Cambridge Judge Business School Business Risk from Climate Change

CAMBRIDGE CLIMATE CHANGE BUSINESS RISK INDEX (Part 1)

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#CamClimateRisk

Centre for **Risk Studies**







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Application of AI to the Study of Environmental Risk

We are already seeing increased likelihood of extreme weather around the world





Attributing extreme weather to man-made climate change

2014 UK winter floods

(Schaller et al, 2016)

2017 Hurricane Harvey

(Trenberth et al, 2018)

2017 West African drought (Funk et al, 2018)

Carbon Brief

Extreme Sea Level Events and Coastal Flooding

"Extreme sea level events that are historically rare (once per century in the recent past) are projected to occur frequently (at least once per year) at many locations by 2050 in all emission scenarios, especially in tropical regions." (IPCC, 2019)



(a) Schematic effect of regional sea level rise on projected extreme sea level events (not to scale)



Climate Science "Jargon Busting"



INTERGOVERNMENTAL PANEL ON Climate change

The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change. The IPCC was created to provide policymakers with regular scientific assessments on climate change, its implications and potential future risks, as well as to put forward adaptation and mitigation options.







IPCC Assessment Reports

- The IPCC was formed in 1988.
- Since then it has produced five Assessment Reports (ARs), which each give a comprehensive review of the current state-of-knowledge of climate science.
- AR5 contributed to 2015 Paris Agreement
- They also produce specialist reports and technical papers.
- Currently in its sixth assessment cycle, preparing AR6 (due 2021).

The world in global climate models



CMIP5 Climate Models

- The Coupled Model Intercomparison Project Phase 5 was a framework for a set of coordinated climate change experiments designed to feed into AR5
- A set of standard experiments carried out by almost all climate modelling groups across the world
- Models include **historical runs** (1850-2005) and a range of **future predictions**
- All model output shared in a (somewhat) unified format
- Next phase, **CMIP6**, in development to provide model output for **AR6**

Representative Concentration Pathways (RCPs)



- Each model was run with the **same** sets of **forcing** data.
- **Historical** model runs use past emissions.
- Future emissions are unknown, so a range of possible future scenarios were produced: Representative Concentration Pathways, or RCPs.
- These are **named** after the relative increase in **radiative forcing** at 2100.

Range of projections from different CMIP5 models





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