

UK Climate Change Impact Programme

Updated Projections

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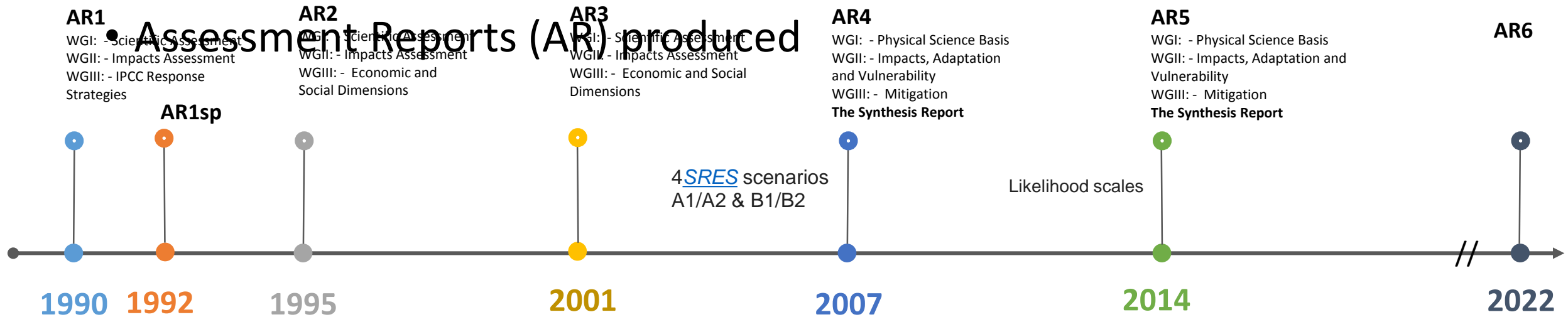


Contents

- IPCC Background & Reports
- UKCP (UK Climate Projections)
- Impacts on Welsh Coast

IPCC – Intergovernmental Panel on Climate Change

- IPCC – established in 1998 by the UN Environment Programme & WMO



Assessment Reports

IPCC reports are the result of extensive work of many scientists from around the world.

1 Summary for Policymakers

1 Technical Summary

16 Chapters

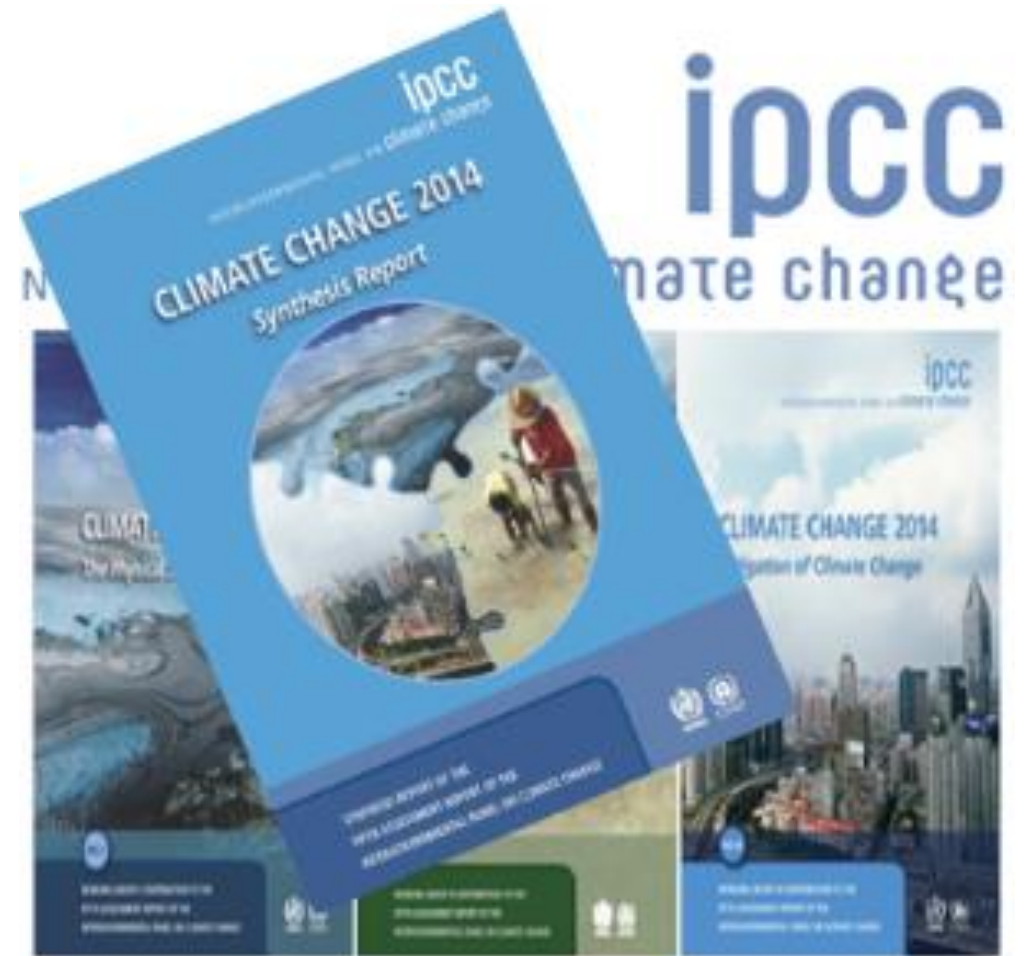
235 Authors

800+ Reviewers

Close to 1500 pages

Close to 10,000 references

More than 38,000 comments



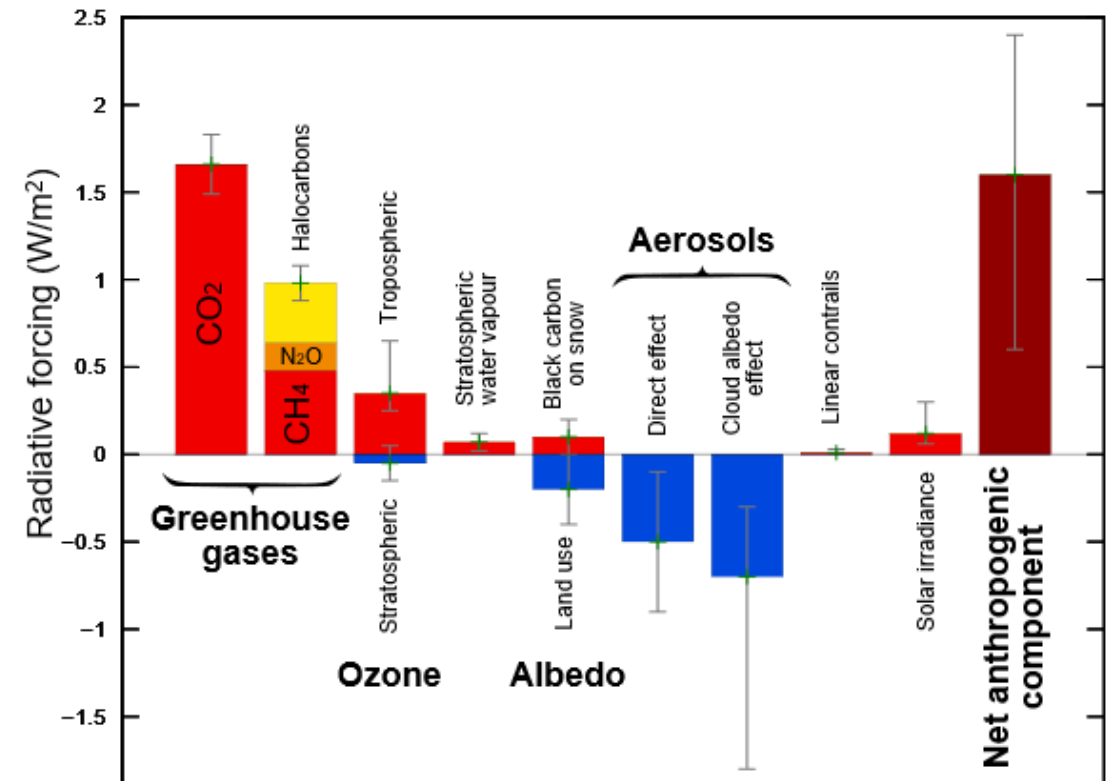
2 Working Group III contribution to the IPCC Fifth Assessment Report

IPCC Special Report on Emissions Scenarios

- AR4 – Temperature Changes and Warming / Cooling Factors

Scenarios	Descriptions	Temperature Change (2100)
A1	Globally rapid economic growth	1.4–6.4 °C
A2	Regionally oriented economic development	2.0–5.4 °C
B1	Global environmental sustainability	1.1–2.9 °C
B2	Local environmental sustainability	1.4–3.8 °C

Radiative-forcing components



IPCC Special Report on Emissions Scenarios

- AR4 - Temperature Changes and Sea Level Rise

Scenarios	Temperature (°C)	Sea Level Rise (cm)
B1	1.8 (1.1-2.9)	18-38
B2	2.4 (1.4-3.8)	20-43
A1B	2.8 (1.7-4.4)	21-48
A2	3.4 (2.0-5.4)	23-51

- AR4 - Mitigation

Sector	Key mitigation technologies and practices currently commercially available	Key mitigation technologies and practices projected to be commercialized before 2030
Energy Supply	Improved supply and distribution efficiency;	Carbon Capture and Storage (CCS) for gas, biomass and
Transport	More fuel efficient vehicles; electric vehicle; hybrid vehicles;	Second generation biofuels; higher efficiency aircraft;
Buildings	Efficient lighting and daylighting; more efficient electrical appliances	Integrated design of commercial buildings including technologies,
Industry	More efficient end-use electrical equipment; heat and power recovery;	Advanced energy efficiency; CCS for cement , ammonia , and iron manufacture;
Agriculture	Improved crop and grazing land management to increase soil carbon storage;	Improvements of crop yields
Forestry/forests	Afforestation; reforestation; forest management;	Tree species improvement to increase biomass productivity and carbon biosequestration .
Waste	Landfill methane recovery; waste incineration with energy recovery;	Biocovers and biofilters to optimize CH ₄ ; oxidation

AR5 – Likelihood Scales

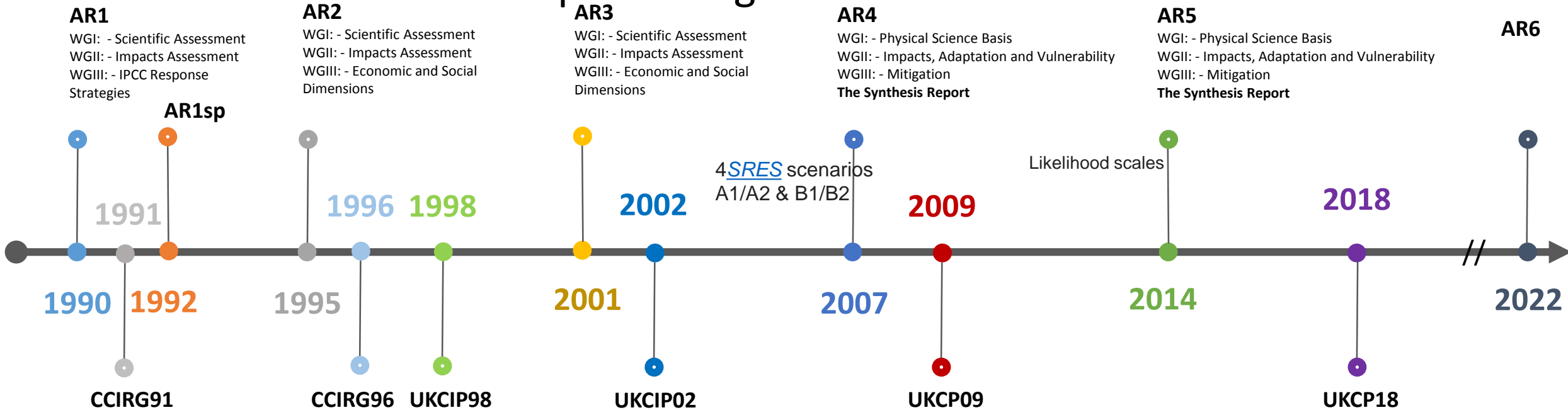
Term	Likelihood of the outcome
Virtually certain	99–100 % probability
Extremely likely	95–100 % probability
Very likely	90–100 % probability
Likely	66–100 % probability
More likely than not	50–100 % probability
About as likely as not	33 to 66% probability
Unlikely	0–33 % probability
Very unlikely	0–10 % probability
Extremely unlikely	0–5 % probability
Exceptionally unlikely	0–1 % probability

Scenario	2046–2065		2081–2100	
	Temperature Increase (°C)	Sea Level Rise (cm)	Temperature Increase (°C)	Sea Level Rise (cm)
RCP2.6	1.0 (0.4 - 1.6)	24 (17 - 32)	1.0 (0.3 - 1.7)	40 (26 - 55)
RCP4.5	1.4 (0.9 - 2.0)	26 (19 - 33)	1.8 (1.1 - 2.6)	47 (32 - 63)
RCP6.0	1.3 (0.8 - 1.8)	25 (18 - 32)	2.2 (1.4 - 3.1)	48 (33 - 63)
RCP8.5	2.0 (1.4 - 2.6)	30 (22 - 38)	3.7 (2.6 - 4.8)	63 (45 - 82)

RCP2.6, RCP4.5, RCP6, and RCP8.5 are labelled after a possible range of radiative forcing values in the year 2100 relative to pre-industrial values (+2.6, +4.5, +6.0, and +8.5 W/m², respectively)

UK Climate Projections

- CCIRG - Climate Change Impacts Review Group
- UKCIP - UK Climate Impacts Programme



UKCP09 – Launched on 18 June 2009

From Dr Alastair Brown

Background to UKCP09

- UK climate scenarios produced since 1991
- UKCIP published climate scenarios in 1998 and 2002
- Nature and scope of information has evolved, building upon:
 - improved scientific knowledge
 - increased computing power
 - stakeholder requirements
- Each has represented best scientific understanding at that time
- Audience has evolved and grown



UKCP09 – Features

- User-led development for the UK
- Improved representation of climate system
- Better quantification of modelling uncertainty
- Robust decisions with probabilistic output
- More spatial and temporal details
- User interface for stakeholders/policy makers
- User-faced services (training)