

# CMIP - successes and where to next?

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March 21, 2022



## Background on CMIP

- ❑ The objective of the Coupled Model Intercomparison Project (CMIP) is to better **understand past, present and future climate changes** arising from natural, unforced variability or in response to changes in radiative forcing in a **multi-model context**.
- ❑ Started in 1995 -> first set of **common** experiments: comparing the model response to an **idealized** forcing - a constant rate of increase which was accomplished using a CO<sub>2</sub> increase of 1% per year compounded.
- ❑ Dual role of CMIP: **scientific enterprise** and **support for policymakers**.
- ❑ CMIP has played a **critical role** in supporting the IPCC Assessment Reports, as data & papers from CMIP simulations have been used extensively in the ARs.
- ❑ All CMIP activities are overseen by a coordinated pair of subcommittees: the [CMIP Panel](#) and the [WGCM Infrastructure Panel](#) (WIP).

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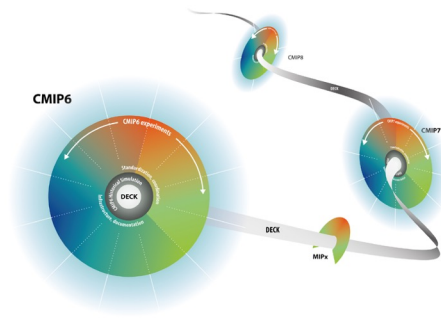
Based on the 2018 WCRP review, “A conservative estimate of the national investments in CMIP6 places their value in excess of US\$3 bn, based on scientists’ time to develop and run the models and to design the experiments, and the supercomputing costs to deliver the simulations”

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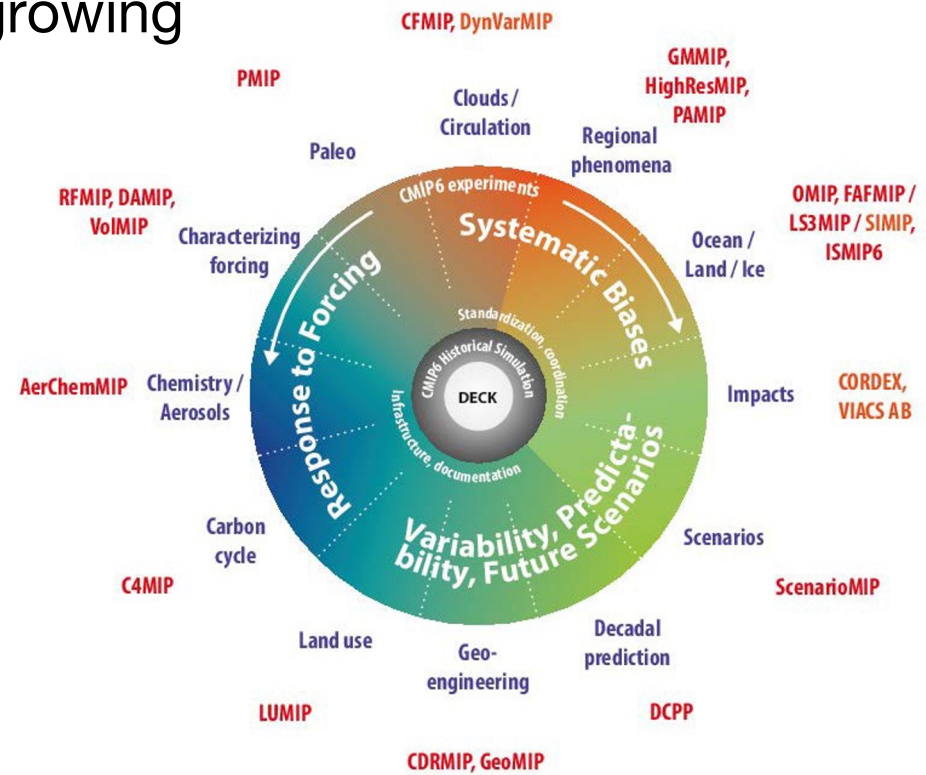
# CMIP6

- Number of models/model versions on ESGF: 114 (44 centers)
- Generated data: > 10 PB and growing

Diagnostic, Evaluation, and Characterization of Klima (DECK)

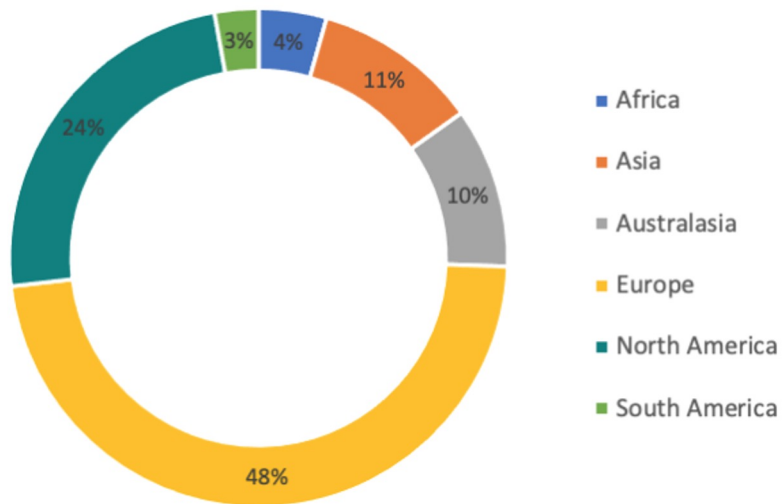


- Pre-industrial control
- 1%CO2
- 4xCO2
- AMIP

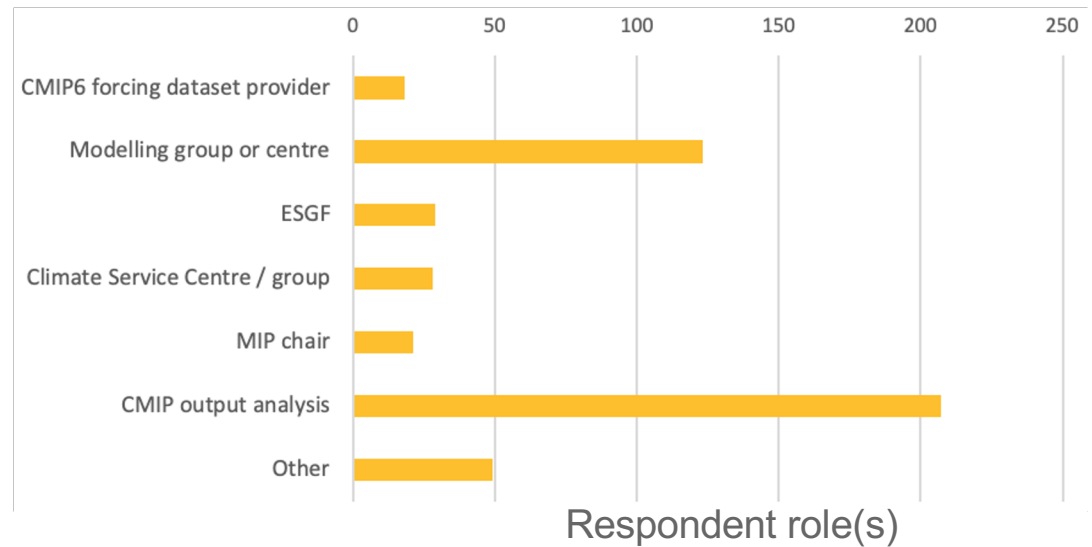


# CMIP6 Survey

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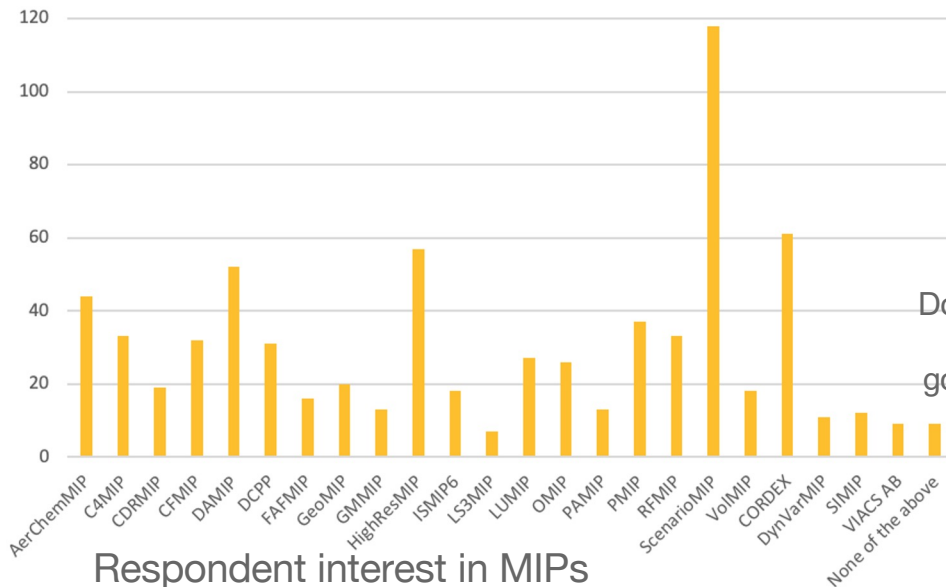
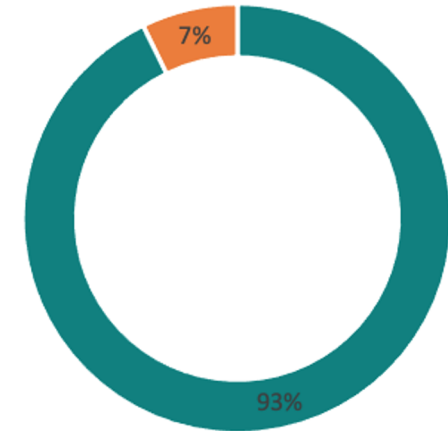
Fraction of respondents



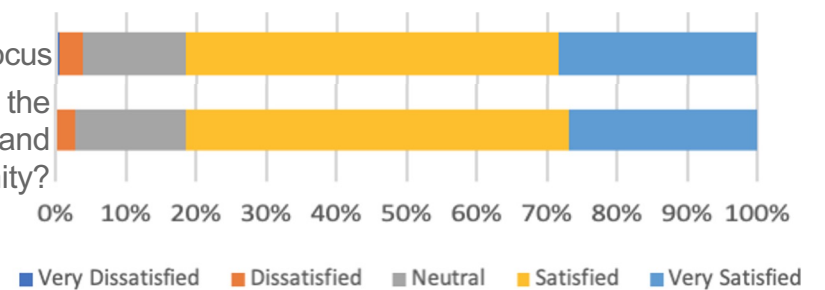
Figures from Eleanor O'Rourke (CMIP Project Office). Preliminary data, do not cite.

# CMIP6 Survey

- Number of models/model versions on ESGF: 11
- Generated data: > 10 PB and growing



Overall scientific focus  
Do the MIPs address the scientific priorities and goals of the community?

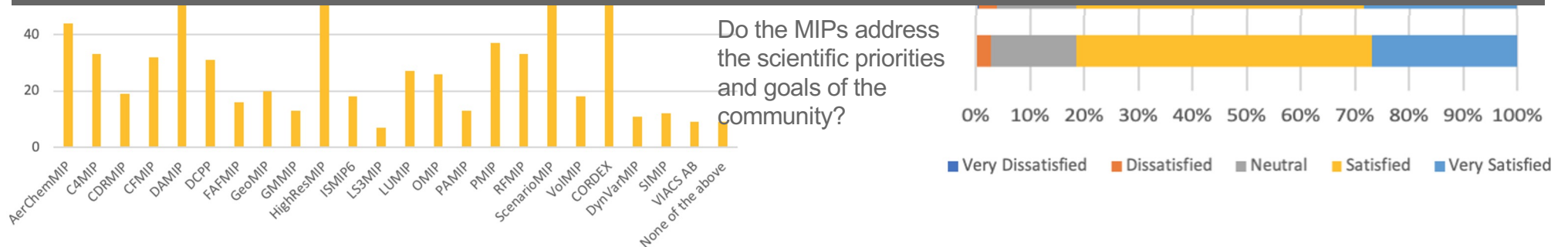


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## Conclusions

- CMIP is central to the use of multi-model approaches to answer scientific and societally-relevant questions, exemplified by its role in assessment reports
- CMIP6 survey indicates a strong support for the overall scientific focus
- CMIP6 represents a LARGE investment worldwide, with a growing participation of non-OECD countries

- ❓ How do we optimize the resources? Balance high-res/low # members with low-res/high # members
- ❓ How do we maximize the relevance of the simulations and the generated data to support the broad international community needs, research and stakeholders?



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