

## Working Group on Coupled Modelling (WGCM) Report

### 1. Highlights for JSC

- Coupled Model Intercomparison Project, CMIP6, is well underway.
  - There are currently 23 approved MIPs under CMIP6, with two new MIPs have recently been endorsed (PAMIP and CDRMIP)
  - There are 33 modelling groups worldwide who will be contributing to CMIP6, 13 of these are new to the process, including models from countries that have not been represented in the past (Brazil, India, Taiwan-China, Republic of Korea, and South Africa).
  - DECK and Historical simulations are now underway in several centres.
  - Some delays encountered in producing future forcings, but long-lived GHGs will be available mid-March, and other forcings (land-use, aerosols and ozone) to be available by end of May.
  - More details here: <https://www.wcrp-climate.org/wgcm-cmip/wgcm-cmip6>
- GMDD Special Issue open until end of June, 2018, to facilitate complete documentation of MIPs and forcing in a single large volume. Currently there are 30 papers in the special issue.
- WGCM Infrastructure Panel (WIP) continues to oversee impressive development of data archival and dissemination capabilities, using ESGF, to support CMIP6.

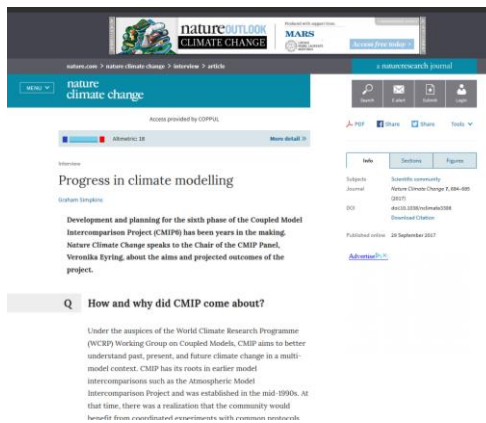
Major ESGF Node Sites

Institution	Gateway URL	Version	Country	Project(s)	Contact
1 CEDA	<a href="http://esgf-index1.ceda.ac.uk">esgf-index1.ceda.ac.uk</a>	2.4.0	UK	CMIP5, CORDEX, Obs4MIPs, SPES3, ESA CCI, EUCCLIA, CLIPC	alan.lwig@stfc.ac.uk
2 DKRZ	<a href="http://esgf-data.dkrz.de">esgf-data.dkrz.de</a>	2.4.0	Germany	CMIP5, CORDEX, Obs4MIPs, ISI-MIP	berger@dkrz.de
3 ANU/NCI	<a href="http://esgf.nci.org.au">esgf.nci.org.au</a>	2.4.0	Australia	CMIP5	ben.evans@anu.edu.au
4 NOAA/GFDL	<a href="http://esgf1.gfdl.noaa.gov">esgf1.gfdl.noaa.gov</a>	2.4.0	U.S.	CMIP5, ncpp2013, Obs4MIPs	hans.vahnenkamp@noaa.gov
5 NASA/GSFC	<a href="http://esgf.nascc.nasa.gov">esgf.nascc.nasa.gov</a>	2.4.0	U.S.	CMIP5, Obs4MIPs, Ana4MIPs, NEX-GDDP, NEX-DCP30, CREATE-IP	daniel.q.duffy@nasa.gov
6 IPSL	<a href="http://esgf-node1.ipslu.cn.fr">esgf-node1.ipslu.cn.fr</a>	2.4.0	France	CMIP5, CORDEX, Obs4MIPs	sebastien.derville@ipsl.jussieu.fr
7 NASA/JPL	<a href="http://esgf-node.jpl.nasa.gov">esgf-node.jpl.nasa.gov</a>	2.4.0	U.S.	Obs4MIPs, GASS-YoTC, CMAC	luca.cinquini@jpl.nasa.gov
8 DOE/LNL	<a href="http://esgf-node.lnl.gov">esgf-node.lnl.gov</a>	2.4.0	U.S.	CMIP5, CMIP3, input4MIPs, ACME	sasha@lnl.gov
9 UIU	<a href="http://esgf-dn1.nsc.liu.se">esgf-dn1.nsc.liu.se</a>	2.4.0	Sweden	CMIP5, CORDEX, Obs4MIPs	pcheng@nsc.liu.se



- Anticipate that, to be used in IPCC AR6, model results will have to be submitted to ESGF archive by 15 October, 2020.

- Aspen AGCI Workshop on model evaluation, organized by WGCM/CMIP leads, was very successful and a paper describing the outcomes has been submitted to Nature Climate Change.
- CMIP Panel Chair, Veronika Eyring, interviewed by Nature Climate Change, providing high visibility to this important WGCM activity. In addition, a video on CMIP is available here: <https://www.youtube.com/watch?v=wTBkq9nWNEE>
- More details on WGCM activities available from presentations at the most recent meeting: <https://www.wcrp-climate.org/sessions/1231-wgcm21-presentations>



## 2. Early success and/or planned activities in 2018/2019

- Plan is to hold WGCM-22 and CMIP6 Analysis Workshop in Barcelona in Spring, 2019, in conjunction with EU-PRIMAVERA, following successful example of Dubrovnik meeting a couple years ago.
  - This meeting will provide an opportunity for first focused look at CMIP6 model results.
- A series of WGCM and CMIP panel teleconferences on ongoing CMIP6 issues will be held during Autumn of 2018.

## 3. Issues and challenges

- Delays in CMIP6 forcing availability, and initial concerns about response of models to historical aerosol forcing, have put CMIP6 behind schedule. This is, to some extent, an inevitable consequence of this being a largely un-funded effort that strives to be at the absolute forefront of coordinated international collaborative climate science.
- WGCM is well situated within WCRP structure at the moment. It produces, arguably, some of the most visible and influential outcomes of the WCRP. We have provided feedback on the Strategic Plan aimed at maintaining this visibility, and the close connections to other related activities of the WCRP.
- WGCM provides the natural home within the WCRP for activities related to *both* model development and model application, including both global and regional models. WGCM is closely connected with process understanding through connections to WGNE, GEWEX and the GCs providing a strong link on the role of key processes in climate

change. We support the need to strengthen WGCM-CORDEX links to promote global to regional modelling understanding and applications.

- In the long term, there is a vital need to address the sustainability of CMIP. It is the one mechanism whereby international modelling centres coordinate their activities to provide historical simulations, targeted multi-model experiments, and carefully executed future climate projections that underpin a huge variety of scientific analysis, assessment (e.g. IPCC and National), products, and services provided by others. The current approach, based almost entirely on voluntary contributions, leveraging massive national investment, is not sustainable and needs focused thought and planning over the coming years.

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