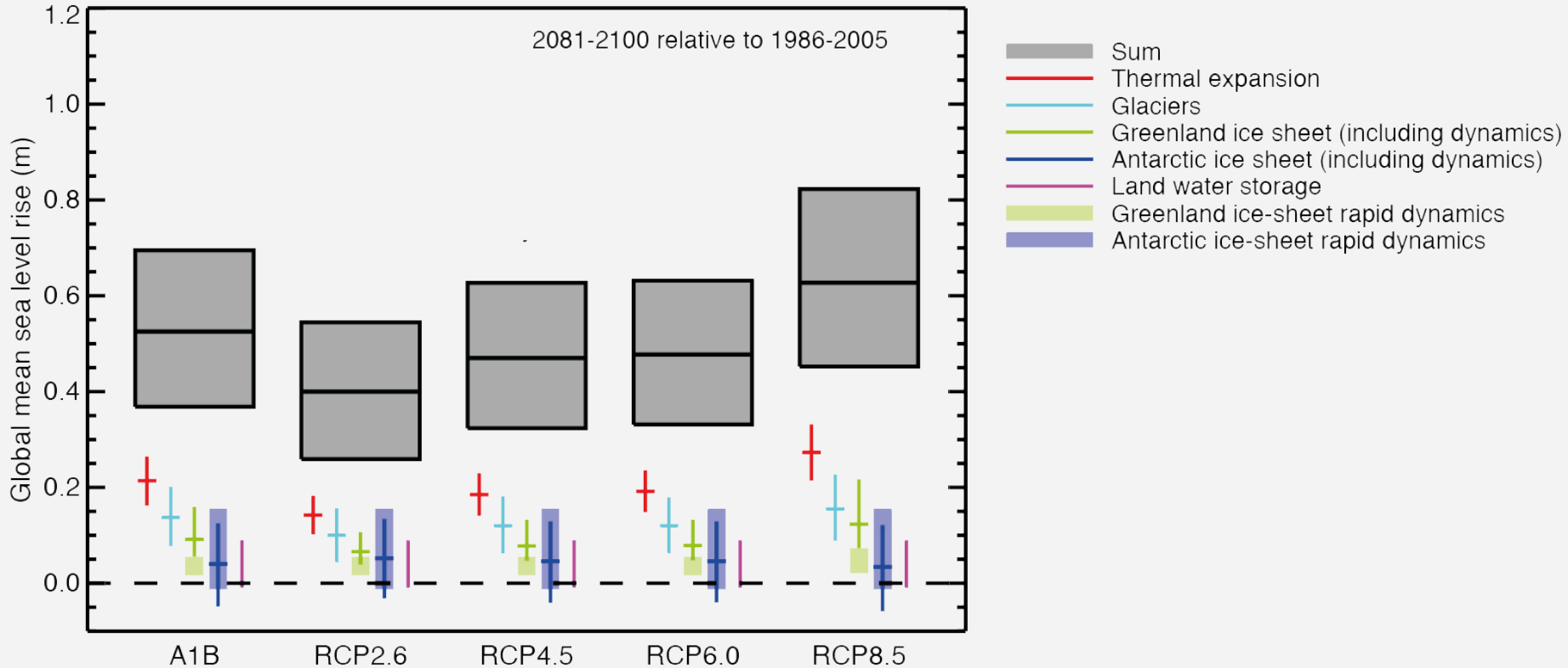




Relative sea-level change rates (mm/yr)

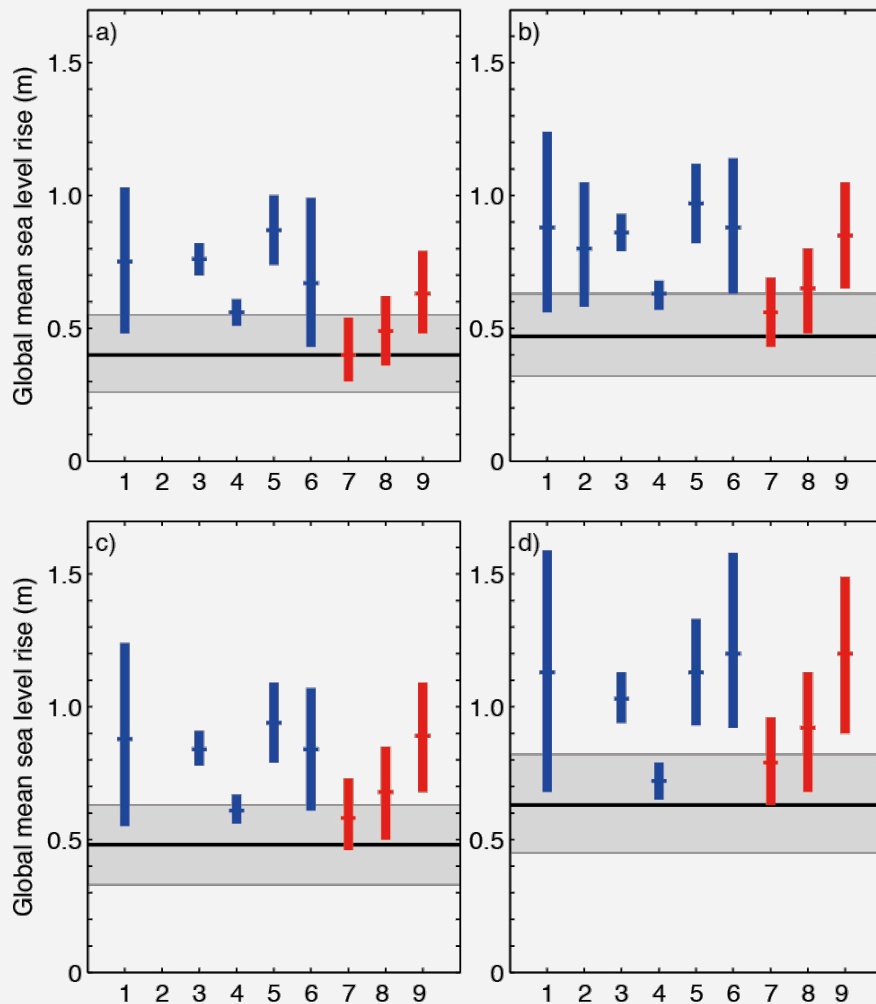
### 3. And my (grand)children?

# Sea level rise contributions



# Semi-empirical projections

- of RCP's of IPCC AR5



# Summary

- Sea level has been rising for a long time and will keep doing so.
- It is rising because of thermal expansion and influx of freshwater.
- Regional changes are very different from the global mean.
- Future changes are highly uncertain, but likely amounting to several decimeters by the end of the century.

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