Open call for membership of the Task Team on the Data Request for CMIP7

The data request of the Coupled Model Intercomparison Project Phase 7 (CMIP7) will define all the quantities from CMIP7 simulations that should be archived. This will include both quantities of general interest needed from most of the CMIP7-endorsed model intercomparison projects (MIPs) and quantities that are more specialized and only of interest to a single endorsed MIP. The complexity of the data request has increased from the early days of model intercomparisons, as has the data volume. The CMIP6 request defined distinct sets of highly tailored variables to be saved from each of the more than 200 experiments. Following review of the CMIP6 experience, some rationalisation has been agreed and there will be more consistency of the request between related experiments, while allowing enough flexibility to avoid archiving redundant data. Further details in Juckes et al. (2020).[1]

A review of the technical issues around the data request is provided in the "CMIP Data Request Schema 2.0" report[2]. A workshop was held in March 2022 to discuss the strategic aims of the Data Request in CMIP7[3], and followed by a workshop in June hosted by the CMIP IPO[4] which started the process of defining a set of priority variables.

The work needs to be carefully managed to ensure that a consolidated final request is ready when modelling centres need to start CMIP7 simulations. Careful management of expectations is required as the time needed to consolidate and harmonise requirements is often underestimated. A provisional timeline is outlined as follows:

- July 2025: PiControl simulations start
- Oct. 2024: Contents of request finalised: all variables with CF metadata with limited exceptions (governance to be determined).
- June 2024: Stable database schema requires finalising some aspects of interfaces to other services.

---

[1] Juckes, M., Taylor, K. E., Durack, P. J., Lawrence, B., Mizielinski, M. S., Pamment, A., Peterschmitt, J.-Y., Rixen, M., and Sénési, S.: The CMIP6 Data Request (DREQ, version 01.00.31), Geosci. Model Dev., 13, 201–224, https://doi.org/10.5194/gmd-13-201-2020 , 2020.

[2] https://zenodo.org/record/4287148

[3] https://docs.google.com/presentation/d/1VKUo7YdCDBVDbo5QbjQyTNZrkeUeqSFA/edit#slide=id.p7

[4] Priority variables for evaluation and exploitation of WCRP climate simulation, June 22nd, 2022

- Jan 2024: Final set of parameters from each MIP: they will not have full metadata at this stage, but we need complete lists to ensure that we have enough time for structured engagement with appropriate experts.
- June/July 2023: Community review meetings to discuss MIP variable requests and feedback.
- May 2023: Initial Feedback.
- April 2023: Initial lists from each MIP.
- Jan 2023: Participating MIPs identified. (MIPs starting later will have more limited options for requesting new variables).

A number of strategic requirements have been identified for the next version of the data request (see IS-ENES3 Milestone M10.2 report[5]). These include maintaining a similar structure, to minimise effort needed to interpret the Request, clearer links with externals sources of information such as the controlled vocabularies, allowing for alternate representations such as normalised databases, and the ability to clearly understand changes to the content of the Data Request as it is updated.

It has also been proposed that the model used for defining the priority of variables should be simplified, with greater use of common template variable lists for experiments and a more cautious approach to applying top priority to data requirements.

Desired experience

- Familiarity with the CMIP data protocols ("CMORization"), the Climate and Forecast (CF) Conventions, including experience exploiting and extending the CF conventions.
- Technical communication and moderation skills applicable to the climate science domain, experience in dealing with transdisciplinary projects, working across cultures and time zones, understanding, and achieving diversity goals.
- Familiarity with the scientific analysis and evaluation of CMIP class models.

Task Team Objectives

- Oversee the creation of the CMIP7 Data Request which should provide participating modelling centres with full details of CMIP7 output requirements from participating science teams.
- Ensure that the CMIP7 output requirements accurately reflect both the ambition of the science teams, the constraints of the data managing services, and the resources of the modelling centres.

[5] https://raw.githubusercontent.com/IS-ENES3/IS-ENES-Website/main/pdf_documents/IS-ENES3_M10-2_DataRequestSchema_1-1.pdf

Coordination with other CMIP TT, WCRP activities and wider stakeholders

There will be significant co-development work or collaboration with the following activities:

- CMIP Controlled Vocabularies: the controlled vocabularies (e.g., for frequencies, realms) are used in multiple places and need to be imported into the request and used consistently in all consultations with science teams.
- ES-DOC, and the Model Documentation TT, is dealing with experiment and model descriptions.
- Strategic Ensemble Design TT: for consistency between structure of request and architecture of ensemble design.
- WCRP Earth System Modelling and Observations (ESMO).
- CF Conventions provide essential foundations.

Time commitment

Meetings are expected to take place regularly, every 2-3 months, and more frequently as required and at the discretion of the TT Lead. There may be times when there is more or less work depending on the activities undertaken (e.g., a peak period may be associated with a workshop or paper published by the TT). Regular TT members are expected to commit appropriate time to this activity, at around 5-10% FTE. Most meetings will be online, with some out-of-hours working required to the challenges of time zone coordination. It is envisioned that the timescale of this TT will be 2-3 years. We are also seeking some TT members to take on an additional role in moderating discussions on data requirements, with a time commitment of around 25% FTE.

Remuneration

These are not paid roles.

How to apply

Applications should be submitted via this form before 18:00 UTC on 19th September 2022.

Contact and further information

The points of contact for this TT is Martin Juckes (martin.juckes@stfc.ac.uk), Centre for Environmental Data Analysis, UKRI STFC, and Chloe Mackallah (chloe.mackallah@csiro.au), CSIRO. Please contact the CMIP-IPO (cmip-ipo@esa.int) if you have any questions or require further information.