

IPCC Special Report on The Ocean and Cryosphere in a Changing Climate



Sea Level Rise and Implications for Low Lying Islands, Coasts and Communities

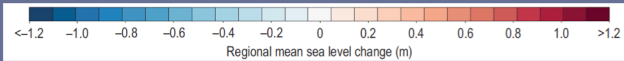
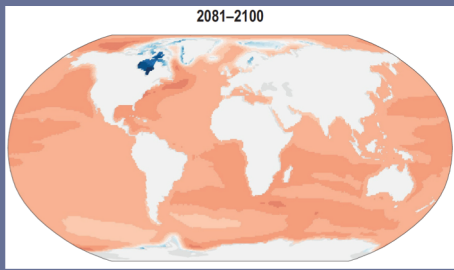
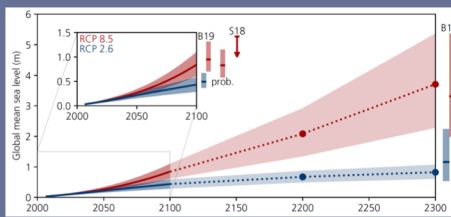
M. Oppenheimer, B. Glavovic, J. Hinkel, R. S. W. van de Wal¹, A. Magnan, A. Abd-Elgawad, R. Cai, M. Cifuentes-Jara, R. DeConto, T. Ghosh, J. Hay, F. Isla, B. Marzeion, B. Meyssignac, Z. Sebesvari

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Physical Basis

Projections:

1. CMIP5 based; 2. Antarctica contribution updated; 3. Time horizon 2300



Why uncertainties large:

Antarctica partly marine based, physics in those regions poorly understood

Marine, Ice Sheet Instability,

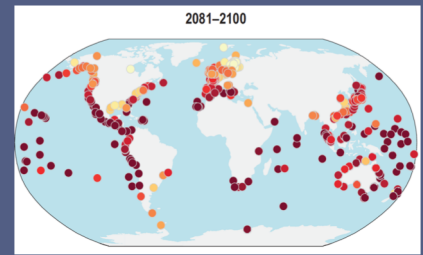
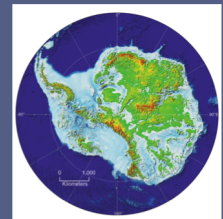
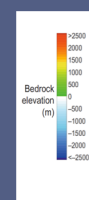
Marine Ice Cliff Instability,

Hydrofracturing,

Basal melt,

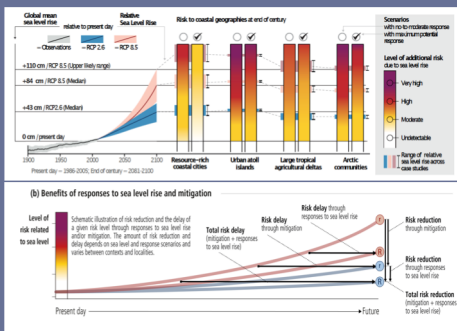
Grounding line retreat,

Basal sliding

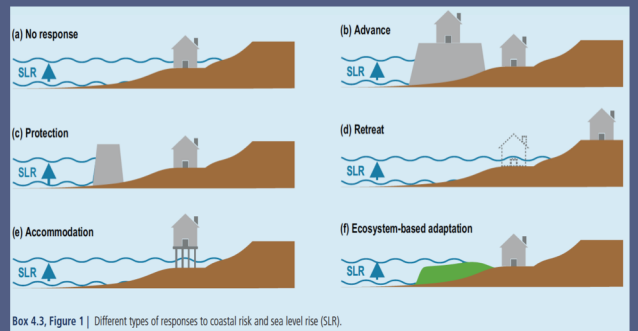


Exposure, Vulnerability, Impacts, Risks and Responses

Risk related to sea level rise:



Response options:



Box 4.3, Figure 1 | Different types of responses to coastal risk and sea level rise (SLR).

Conclusions

Physics:

Major differences with AR5 on long term, for high emission scenarios:

RCP2.6 in 2100 SROCC: 0.43 (0.29-0.59)	AR5: 0.44 (0.28 - 0.61) m
RCP8.5 in 2100 SROCC: 0.84 (0.61-1.10)	AR5: 0.74 (0.52 - 0.98) m
RCP2.6 in 2300 SROCC: 0.60 - 1.10	AR5: 0.41 - 0.85 m
RCP8.5 in 2300 SROCC: 2.28 - 5.37	AR5: 0.92 - 3.59 m

User aspects:

- Outside the likely range: use expert elicitation results for risk adverse users
- Deep uncertainty for Antarctica beyond 2100
- Recurrence of extremes rapidly increasing in near future
- Coastal ecosystems already impacted
- Diversity of adaptation responses used and needed

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