

The IPCC Sixth Assessment Report

Dr Amanda C. Maycock

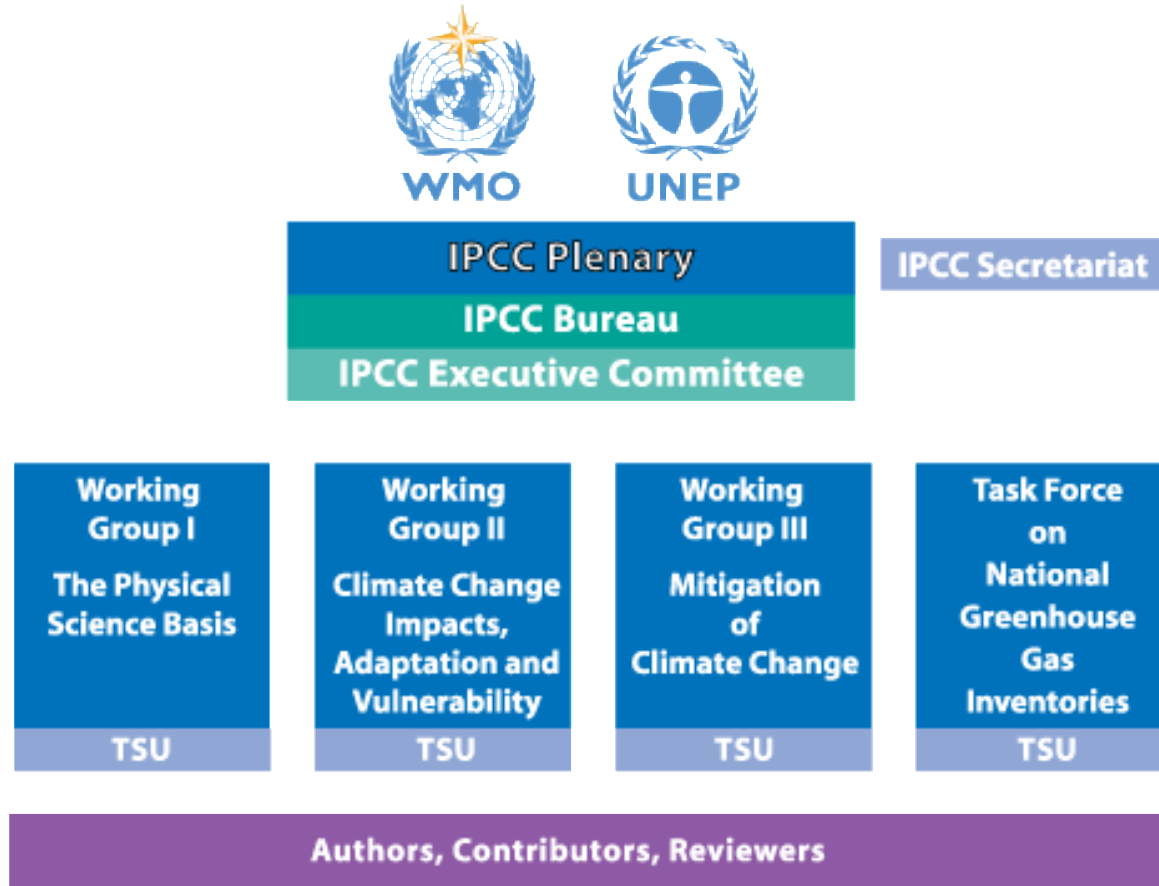
**Royal Met Soc Student & Early Career
Scientists conference**

University of Birmingham, 5 July 2019

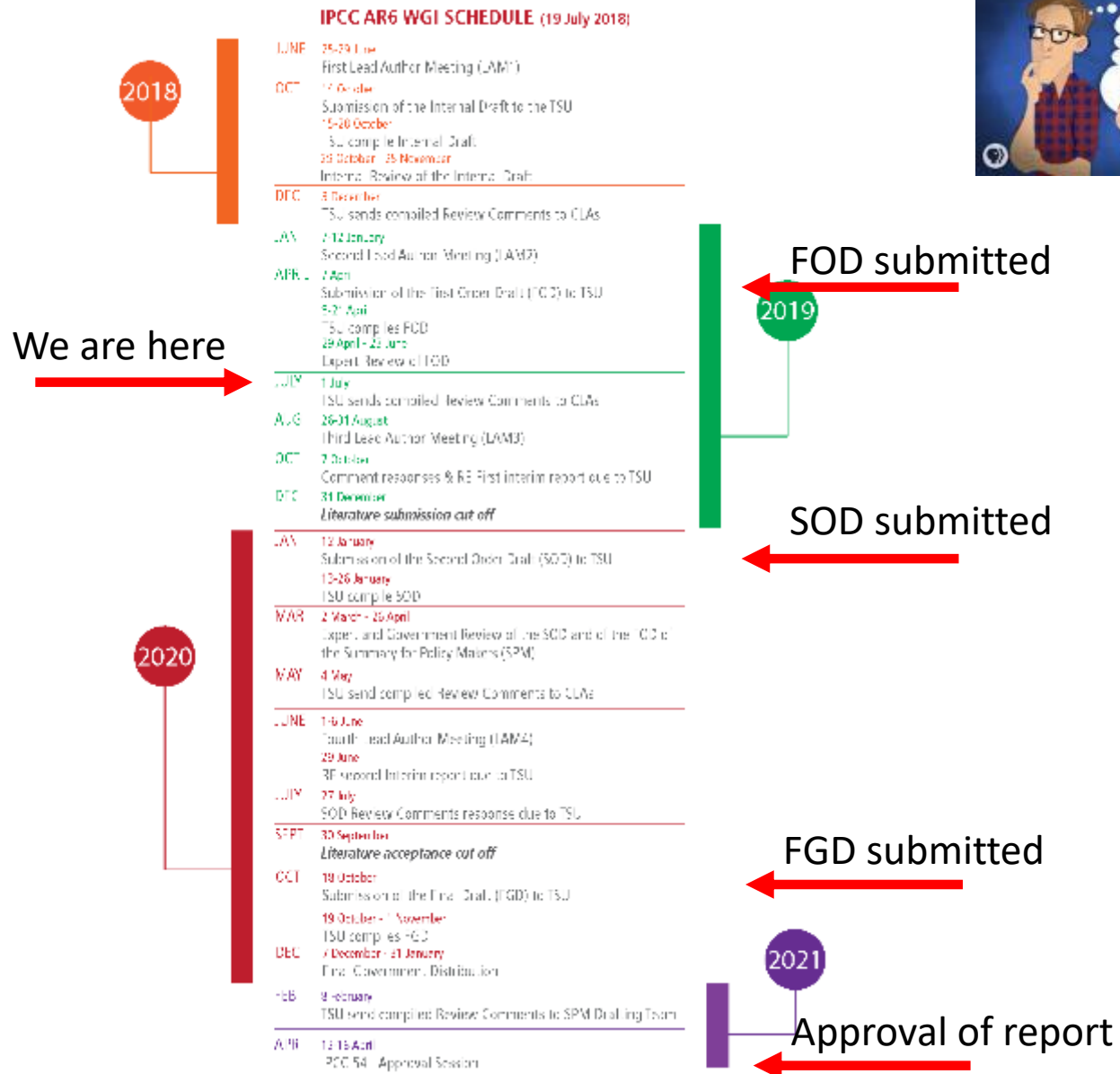


- The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change
- Created by the United Nations Environment Programme and the World Meteorological Organization in 1988
- IPCC provides policymakers with regular scientific assessments on climate change, its implications and potential future risks, as well as to put forward adaptation and mitigation options.
- 195 Member countries
- Reports are neutral, policy-relevant but **not policy-prescriptive**
- **Does not** conduct its own research

Anatomy of an Assessment



Sixth Assessment Report



AR5 WGI Outline

Summary for Policy Makers
Technical Summary

- 1: Introduction
- 2: Observations : Atmosphere and Surface
- 3: Observations: Ocean
- 4: Observations: Cryosphere
- 5: Information from Paleoclimate Archives
- 6: Carbon and Other Biogeochemical Cycles
- 7: Clouds and Aerosols
- 8: Anthropogenic and Natural Radiative Forcing
- 9: Evaluation of Climate Models
- 10: Detection and Attribution of Climate Change: from Global to Regional
- 11: Near-term Climate Change: Projections and Predictability
- 12: Long-term Climate Change: Projections, Commitments and Irreversibility
- 13: Sea Level Change
- 14: Climate Phenomena and their Relevance for Future Regional Climate Change

Annexes

ar6 WGI Outline

Summary for Policy Makers
Technical Summary

- 1: Framing, context, methods
- 2: Changing state of the climate system
- 3: Human influence on the climate system
- 4: Future global climate: scenario-based projections and near-term information
- 5: Global carbon and other biogeochemical cycles and feedbacks
- 6: Short-lived climate forcers
- 7: The Earth's energy budget, climate feedbacks, and climate sensitivity
- 8: Water cycle changes
- 9: Ocean, cryosphere, and sea level change
- 10: Linking global to regional climate change
- 11: Weather and climate extreme events in a changing climate
- 12: Climate change information for regional impact and for risk assessment

Annexes incl. options for a Regional Atlas

The road to now



UNIVERSITY OF LEEDS

CLIMATE CHANGE

The unequivocal detection of the enhanced greenhouse effect is not likely for a decade or more.

WORLD METEOROLOGICAL ORGANIZATION UNITED NATIONS ENVIRONMENT PROGRAMME
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

CLIMATE CHANGE 1995 The Science of Climate Change

The balance of evidence suggests a discernible human influence on global climate



CLIMATE CHANGE 2001 The Scientific Basis

Most of the observed warming over the last 50 years is *likely* to have been due to the increase in greenhouse gas concentrations

Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change

Most of the observed increase in global average temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations.

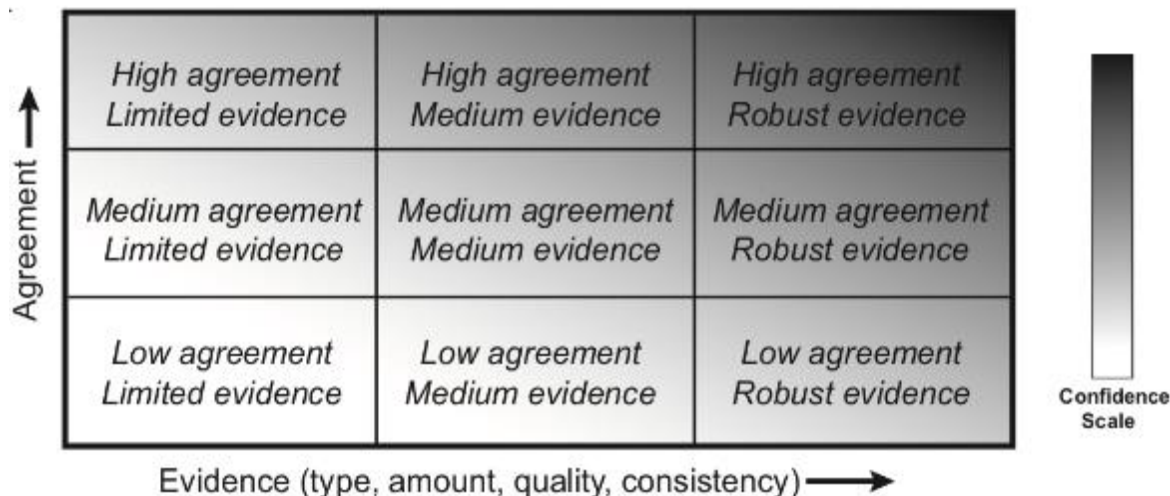
This evidence for human influence has grown since AR4. It is *extremely likely* that human influence has been the dominant cause of the observed warming since the mid-20th century.

FOURTH ASSESSMENT REPORT OF THE
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



- Not a review!
- An *assessment* based on available lines of evidence
- Calibrated uncertainty language is **key**
- e.g. you have two studies that address the same topic using different methods and reach different conclusions. What assessment level statement do you develop?

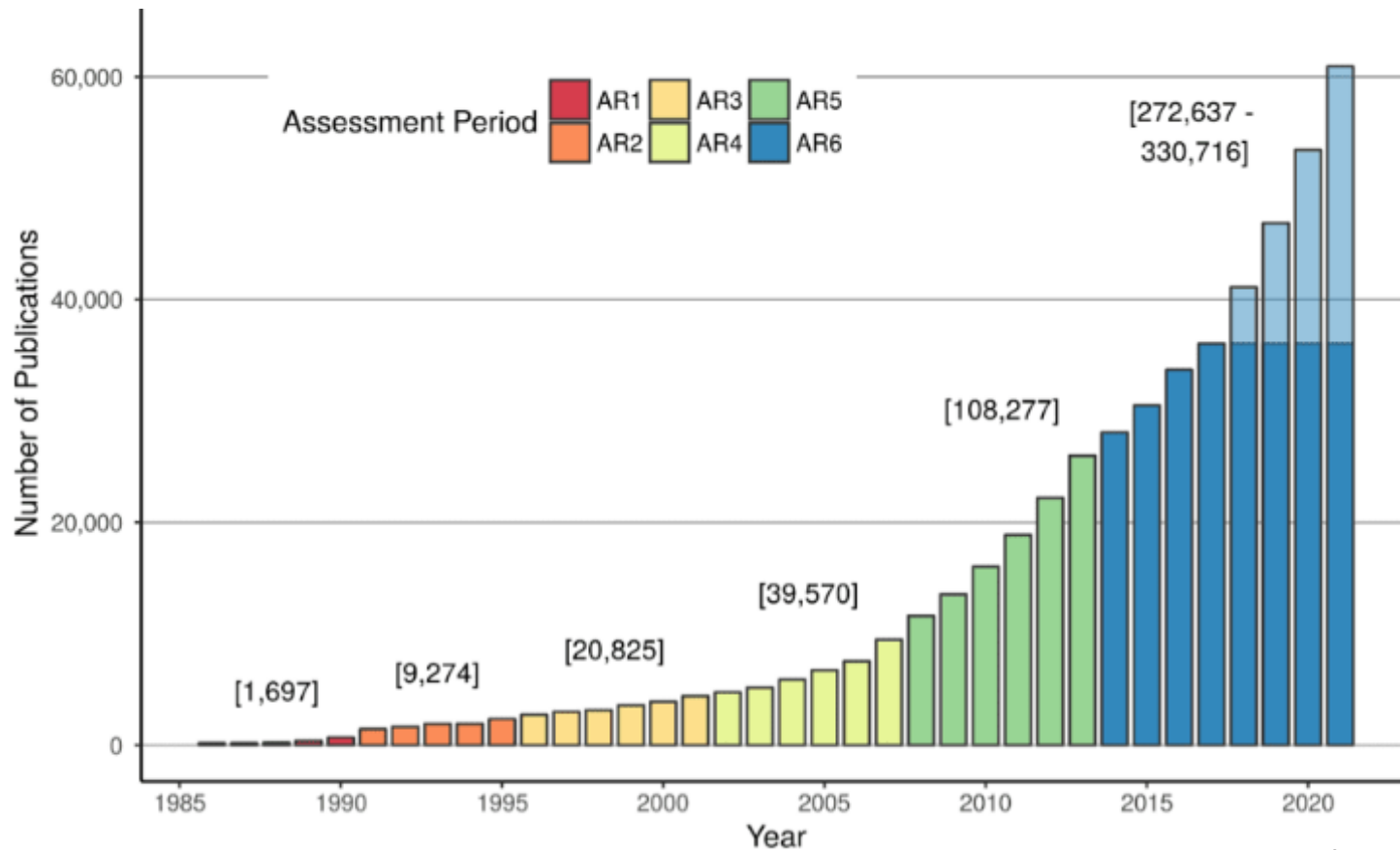
Confidence



Likelihood

Table 1. Likelihood Scale	
Term*	Likelihood of the Outcome
<i>Virtually certain</i>	99-100% probability
<i>Very likely</i>	90-100% probability
<i>Likely</i>	66-100% probability
<i>About as likely as not</i>	33 to 66% probability
<i>Unlikely</i>	0-33% probability
<i>Very unlikely</i>	0-10% probability
<i>Exceptionally unlikely</i>	0-1% probability

The scale of the task: can we do it?



Updated from Minx et al (2017)

Scientific publications on the topic of climate change from Web of Science database.

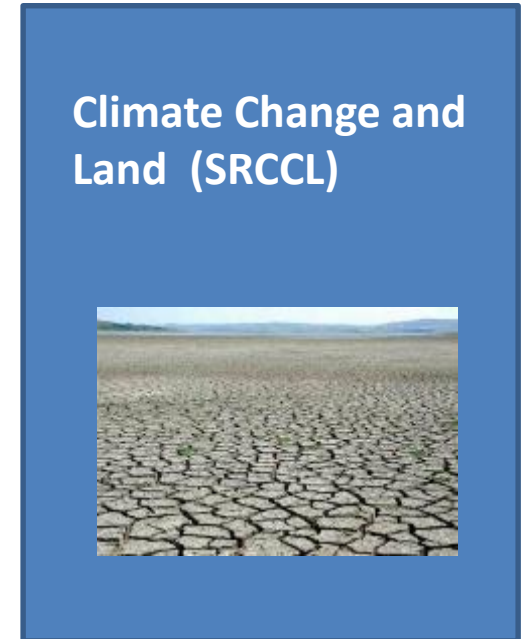
2018



2019



2019



- 721 experts from 90 countries
- 44% from developing countries and countries with economies in transition
- 53% new to the IPCC process
- 33% are women
- In WGI the median PhD year of authors is 2002

WGI Chapter 4

Future global climate: scenario-based projections and near-term information

Overview of large-scale climate in the near and long-term future (out to 2300) under different scenarios

Combines information that was in chapters 11 and 12 in AR5.

Chapter 4



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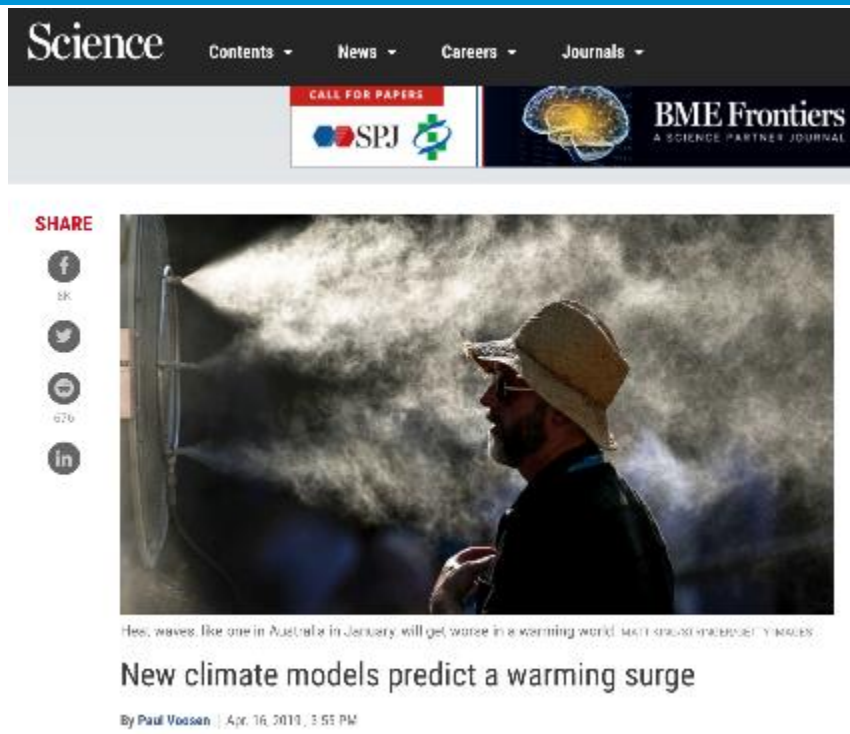
Ousman NDIAYE
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Heat waves like one in Australia in January will get worse in a warming world, scientists say.

New climate models predict a warming surge

By Paul Vossen | Apr. 16, 2019, 3:55 PM

Early results suggest ECS values from some of the new CMIP6 climate models are higher than previous estimates, with early numbers being reported between **2.8C** (pdf) and **5.8C**. This compares with the previous coupled model intercomparison project (CMIP5), which reported values between 2.1C to 4.7C. The IPCC's **fifth assessment report** (AR5) assessed ECS to be “likely” in the range 1.5C to 4.5C and “very unlikely” greater than 6C. (These terms are defined using the **IPCC methodology**.)

- BEIS put out call for nominations
- Can self nominate (I did) or be nominated.
- Submit justification of suitability: CV, past papers, experience of assessments, areas of expertise
- UK Focal Point submits nominations to the IPCC
- IPCC Bureau makes final selection based on balance of expertise, countries, gender etc.

https://www.ipcc.ch/site/assets/uploads/2018/02/FS_select_authors.pdf

- Identify, read and assess literature
- Write text, produce figures
- Follow instructions from Coordinating Lead Authors/TSU/IPCC co-chairs
- Recruit contributing authors
- Respond to reviewer comments
- Participate in discussions with other chapter colleagues
- Review other chapters in the assessment
- Attend Lead Author meetings

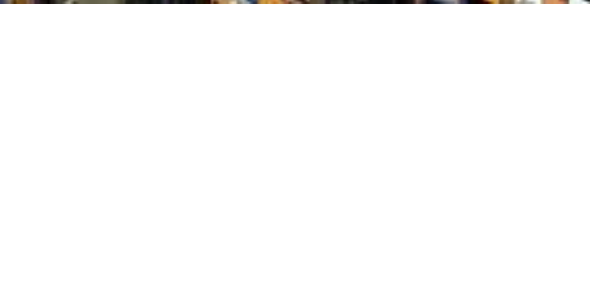
- It is a lot of work!

Number of review comments on Fifth Assessment Report

		Number of comments	Experts	Governments
Working Group I	First Order Draft	21,400	659	-
	Second Order Draft	31,422	800	26
Working Group II	First Order Draft	19,598	563	-
	Second Order Draft	28,544	452	33
Working Group III	First Order Draft	16,169	602	-
	Second Order Draft	19,554	444	24
Synthesis Report	First Order Draft	5,944	85	42
Total		142,631	-	-

Expert Reviewers will be recognised for their valuable contribution, with their name, affiliation, and country of residence being published in the Annex of Reviewers in the published WGI report.

IPCC approval plenary



Jim Skea
Co-Chair

Valérie Masson-Delmotte
Co-Chair

of the IPCC and



Forty-Eighth Session of the IPCC and
First Joint Session of Working Groups I, II and III
1-5 October 2018 Incheon, Republic of Korea

- Expert reviewer of drafts (register – FOD review cycle just completed)
- Contributing author (invited – usually contribute specific section of text and/or a figure)
- Chapter scientist (paid job normally – recruited by CLAs)

https://www.ipcc.ch/site/assets/uploads/2018/02/FS_review_process.pdf



Thank you for your attention.

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