CLIMATE ANALYTICS

Avoiding impacts and impacts avoided

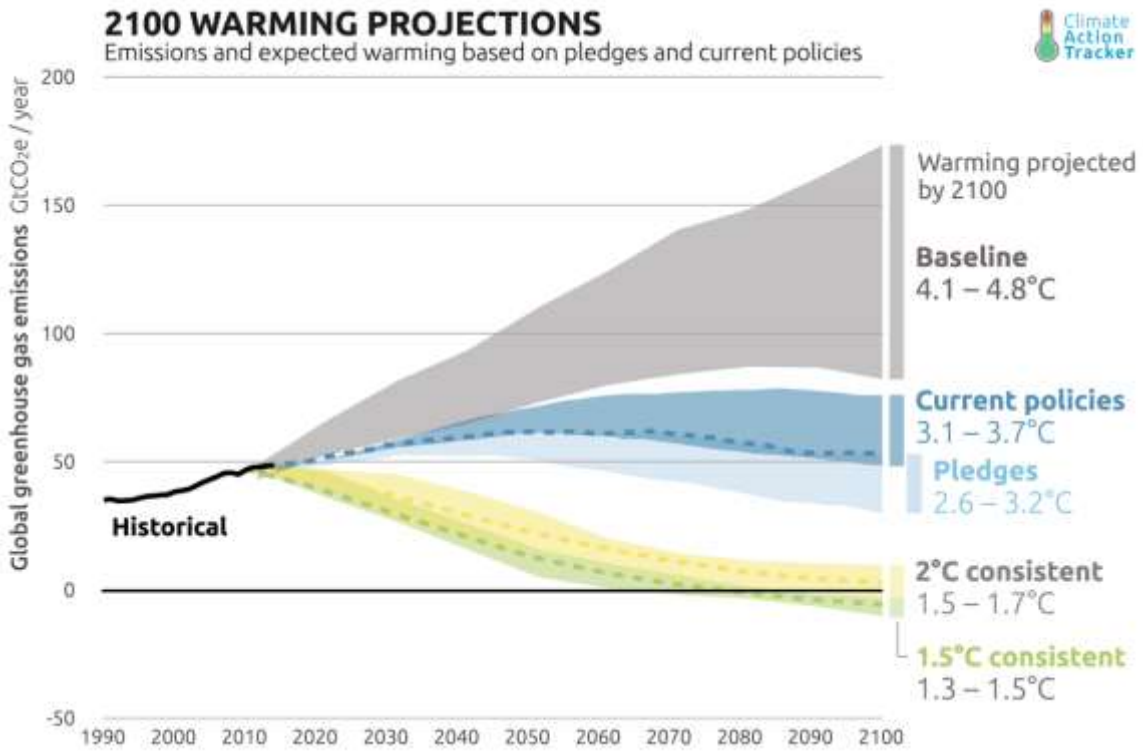
New frontiers for climate impact research

Dr. Carl-Friedrich Schleussner

Climate Analytics

Objectives of climate impact science after Paris

- **Inform Mitigation:**
  - Impacts implied by countries NDCs
  - Impacts avoided by increasing mitigation ambition to achieve Paris Agreement goals



Objectives of climate impact science after Paris

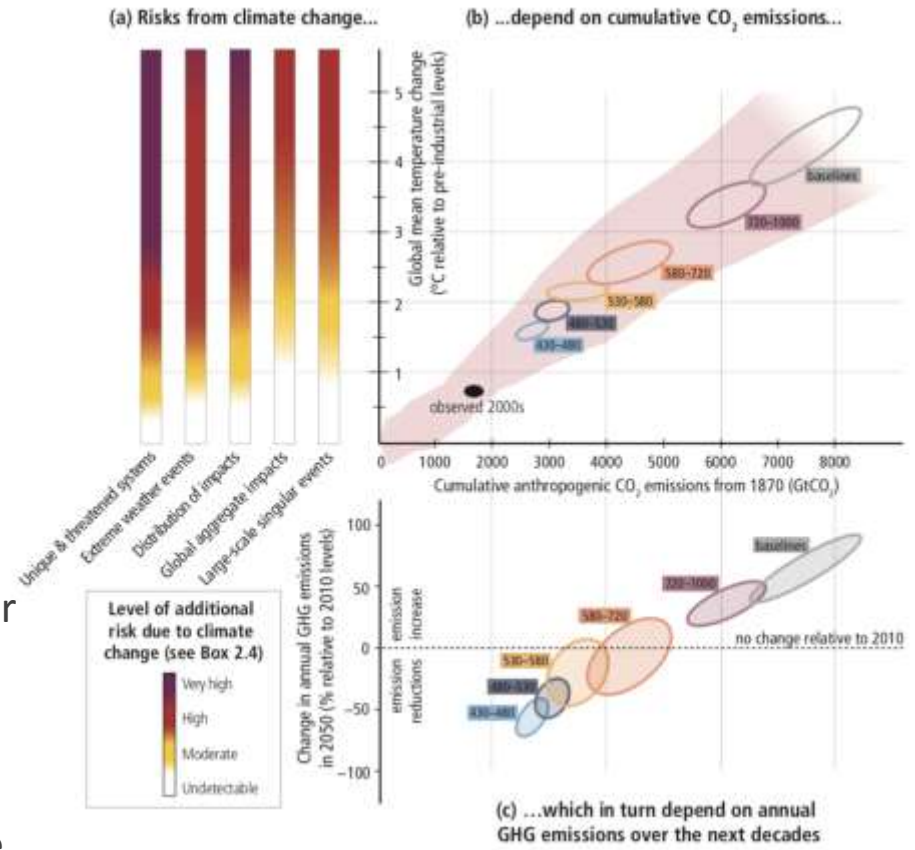
CLIMATE ANALYTICS

- **Inform Mitigation:**
  - Impacts implied by countries NDCs
  - Impacts avoided by increasing mitigation ambition to achieve Paris Agreement goals
- **Adaptation:**
  - Implementation is an imperative under the international climate regime going forward
  - Requires robust science to inform adaptation

GREEN CLIMATE FUND

Climate impact science to inform mitigation action

- **Objective:**
  - Inform about future impacts and risks from climate change and impacts avoided for different levels of mitigation ambition
- **Time horizon:**
  - Commonly until 2100
  - Ranges from pre-industrial to millennia
- **Context and Scale:**
  - Global to regional
  - Linked to concentration scenarios or warming levels
- **Sustainable development context:**
  - Indirect through scenarios of future socio-economic developments (SSPs) and SDG linkages

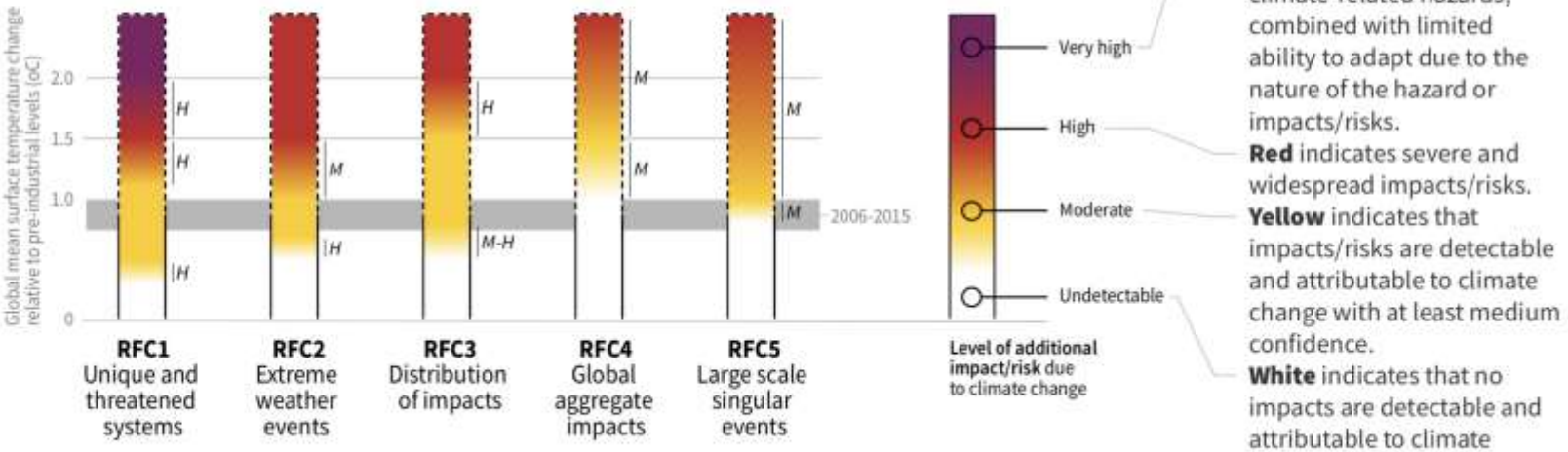


IPCC SYR 2014

Differentiate between 0.5°C warming increments

Five Reasons For Concern (RFCs) illustrate the impacts and risks of different levels of global warming for people, economies and ecosystems across sectors and regions.

Impacts and risks associated with the Reasons for Concern (RFCs)

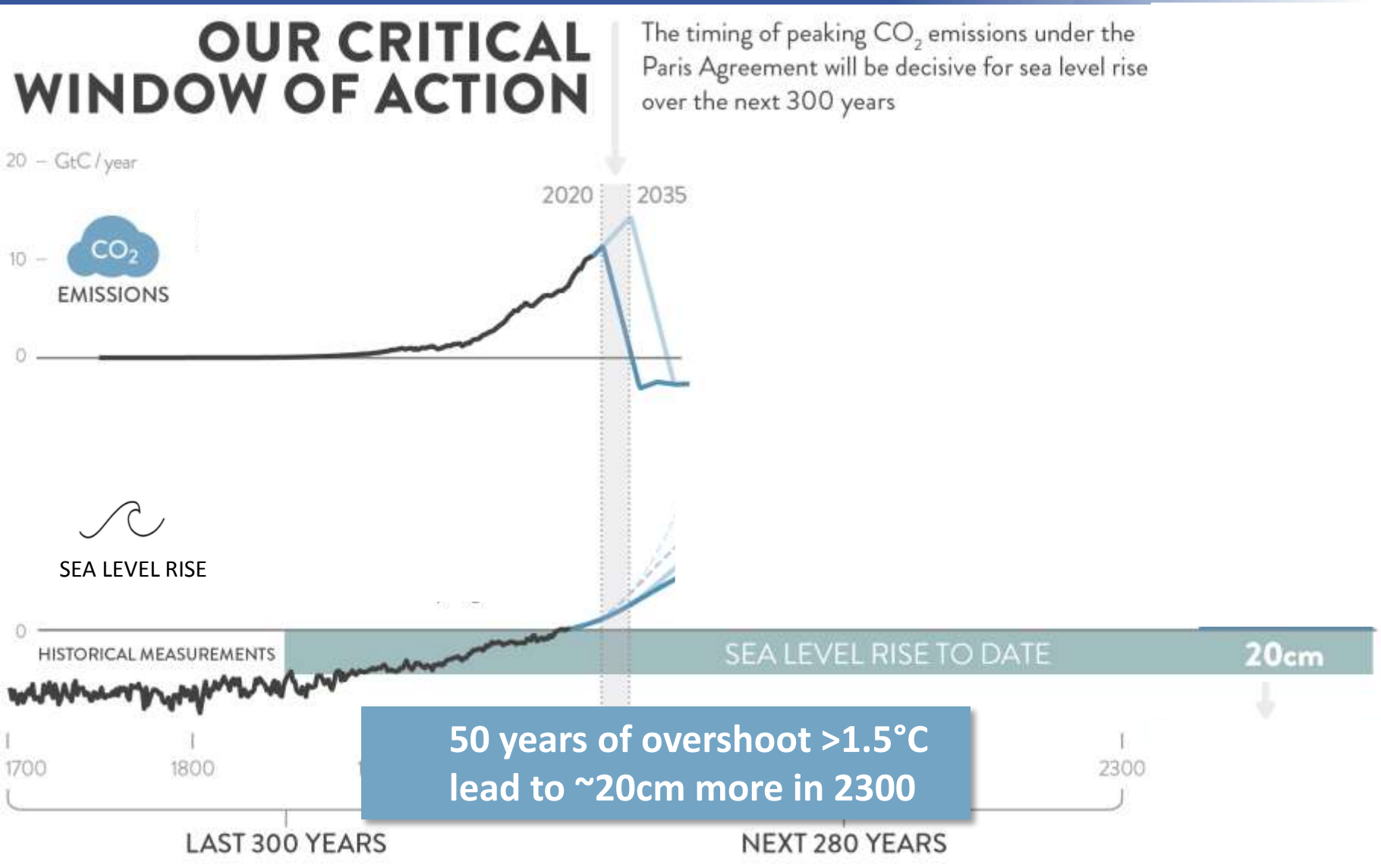


Purple indicates very high risks of severe impacts/risks and the presence of significant irreversibility or the persistence of climate-related hazards, combined with limited ability to adapt due to the nature of the hazard or impacts/risks.
Red indicates severe and widespread impacts/risks.
Yellow indicates that impacts/risks are detectable and attributable to climate change with at least medium confidence.
White indicates that no impacts are detectable and attributable to climate change.

- SR1.5 has shown the significance of 0.5°C differences
- New research questions include e.g. impacts of overshoots

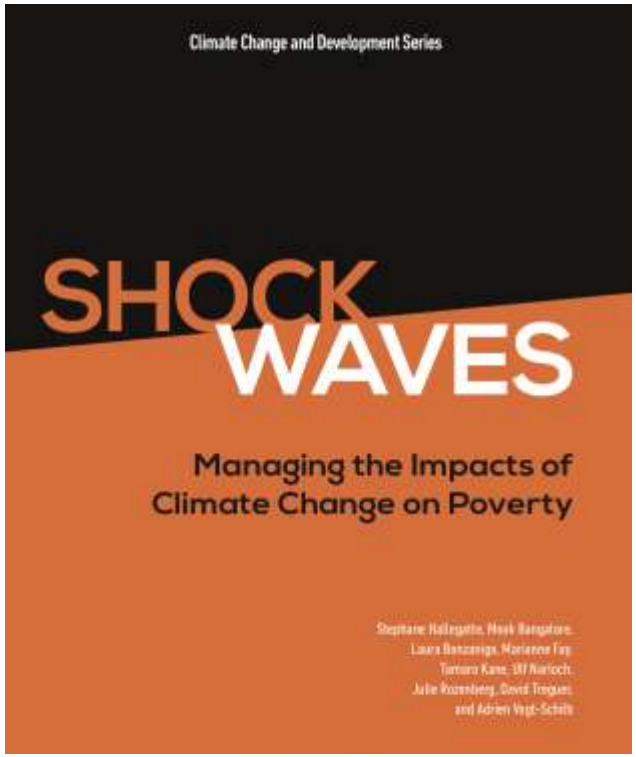
IPCC SR1.5 2018

The sea level rise example



Climate impact science/services for adaptation

- **Objective:**
  - Inform concrete (adaptation) action today.
- **Time horizon:**
  - Present day up to mid-century
- **Context and Scale:**
  - Local to national (bottom-up)
  - Implementation and stakeholder focus
  - Bound by local constraints
- **Sustainable development context:**
  - Direct, successful adaptation action needs to be inherently linked to a sustainable development context
  - Link to climate finance



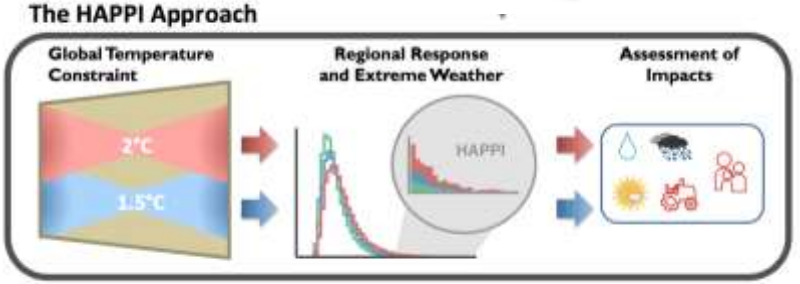
Policy choices	Climate change scenario				
	No climate change	Low-impact scenario		High-impact scenario	
	Number of people in extreme poverty by 2030	Additional number of people in extreme poverty due to climate change by 2030			
Prosperity scenario	142 million	+3 million		+16 million	
		Minimum +3 million	Maximum +6 million	Minimum +16 million	Maximum +25 million
Poverty scenario	900 million	+35 million		+122 million	
		Minimum −25 million	Maximum +97 million	Minimum +33 million	Maximum +165 million

World Bank 2016

Synergies

- **Climate impact assessments across space and time decisive to:**
  - Inform choice of adaptation measure (incremental vs. transformational)
  - Avoid maladaptation
  - Assess limits to adaptation and Loss and Damage

- **The 1.5°C special report**
  - Under current trends reached around ~2040s
  - Assesses innovative modelling approaches like the "Half a degree Additional warming, Prognosis and Projected Impacts (HAPPI)" model intercomparison project



https://climateanalytics.org/briefings/15c-key-facts/

Thank you!

@CA_Latest

ClimateAnalytics

company/climateanalytics-ggmbh