



ACCESS

Australia

Simon Marsland
WGCM-24 December 2021

Australia's National Science Agency



Photo: Simon Marsland, December 2021



Model development since CMIP6

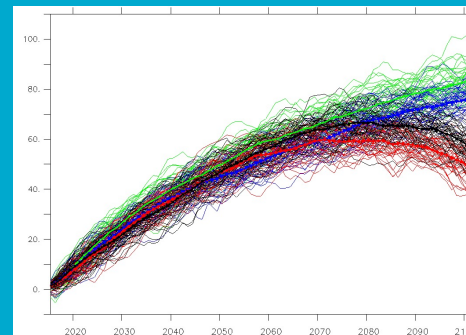
ACCESS - Australian
Community Climate
and Earth System
Simulator

CMIP6 application and analysis

Equilibrium climate sensitivity

Large ensemble ESM

Cumulative global land carbon uptake (PgC)



SSP1-2.6 (green)
SSP2-4.5 (blue)
SSP3-7.0 (red)
SSP5-8.5 (black)

Model resolution

Current - Ocean/sea-ice 1 deg -> 1/4 deg

Planned - Atmosphere N96 -> N216



New Science directions

ACCESS - Australian
Community Climate
and Earth System
Simulator

ACCESS-NRI

National Research Infrastructure
+28 FTE to support codes, data, compute

Climate Systems Hub

National Environmental Science Program
Model improvement and evaluation
Net zero carbon and emissions pathways

COSIMA-II

Australian Research Council
Ocean and sea-ice modelling -> MOM6
Supporting fundamental research

Australian Climate Service

Emergency Management Australia
National Resilience and Recovery Agency

Suggestions for CMIP7

Co-design sequence 2021-202X



National Environmental Science Program



ENGAGE

CMIP6 and CMIP7 surveys - Model groups, model users, stakeholders

Commence with strategic planning – **what, who, when**

ANALYSE

Learnings – data request, data volume, experimental prioritisation

Why do a CMIP7? Service and society

CO-PLAN

WCRP - ESMO and RiFS; CORDEX; IPCC-AR7 and Special Reports

Model groups, model users, stakeholders

CO-DESIGN

DECK and MIPs

Historical and ScenarioMIP

Forcings and timelines – don't timequake CMIP/IPCC ever again ever