Update on Australian CMIP6 modelling plans and comments on CMIP6

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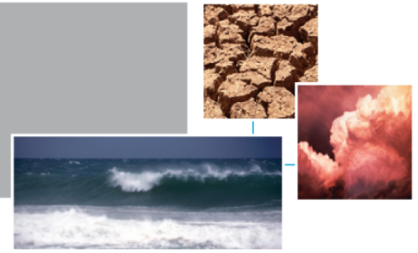
Australian Government
Bureau of Meteorology

The Centre for Australian Weather and Climate Research
A partnership between CSIRO and the Bureau of Meteorology

CSIRO

Contributing model versions



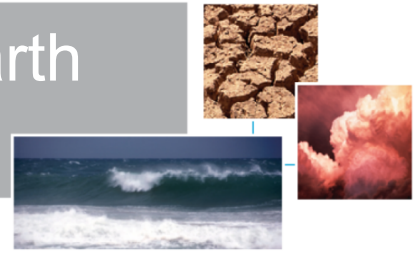
CMIP5

- ACCESS1.0
- ACCESS1.3
- CSIRO-Mk3.6

CMIP6

- ACCESS-ESM2
- ACCESS-CM2 “high resolution” (potentially)

ACCESS – Australian Community Climate and Earth System Simulator



ACCESS-CM2 (AOGCM for CMIP6)

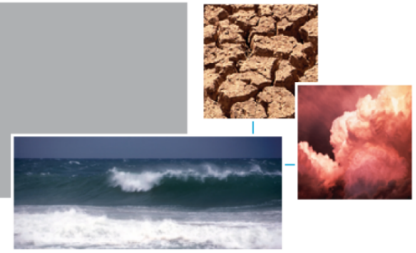
- **Atmosphere** – Met Office GA6.0
- **Ocean** – GFDL MOM5
- **Sea ice** – LANL CICE
- **Land surface** - CABLE

ACCESS-ESM2 (ESM for CMIP6)

ACCESS-CM2 +

- Terrestrial biogeochemistry – CASA-CNP
- Oceanic biogeochemistry – CSIRO Matear

ACCESS-CM2
Resolution



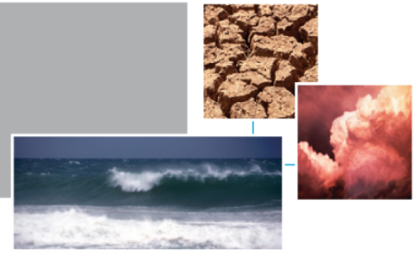
Standard resolution configuration

- Atmospheric resolution – N96 (~1.2°lat; ~1.8°lon); 85 levels
- Oceanic resolution – ~1 deg. (enhanced tropics, high latitudes)
- Prototype configured – runs at 5 years per day
- Will form basis of ACCESS-ESM2

High resolution configuration – subsequent

- Atmospheric resolution – N216 (~0.55°lat; ~0.8°lon), 85 levels
- Oceanic resolution – 0.25 deg. horizontal
- Subject to adequate computational resources
- AOGCM only

Timeline



ACCESS-ESM2 (at N96)

- Perform extensive set for CMIP6 ~2016/17/18
- ~8000 years of simulation for CMIP6

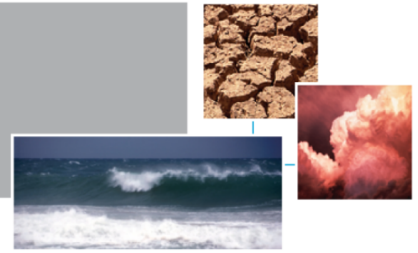
ACCESS-CM2 “high resolution” (at N216)

- Perform limited set ~2017/18/19
- ~2000 years of simulation (potentially)

➢ Timeline indicated for DECK + historical finalisation is ok

Contact (Interim) – Tony Hirst

Feedback on DECK simulations



i. ”an AMIP simulation (~1979-2010)”

- Suggest extend to past 2012 to include the highly anomalous La Nina period of 2010-2012.

ii. ”a multi-hundred year pre-industrial control simulation”

- Suggest 500 year minimum with optional extension to 1000 years encouraged.

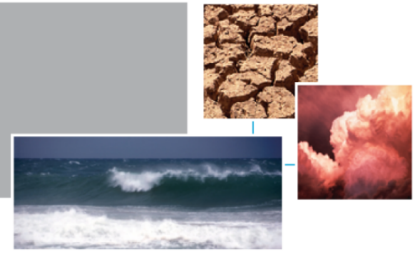
iv. ”an instantaneous 4xCO2 run …”

- A single 150-year run or a 5x30-year ensemble? Affects nonlinMIP experimental design.

Aerosol RF (and possibly other SLCFs) need characterisation

- Consider putting “*” against *RFMIP-ERF-PI-Cntrl* and *RFMIP-ERF-AER* for possible inclusion in the DECK in the future.

Participation in MIPS – ACCESS-ESM2
Initial response only



Likely to do all Tier 1 and selection Tier 2: scenarioMIP

Likely to do at least some Tier 1: DAMIP, RFMIP, CFMIP, PMIP, C4MIP

Also interest in: AerChemMIP, GeoMIP, LS3MIP, LUMIP, OCMIP, DECK COSP diagnostics, senseMIP, nonlinMIP

Potential interest in DCPP, but we would not be able to do all the Tier 1

Expect not to do: HighResMIP, ISM6

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