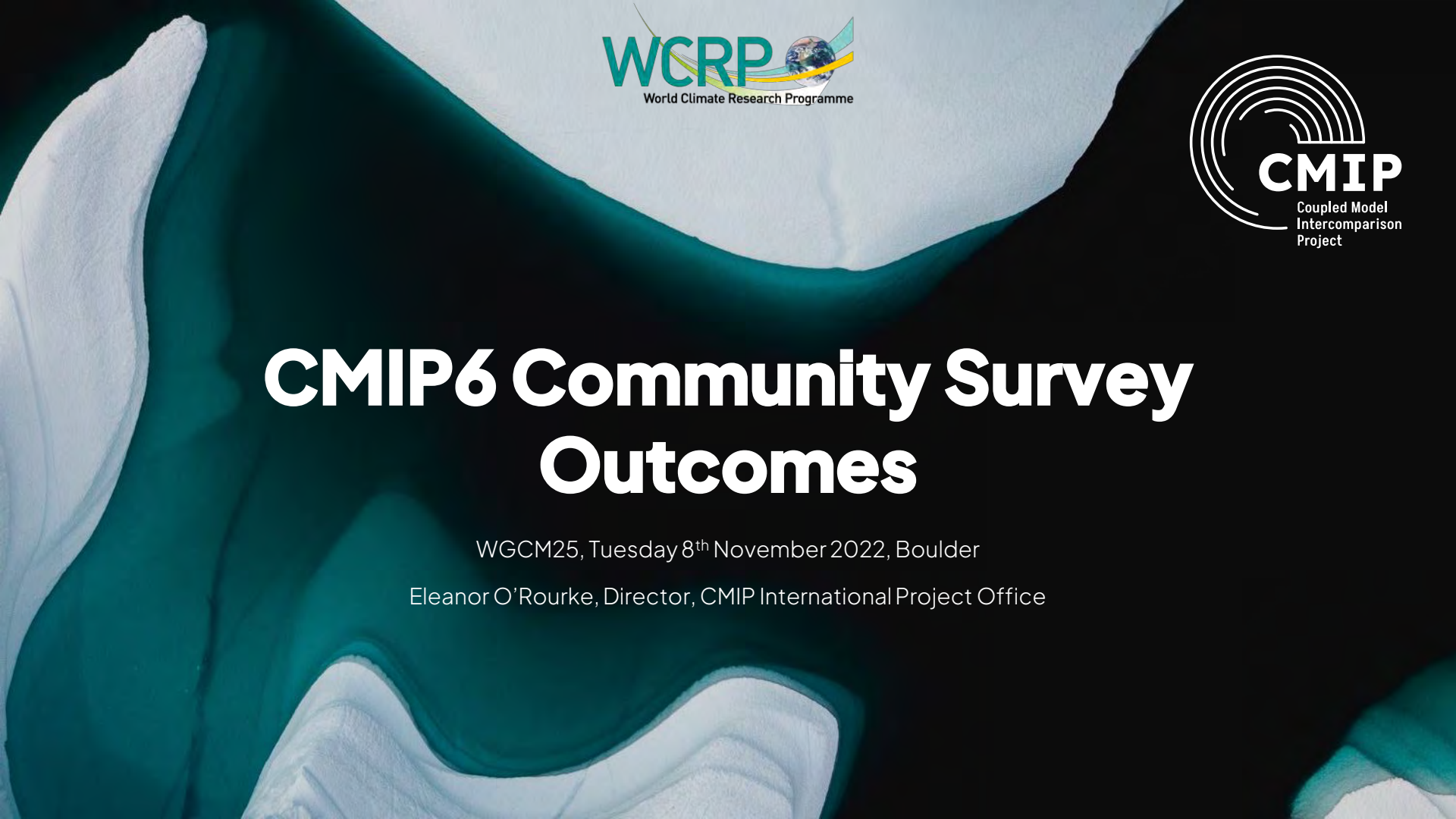


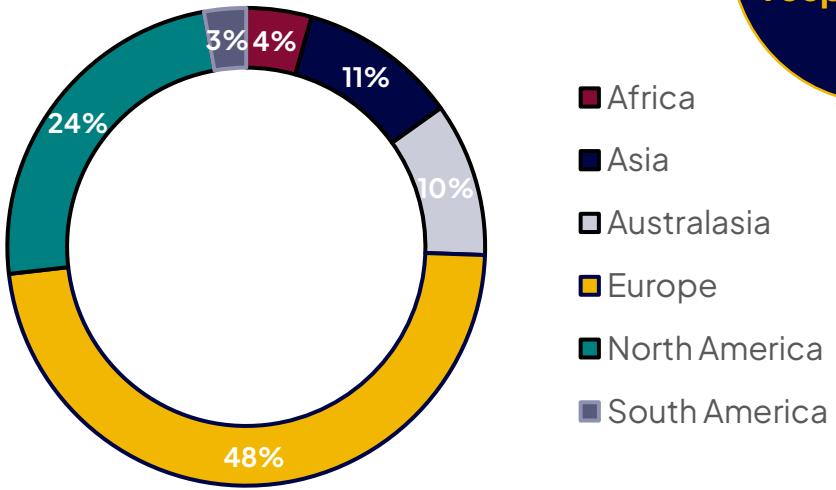
CMIP6 Community Survey Outcomes

WGCM25, Tuesday 8th November 2022, Boulder

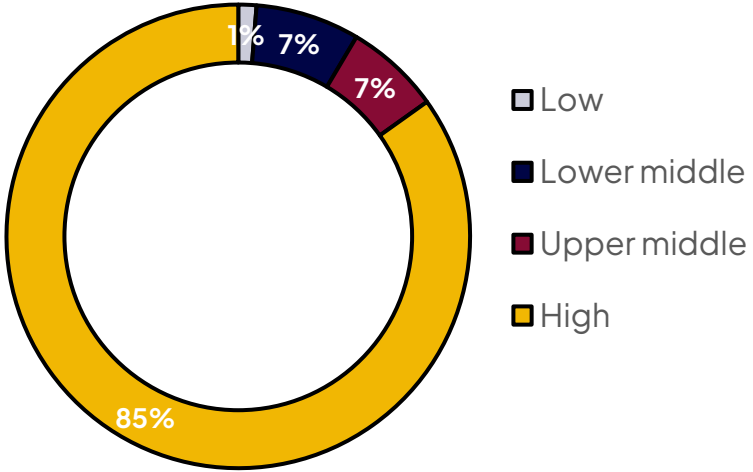
Eleanor O'Rourke, Director, CMIP International Project Office

Survey respondents

TOTAL
318
respondents



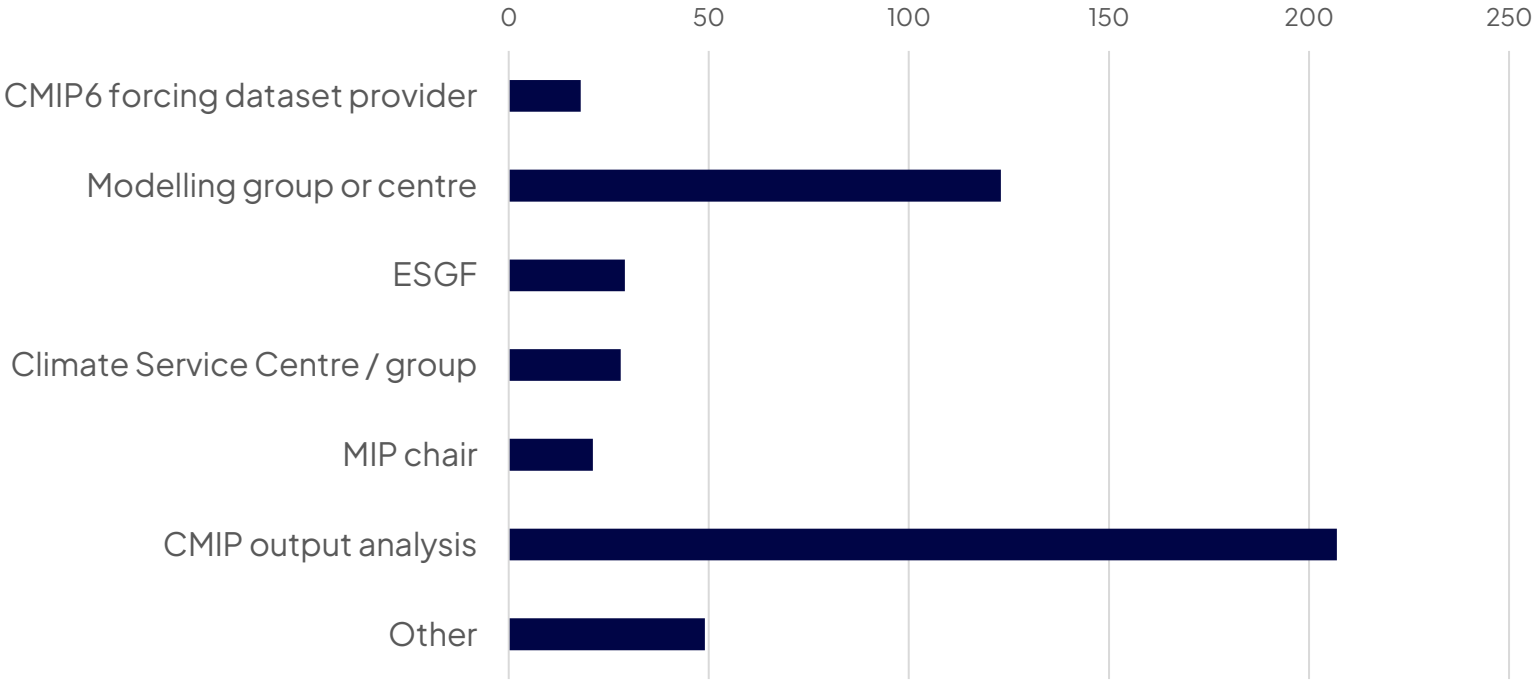
Respondents by world region



Respondents by income level

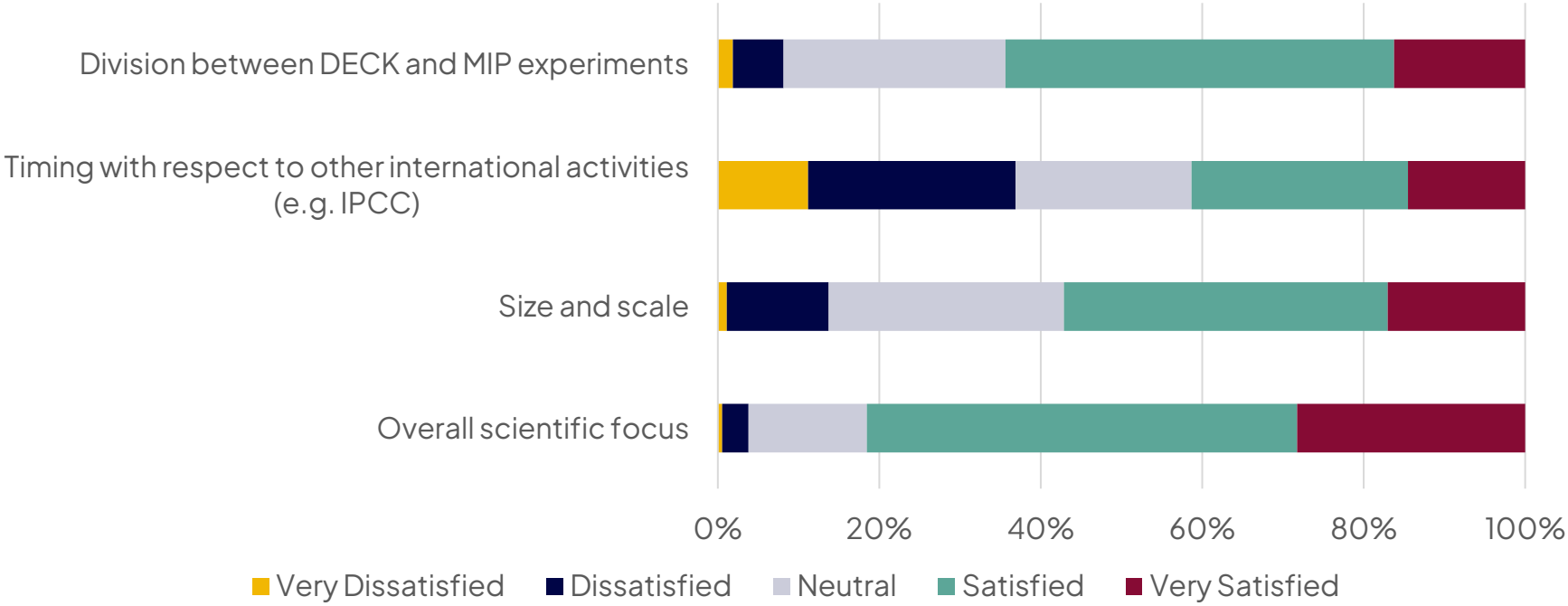
CMIP

Survey respondents

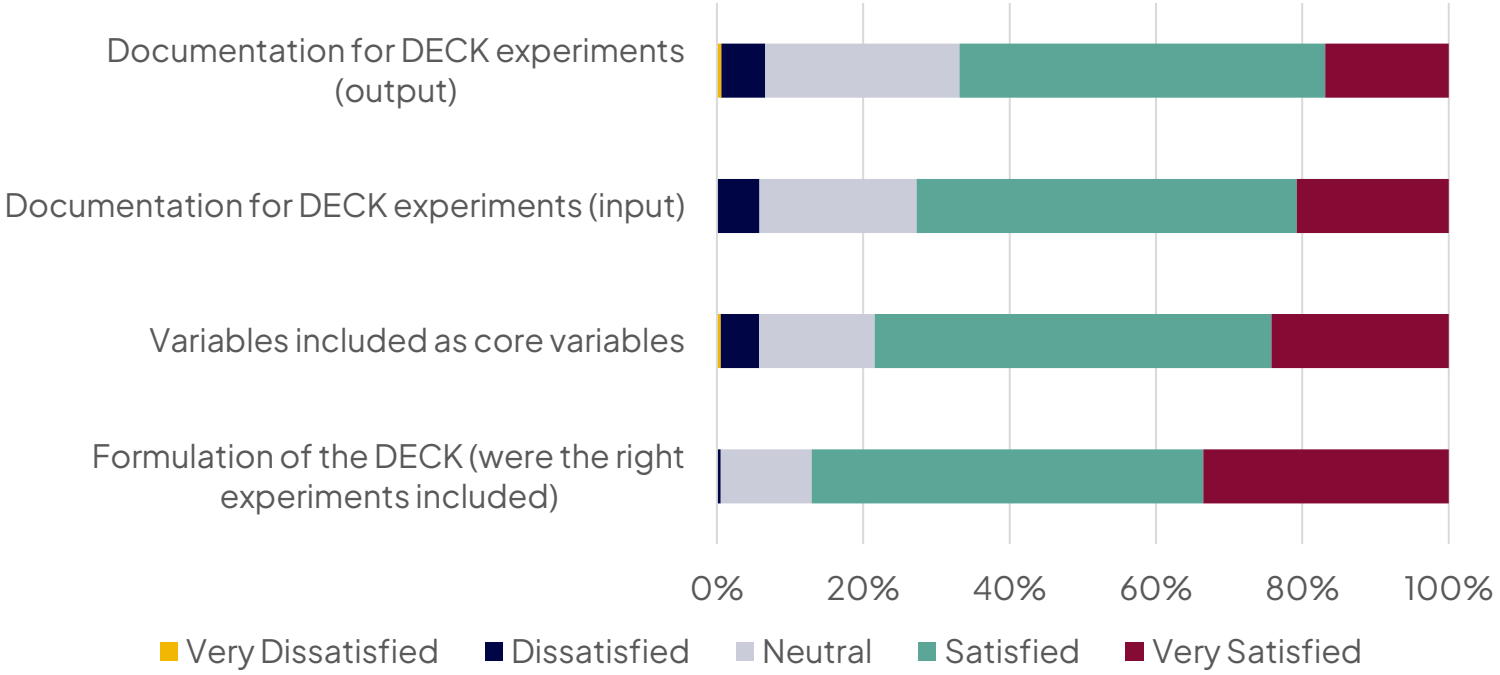


Note: *Respondents were asked to select all categories that applied.*

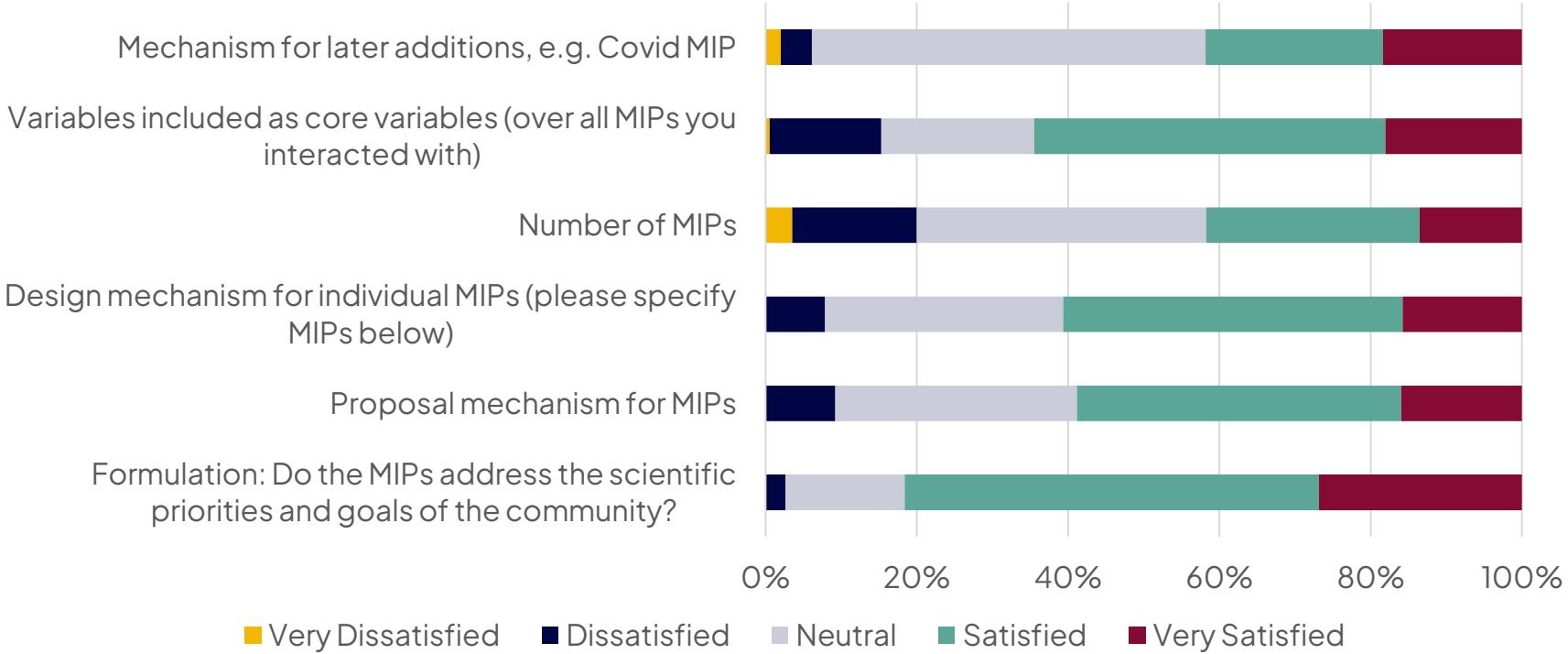
CMIP6: Experimental design (overall structure)



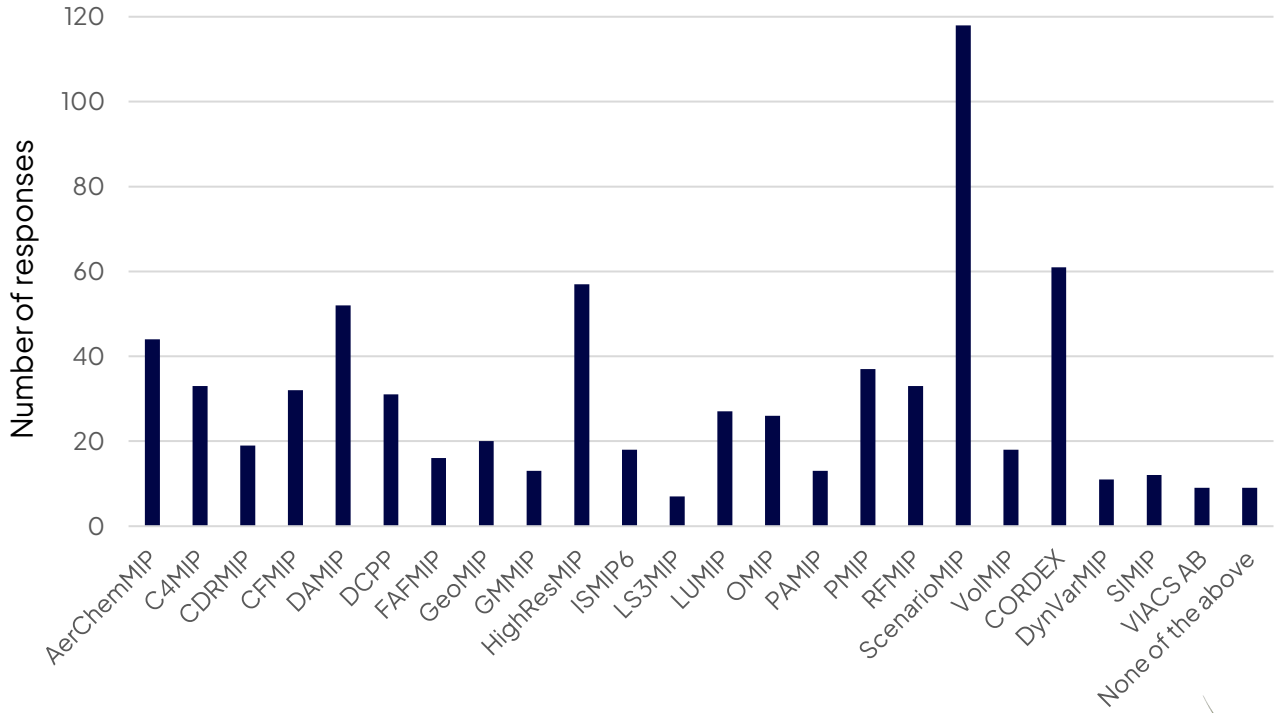
CMIP6: Experiment Design (DECK)



CMIP6: Experiment Design (MIPs)



CMIP6: MIP participation



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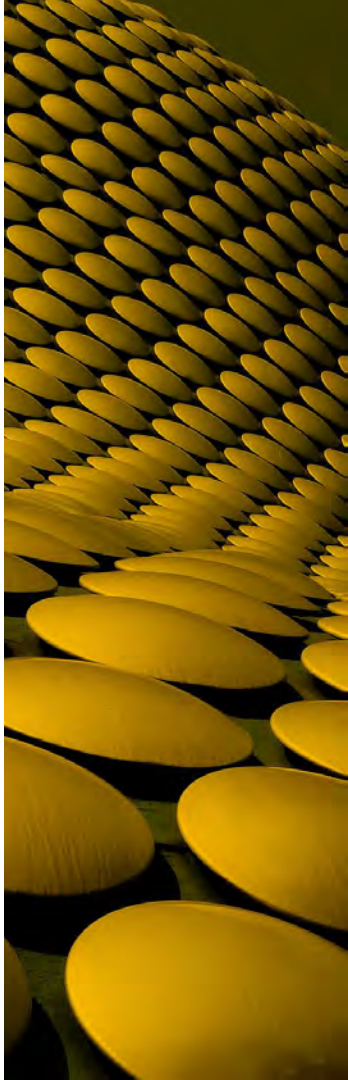
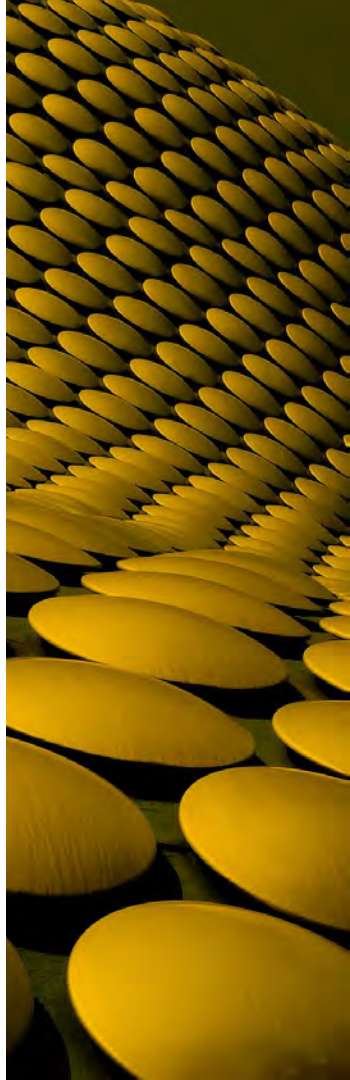


CMIP6: Experimental design

The good

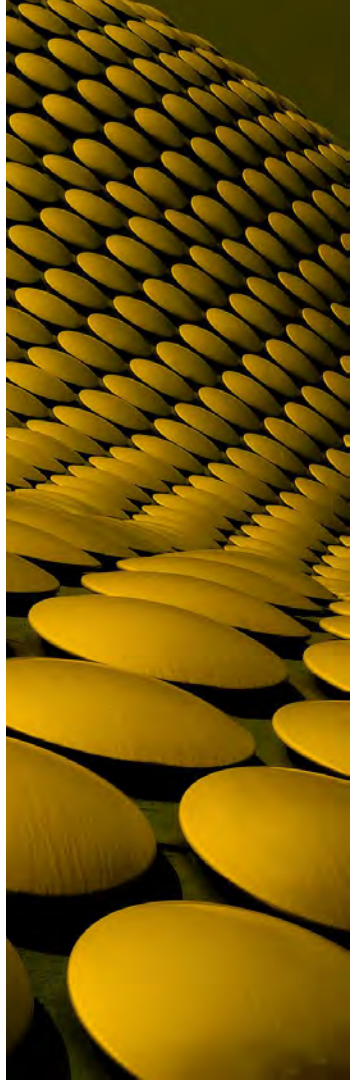
- Strong satisfaction with the scientific focus and support for the CMIP6 DECK plus endorsed MIPs structure continuing.
- 87% satisfied or very satisfied with the formulation of the DECK, and 78% for the variables included as core variables.
- CMIP6 GMD Special Issue was seen to be very helpful although perhaps could be more detailed for those outside community.



CMIP6: Experimental design

Need for improvement

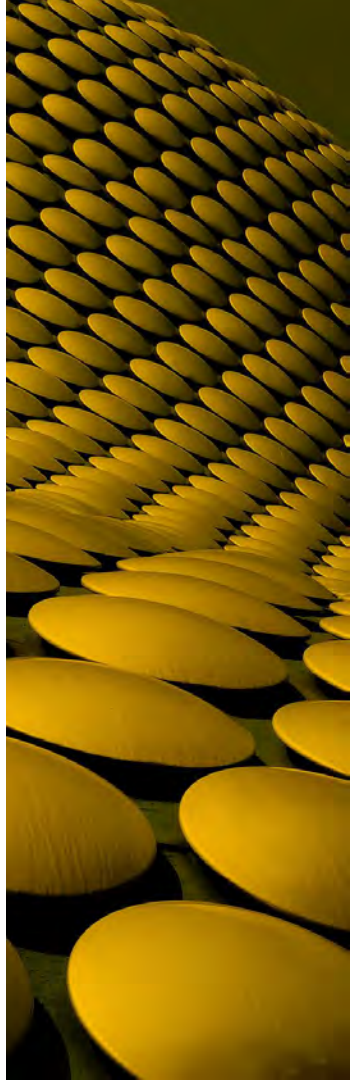
- Focus of dissatisfaction around timing with respect to IPCC and high level of pressure to meet AR6 deadlines.
- Some confusion on inclusion (or not) of historical in the DECK.
- High number of MIPs and experiments placed a burden on modelling centres but also suggestions for new MIPs!
- Some open comments suggesting CMIP had become too large but only 14% expressing being dissatisfied or very dissatisfied.



CMIP6: Experimental design

Looking forwards

- DECK, historical and ScenarioMIP to be operationalized with appropriate funding and support for critical elements e.g., forcing dataset generation, and remain aligned with IPCC cycle.
- MIPs to support impact modelling and large ensemble simulations to facilitate analysis of extremes together with continued engagement with VIACS AB and wider user involvement.
- Update and revision of scenarios looking towards net zero, extending beyond 2100, leaving behind outdated scenarios and addressing overshoots.



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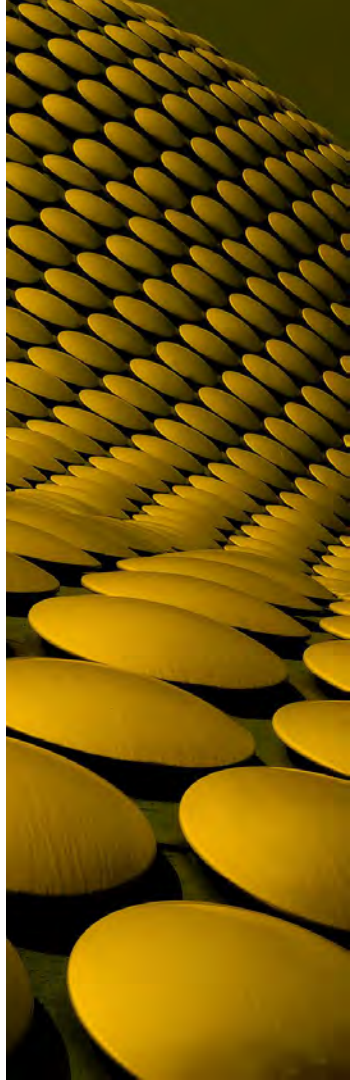
CMIP6: Experimental design

Looking forwards

- Potential ‘core’ MIPs aligned with IPCC with less centralized coordination of specialist MIPs that could be decoupled from the IPCC timeline.
- Critical review of MIPs in terms of both science and policy outcomes.
- Promotion of cross community and cross MIP collaboration (e.g., data request).



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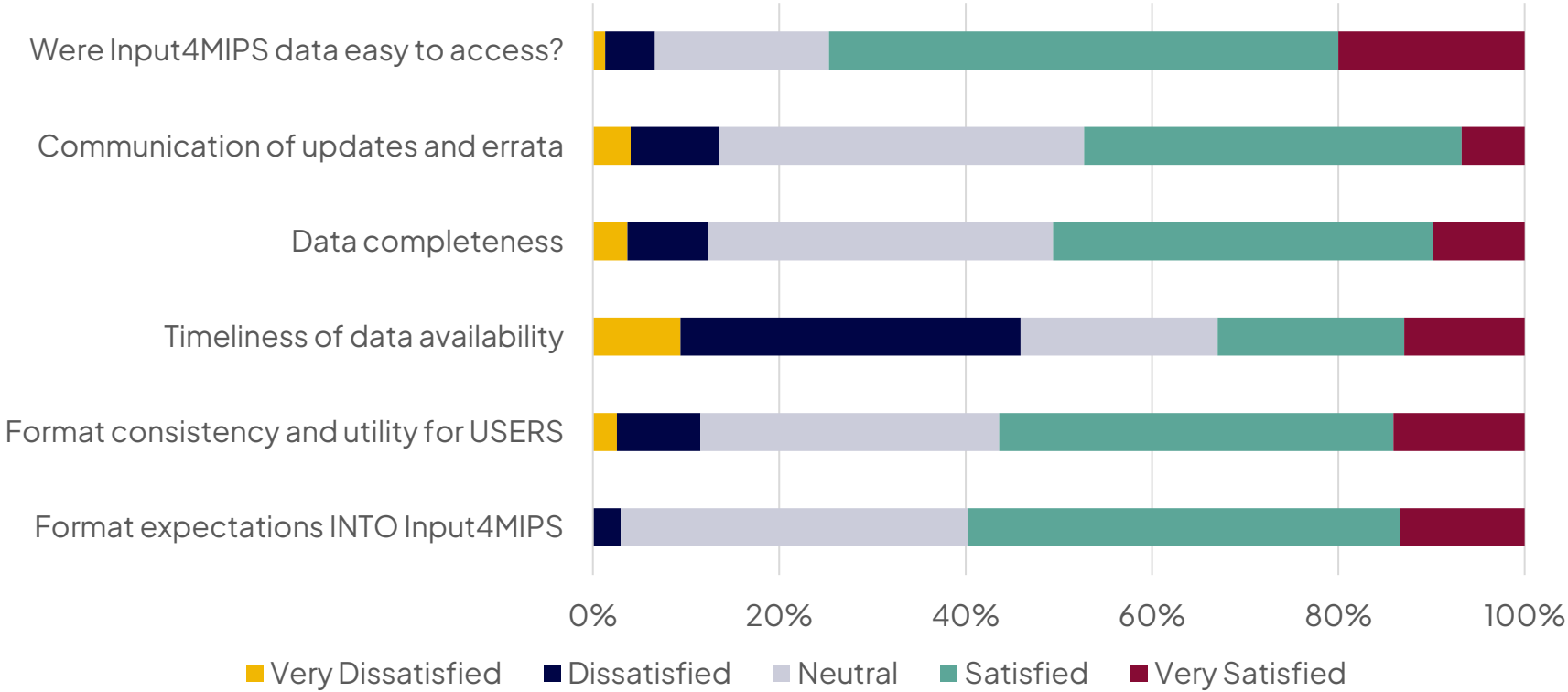
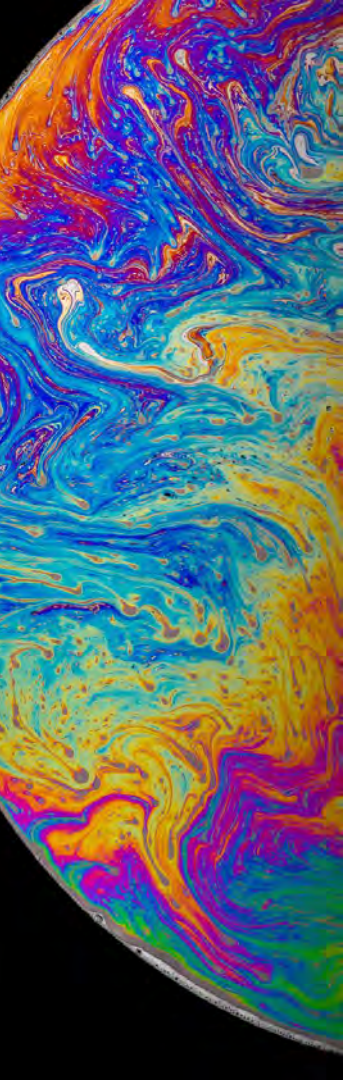
CMIP6: Forcings



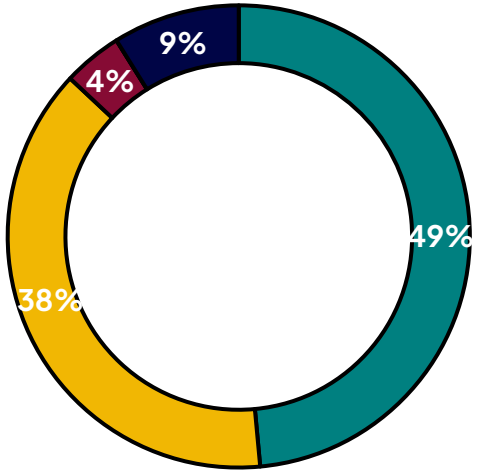
CMIP



CMIP6 Survey: Forcing

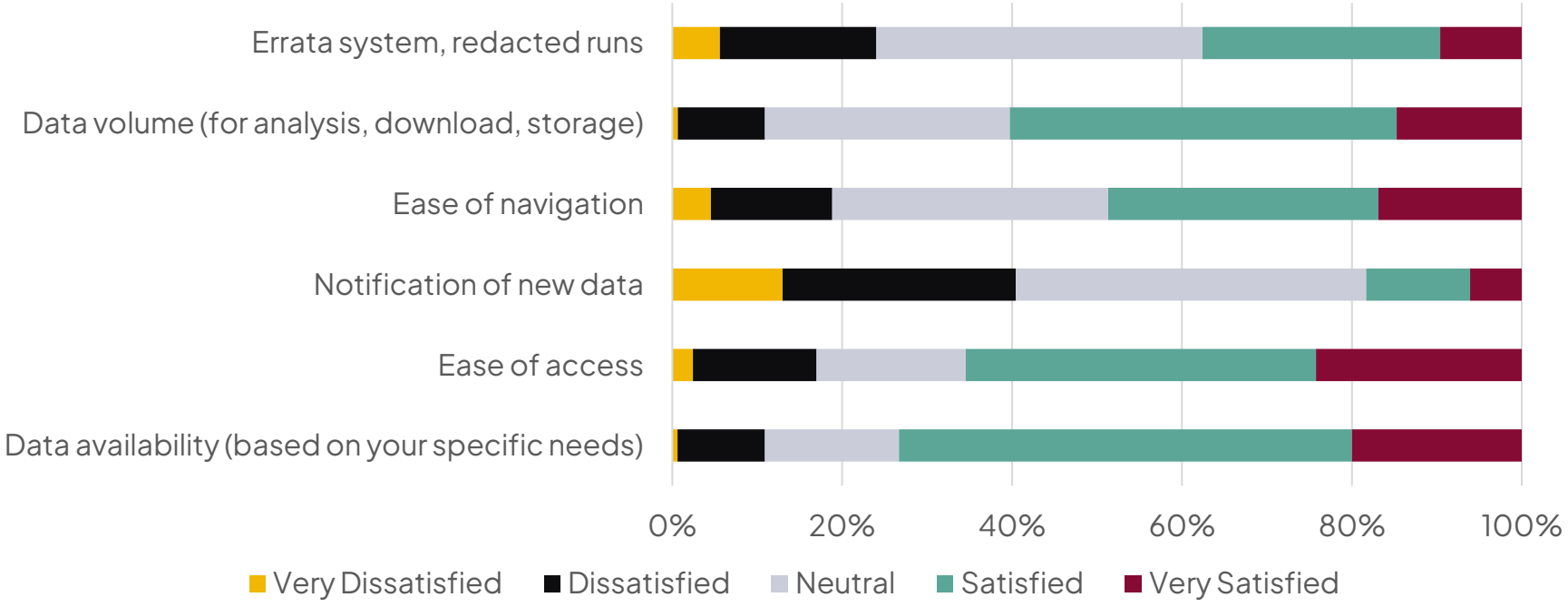
- With 45% of survey respondents expressing being dissatisfied or very dissatisfied, the delay in forcing data provision was the most cited complaint in the survey.
- The ScenarioMIP forcing delays were found to be particularly problematic against the IPCC AR6 deadline.
- Consensus that updated and improved forcing datasets coordinated centrally and appropriately resourced, allowing for quality control, adequate testing and exploration of forcing uncertainty should be supported.
- An estimate of three years has been suggested for forcing dataset generation.

CMIP6: Approaches for data analysis



- Download, local analysis
- Use a 'national' or other shared resource supported by institutional funding
- Cloud - based Service or commercial computing provider (e.g. AWS)
- Other or hybrid approach

CMIP6: Satisfaction with chosen platform



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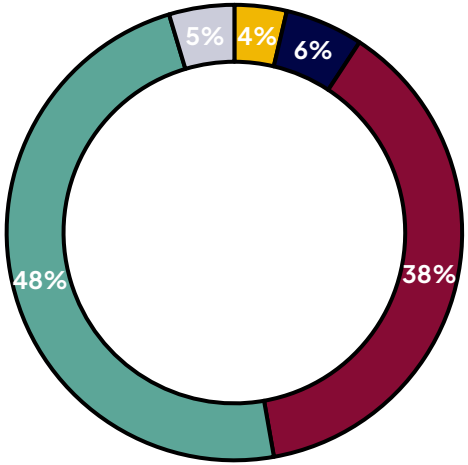
CMIP6: Infrastructure

Were you able to find supporting information?



Not at all

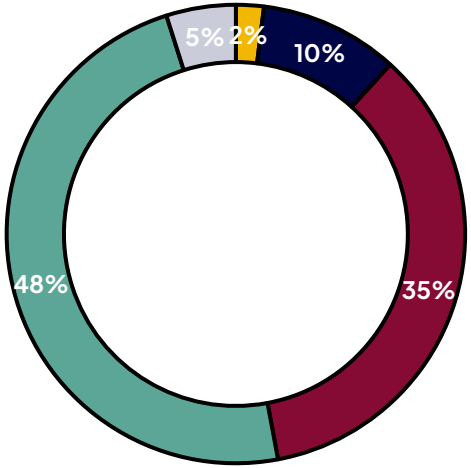
Rarely

Sometimes

Often

Always

Were your needs met by the documentation



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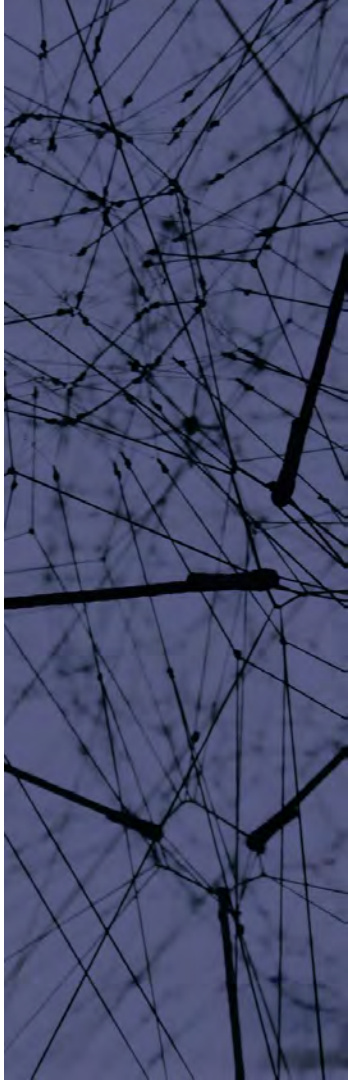
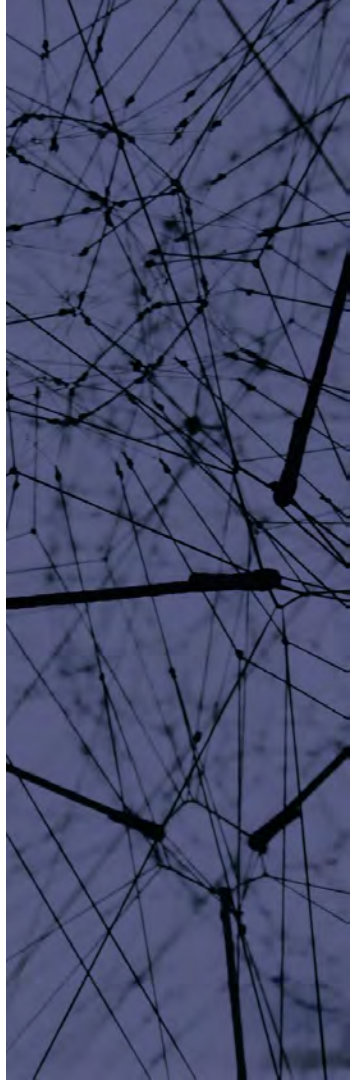
CMIP6: Data management & distribution

- Benefits of standardisation resulted in a considerable burden on modelling centres to post process data, potentially limiting wider participation.
- Need for CMIP community websites to be more user friendly and intuitive especially given the widening range of users.
- Improvement in the communication of updates and data management was widely requested.
- Checking the availability of new ensembles, experiments and variables was also described as time consuming.



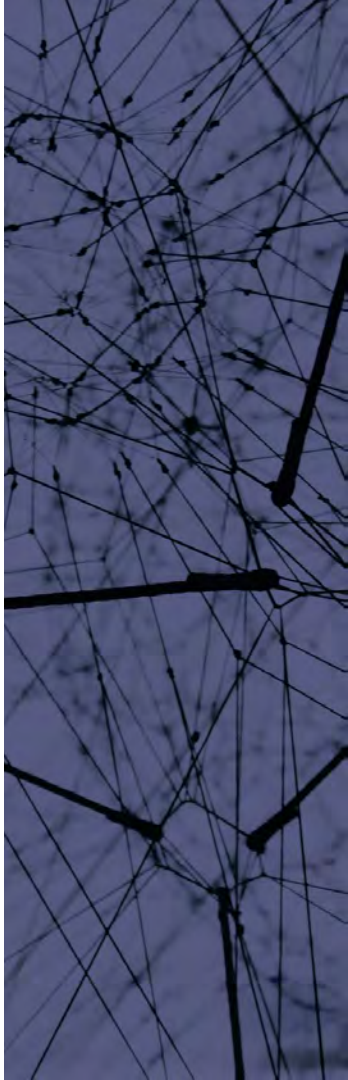
CMIP6: Data request

- Clear appreciation for the effort in coordinating and agreement with principles of the data request.
- Felt to be too complex, lengthy, difficult to interpret, and had too many versions.
- Some felt there were too many core or Tier 1 variables, with associated cost to modelling centres.
- However, CMIP6 was seen as being a big step forward in variables to support understanding of model differences and the IPCC AR6 WGI.



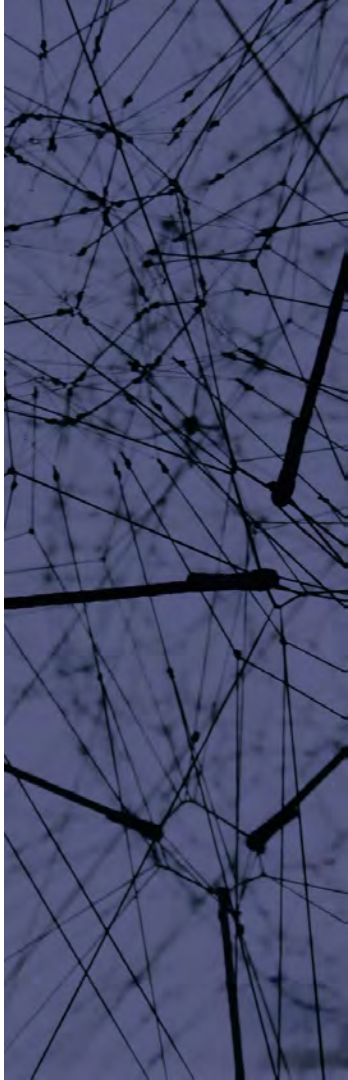
CMIP6: Model documentation

- Model documentation and errata seen to be very important, but was under-resourced and requires comprehensive review.
- Modelling centres found it burdensome and complicated resulting in confusion, limited completion, and low usage by users.
- The limited completion has been highlighted as problematic by downstream users e.g., climate services.
- Better connection between both the errata and data citation services and the ESGF was requested.



CMIP6 Survey: Future infrastructure

- View that CMIP framework has potential to support many other initiatives was widely held by respondents, if appropriately funded.
- Wishlist included:
  - Scaled down and simplified data request with fewer versions and updates.
  - Review and redesign of es-doc and errata service.
  - Improved integration of es-doc, errata and data citation within ESGF.
  - Automated post processing capacity on the ESGF.
  - Greater access to compute and analysis platforms e.g. JASMIN.
  - Take advantage of cloud opportunities.
  - More user-friendly websites with potential single point of entry.
  - Sustainable funding for infrastructure services.

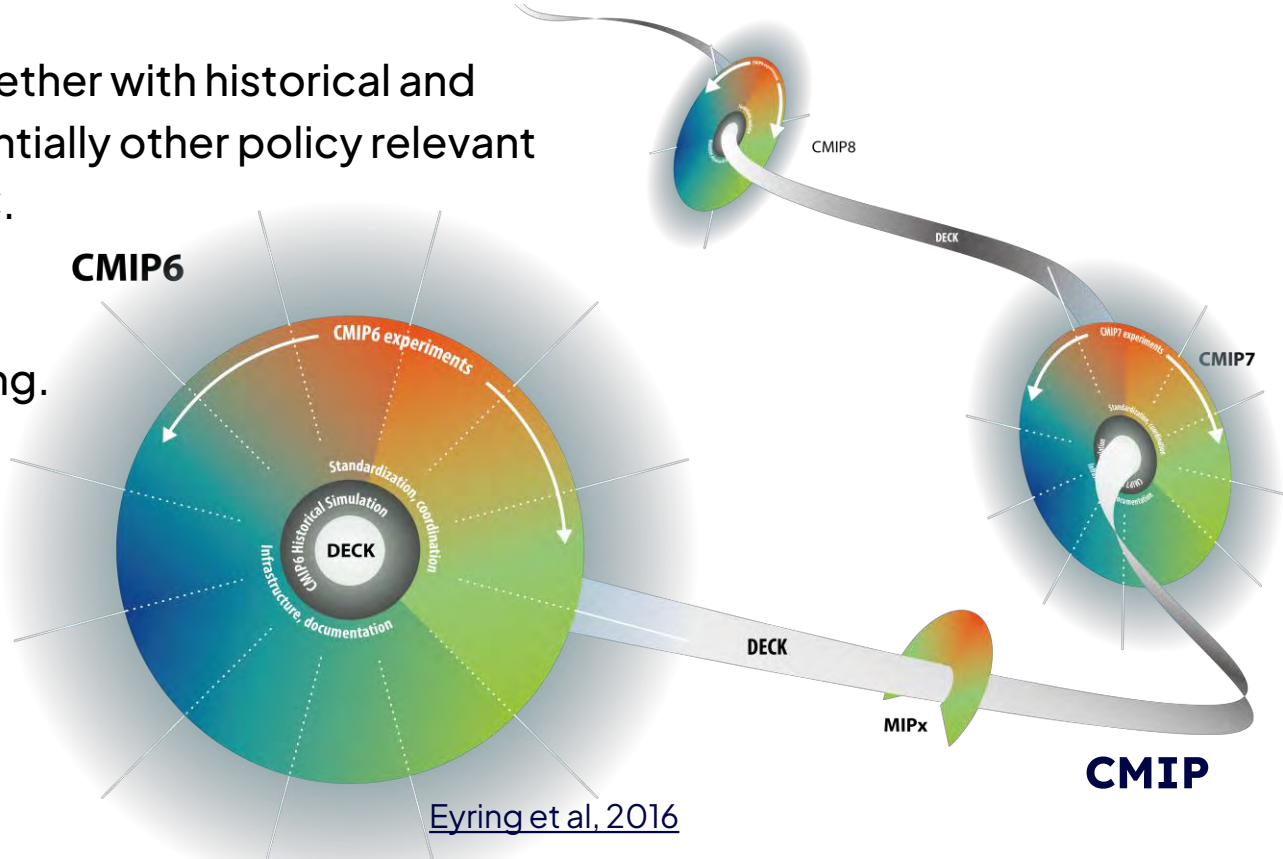


Looking forward to CMIP7

- No big structural change from CMIP6 but evolution.
- Retain alignment to IPCC in some form.
- Reduce burden on modelling centres.
- Need for greater focus on climate impacts and adaptation relevant experiments (including updated scenarios).
- Need for operationalisation of critical elements (e.g. forcing).
- Build on substantial CMIP6 data infrastructure progress to support improved, and more user friendly, data access.
- Continue and enhance active community input to the experimental design process.
- Nurture the future CMIP community and promote young and global South scientists.

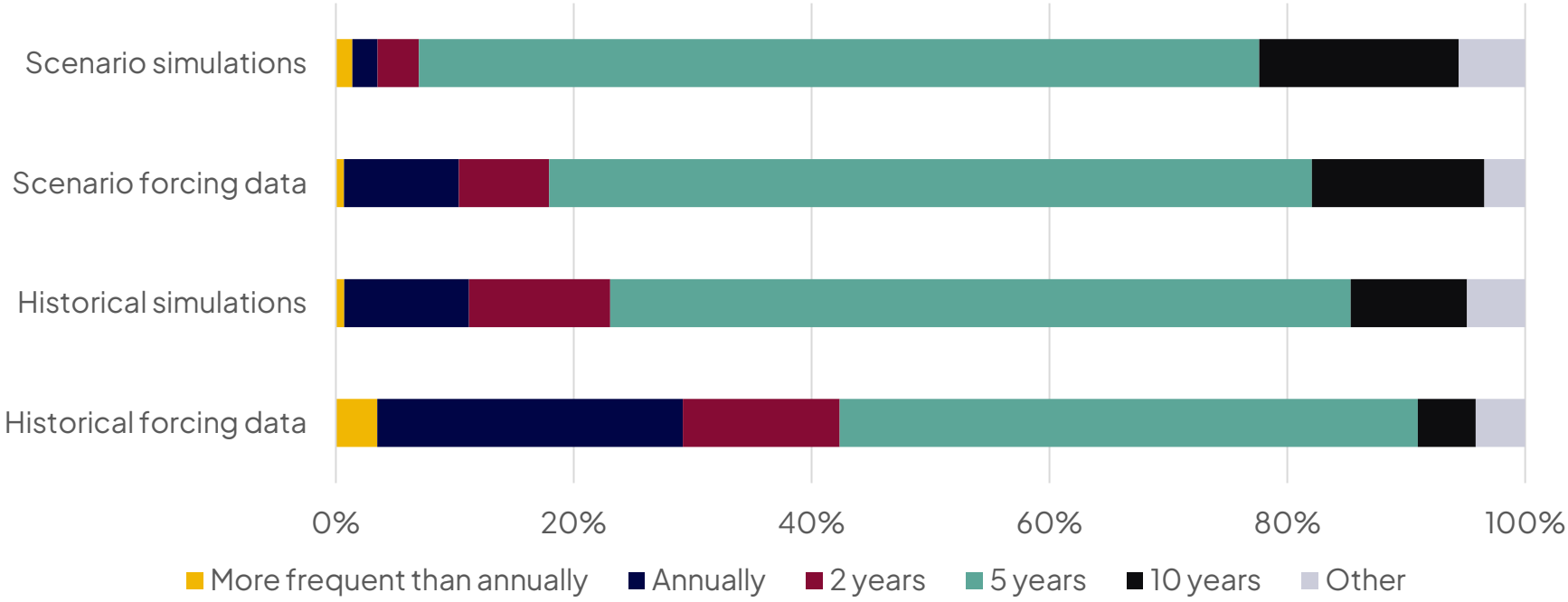
Looking forward to CMIP7

- A core of the DECK together with historical and ScenarioMIP (and potentially other policy relevant MIPs) to align with IPCC.
- Fewer experiments!
- Timely delivery of forcing.
- Sustainable funding.
- Broaden participation.

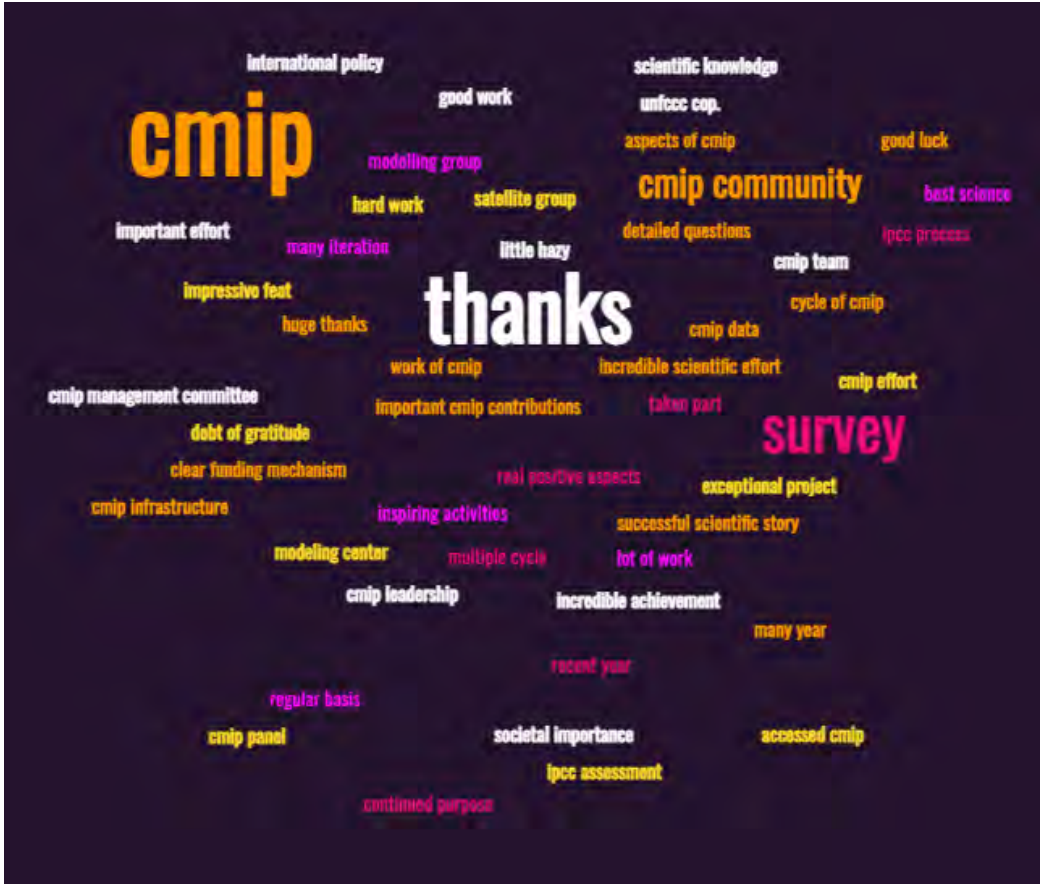


Eyring et al, 2016

How frequently should CMIP request to update



Final word….


international policy
scientific knowledge
good work
unfccc cop.
cmip
aspects of cmip
good luck
modelling group
cmip community
best science
hard work
satellite group
important effort
detailed questions
ipcc process
many iteration
little hazy
cmip team
impressive feat
thanks
cycle of cmip
huge thanks
cmip data
work of cmip
incredible scientific effort
cmip effort
cmip management committee
important cmip contributions
taken part
survey
debt of gratitude
clear funding mechanism
real positive aspects
exceptional project
cmip infrastructure
inspiring activities
successful scientific story
modeling center
multiple cycle
lot of work
cmip leadership
incredible achievement
many year
recent year
regular basis
cmip panel
societal importance
accessed cmip
ipcc assessment
continued purpose

Thank you.

Please contact cmip-ipo@esa.int with questions or feedback