

CMIP6 Infrastructure Status and Future

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With contributions from
The WGCM Infrastructure Panel

Presented at the
WGCM 22nd Session

Barcelona, Spain
25 March 2019

- Facilitate access to model output produced by MIPs (e.g., CMIP and the CMIP6 endorsed MIPs; obs4MIPs; CORDEX)
- Impose standards that make datasets self-describing
- Define “controlled vocabularies” to enable automated management of data and user-friendly search capabilities
- Provide information and services for
 - Documenting models and experiments
 - Assigning persistent i.d.’s for data citation purposes
 - Reporting errors in data
 - Helping contributors and users of CMIP data to do their work
 -

Purposes of the WGCM Infrastructure Panel*



- To set requirements ensuring the infrastructure will serve its purpose
- To write documents defining specifications for the infrastructure and data it hosts.
- To help coordinate development work done under independently-funded projects so that the infrastructure elements work well together
- To communicate and coordinate with data managers at modeling groups via a “CMIP Data Node Operations Team” (CDNOT; Sébastien Denvil, chair)

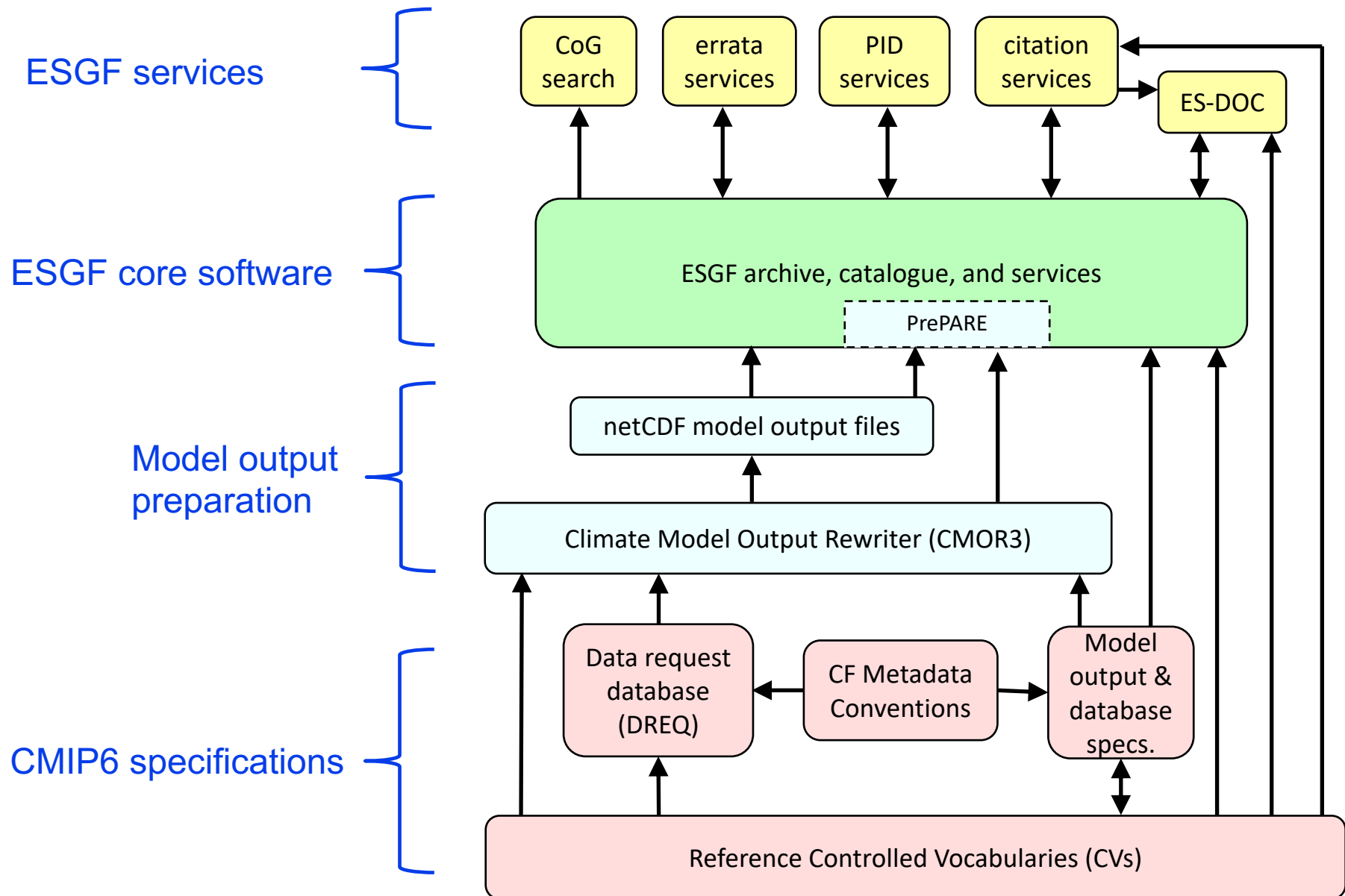
* Y. Bai, V. Balaji, L. Cinquini, S. Denvil, P. Durack, F. Guglielmo, E. Guilyardi, M. Jukes, S. Kharin, M. Lautenschlager, B. Lawrence, M. Mizielinski, K. Taylor

Objectives of this talk



- To provide an overview of the components of the CMIP infrastructure and their status
- To highlight tools and information that may help researchers obtain the data
- Look to the future ... cloud-based opportunities

Infrastructure components and dependencies



Formally registered experiments, institutions, and models are recorded by “*controlled vocabularies*” (CV’s)



CMIP6_CVs

Core Controlled Vocabularies (CVs) for use in CMIP6

Registering Institutions, Models, or requesting changes to CVs:

To register your institution or model or to request changes to a CV, please submit an issue/ticket following the instructions on the [CMIP6_CVs issue page](#).

Some support for CMIP participating modeling groups is available: pcmdi-cmip@llnl.gov

To view the current `experiment_id` entries point your browser to [CMIP6_experiment_id.html](#)

To view the current `institution_id` entries point your browser to [CMIP6_institution_id.html](#)

To view the current `source_id` entries point your browser to [CMIP6_source_id.html](#)

The CVs build on logic that is described in the [CMIP6 Global Attributes, DRS, Filenames, Directory Structure, and CV's document](#)

Lists of registered:

- experiments
- institutions
- models

All CV's are hosted at:

https://github.com/WCRP-CMIP/CMIP6_CVs

Table of Registered Models

Show entriesSearch:

source_id	institution_id	release_year	activity_participation	cohort	label	label_extended	atmos	natNomRes_atmos	ocean	natNomRes_ocean	land
ACCESS-CM2	CSIRO-ARCCSS-BoM	2018	MIPs CMIP FAFMIP OMIP RFMIP ScenarioMIP	Registered	ACCESS-CM2	Australian Community Climate and Earth System Simulator Climate Model Version 2	MetUM-HadGEM3-GA7.1 (N96; 192 x 144 longitude/latitude; 85 levels; top level 85 km)	250 km	ACCESS-OM2 (GFDL-MOM5, tripolar primarily 1deg; 360 x 300 longitude/latitude; 50 levels; top grid cell 0-10 m)	100 km	none
ACCESS-ESM1-5	CSIRO	2018	C4MIP CDRMIP CMIP RFMIP ScenarioMIP	Registered	ACCESS-ESM1.5	Australian Community Climate and Earth System Simulator Earth System Model Version 1.5	HadGAM2 (r1.1, N96; 192 x 145 longitude/latitude; 38 levels; top level 39255 m)	250 km	ACCESS-OM2 (MOM5, tripolar primarily 1deg; 360 x 300 longitude/latitude; 50 levels; top grid cell 0-10 m)	100 km	none
ARTS-2-3	UHH	2015	RFMIP	Registered	ARTS 2.3	ARTS 2.3 (Current development version of the Atmospheric Radiative Transfer Simulator)	none	none	none	none	none
AWI-CM-1-1-HR	AWI	2018	CMIP CORDEX HighResMIP OMIP SIMIP VIACSAB	Registered	AWI-CM 1.1 HR	AWI-CM 1.1 HR	ECHAM6.3.04p1 (T127L95 native atmosphere T127 gaussian grid; 384 x 192 longitude/latitude; 95 levels; top level 80 km)	100 km	FESOM 1.4 (unstructured grid in the horizontal with 1306775 wet nodes; 46 levels; top grid cell 0-5 m)	25 km	none
AWI-CM-1-1-LR	AWI	2018	CMIP CORDEX HighResMIP OMIP SIMIP ScenarioMIP VIACSAB	Registered	AWI-CM 1.1 LR	AWI-CM 1.1 LR	ECHAM6.3.04p1 (T63L47 native atmosphere T63 gaussian grid; 192 x 96 longitude/latitude; 47 levels; top level 80 km)	250 km	FESOM 1.4 (unstructured grid in the horizontal with 126859 wet nodes; 46 levels; top grid cell 0-5 m)	50 km	none
source_id	institution_id	release_year	activity_participation	cohort	label	label_extended	atmos	natNomRes_atmos	ocean	natNomRes_ocean	land

Showing 1 to 5 of 102 entries

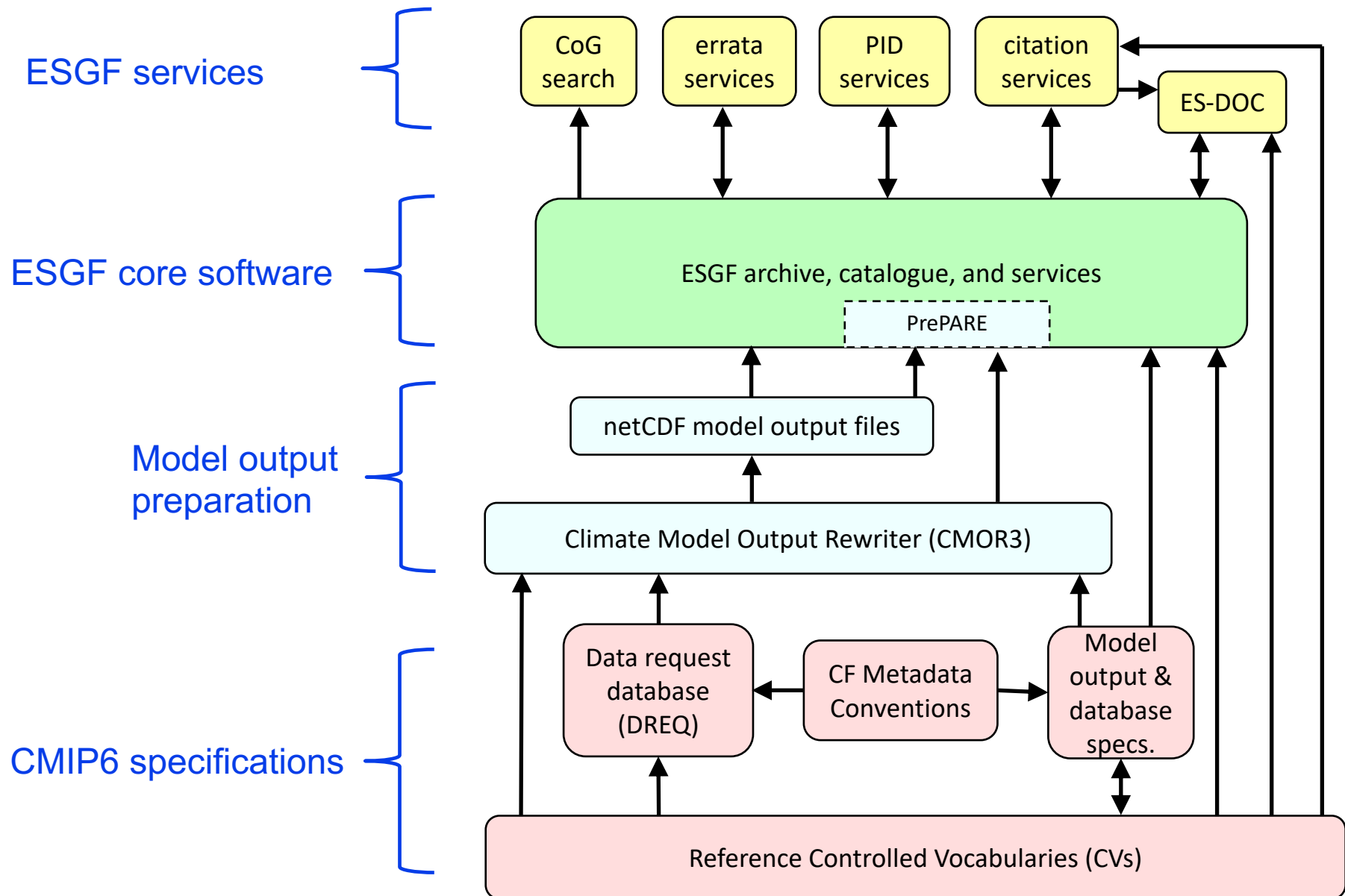
Previous 2 3 4 5 ... 21 Next

Major infrastructure components are operational



- Model output & data base specifications and global metadata requirements
 - Provides the foundation for much of the infrastructure
<https://pcmdi.llnl.gov/CMIP6/Guide/modelers.html#5-model-output-requirements>
- CMIP data request tools and documentation (M. Juckes' poster)
 - Specifies variables to save and at what frequency for each experiment
 - Specifies variable-specific metadata to include in output files.
<https://www.earthsystemcog.org/projects/wip/CMIP6DataRequest>
- CMOR can be used to write model output in conformance with CMIP requirements
<https://github.com/PCMDI/cmor> and <http://cmor.llnl.gov/>
- Pre-Publication Attribute Reviewer for ESGF (PrePARE)
 - new module checking file metadata before publication

Infrastructure components and dependencies

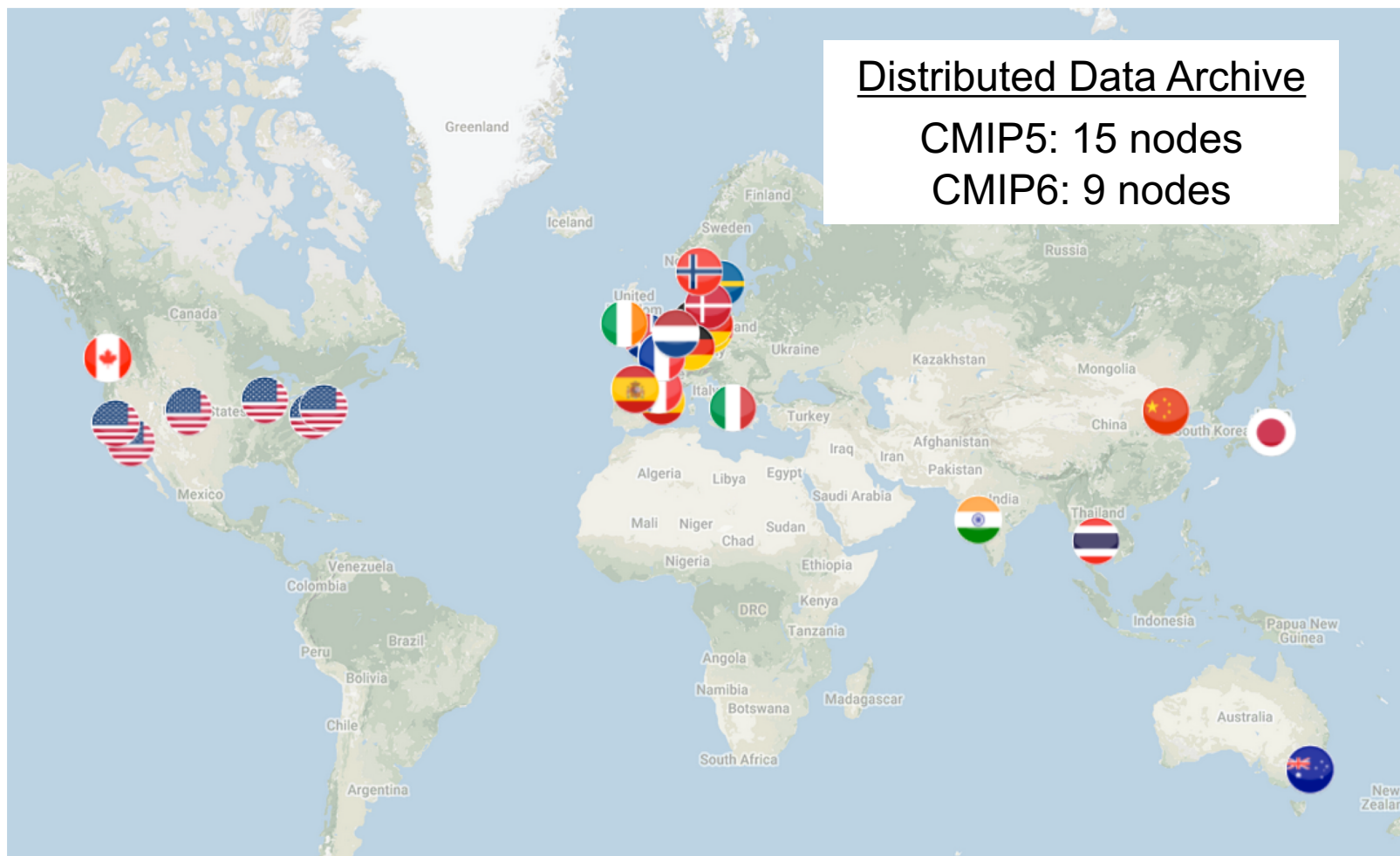


The Earth System Grid Federation (ESGF) develops and manages CMIP and other data

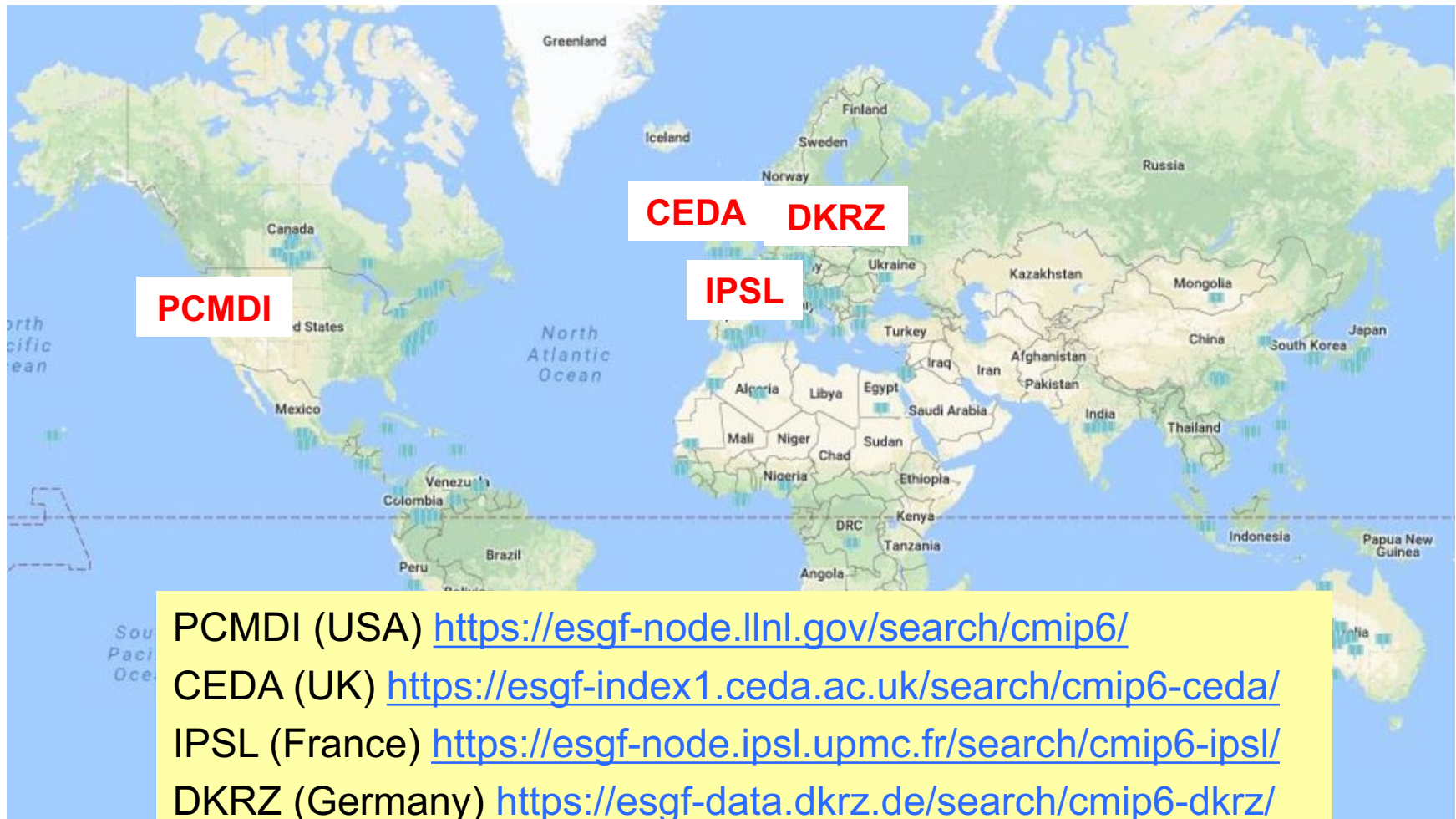
Distributed Data Archive

CMIP5: 15 nodes

CMIP6: 9 nodes



All CMIP6 data can be accessed from each of the 4 CMIP6 portals



- Summary of data holdings available
https://pcmdi.llnl.gov/CMIP6/ArchiveStatistics/esgf_data_holdings/
- More detailed info. available from portal search window
 - <https://esgf-node.llnl.gov/search/cmip6/>
 - 6 institutions; nearly 100 experiments
- Replication is ongoing at PCMDI and DKRZ
- **To do** (high priority): expand availability of Globus grid ftp to all sites.
- **To do** (high priority): provide server side computational services

- Provides users with an interface to browse and download all available data
- All 4 gateways have identical look and feel



The screenshot displays the WCRP CMIP6 ESGF CoG interface. At the top, the WCRP CMIP6 logo is shown, with the text 'World Climate Research Programme' below it. A navigation bar includes 'Home' and 'Technical Support' links. A search bar with 'Enter Text:' is present, along with 'Search', 'Reset', and 'Display 10 results per page' options. A sidebar on the left contains filters for 'MIP Era', 'Activity', 'Model Cohort', 'Product', 'Source ID', 'Institution ID', 'Source Type', 'Nominal Resolution', 'Experiment ID', 'Sub-Experiment', 'Variant Label', 'Grid Label', 'Table ID', 'Frequency', 'Realm', 'Variable', 'CF Standard Name', and 'Data Node'. The main content area shows search results for 'CFMIP'. It includes a 'Search Constraints' section with checkboxes for 'Show All Replicas', 'Show All Versions', and 'Search Local Node Only'. Below this, the total number of results is 863, with pagination links '-1- 2 3 4 5 6 Next >>'. There are also links to 'Add all displayed results to Data Cart' and 'Remove all displayed results from Data Cart'. The results list shows four entries, each with details like 'Data Node', 'Version', 'Total Number of Files', and 'Full Dataset Services' (including 'Show Metadata', 'List Files', 'THREDDS Catalog', 'WGET Script', 'LAS', 'Show Citation', 'PID', and 'Globus Download'). Each entry has an 'Add to Data Cart' button.

WCRP CMIP6
World Climate Research Programme

You are at the ESGF@DOE/LLNL node

Home Technical Support

Last Search | My Data Cart (1)

Enter Text: Search Reset Display 10 results per page [More Search Options]

Search Constraints: ☒ CFMIP ☐ Show All Replicas ☐ Show All Versions ☐ Search Local Node Only (Including All Replicas)

Total Number of Results: 863
-1- 2 3 4 5 6 Next >>
Add all displayed results to Data Cart Remove all displayed results from Data Cart
Expert Users: you may display the search URL and return results as XML or return results as JSON

1. CMIP6.CFMIP.IPSL.IPSL-CM6A-LR.abrupt-0p5xCO2.r11f1p1f1.CFmon.albiscpp.gr
Data Node: vesg.ipsl.upmc.fr
Version: 20180605
Total Number of Files (for all variables): 1
Full Dataset Services: [Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [LAS] [Show Citation] [PID] [Globus Download]
[Further Info]
Add to Data Cart
2. CMIP6.CFMIP.IPSL.IPSL-CM6A-LR.abrupt-0p5xCO2.r11f1p1f1.CFmon.clhcalipso.gr
Data Node: vesg.ipsl.upmc.fr
Version: 20180605
Total Number of Files (for all variables): 5
Full Dataset Services: [Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [LAS] [Show Citation] [PID] [Globus Download]
[Further Info]
Add to Data Cart
3. CMIP6.CFMIP.IPSL.IPSL-CM6A-LR.abrupt-0p5xCO2.r11f1p1f1.CFmon.ruucs.gr
Data Node: vesg.ipsl.upmc.fr
Version: 20180605
Total Number of Files (for all variables): 1
Full Dataset Services: [Show Metadata] [List Files] [THREDDS Catalog] [WGET Script] [LAS] [Show Citation] [PID] [Globus Download]
[Further Info]
Add to Data Cart
4. CMIP6.CFMIP.IPSL.IPSL-CM6A-LR.abrupt-0p5xCO2.r11f1p1f1.3hr.rds.gr
Data Node: vesg.ipsl.upmc.fr
Version: 20180605

Data citation services

Show Citation

1. CMIP6.CFMIP.IPSL.IPSL-CM6A-LR.abrupt-0p5xCO2.r11p1f1.CFmon.albiscpp.gr

Data Node: vesg.ipsl.upmc.fr

Version: 20180605

Total Number of Files (for all variables): 1

Full Dataset Services: [[Show Metadata](#)] [[List Files](#)] [[THREDDS Catalog](#)] [[WGET Script](#)] [[LAS](#)] [[Show Citation](#)] [[PID](#)] [[Globus Download](#)] [[Further Info](#)]

 Add to Data Cart



World Climate Research Programme

You are at the ESGF@DOE/LLNL node

[Technical Support](#)

Last Search |  My Data Cart (1)

MIP Era +
Activity -
☒ CFMIP (863)
Model Cohort +
Product +

Source ID +
Institution ID +
Source Type +
Nominal Resolution +
Experiment ID +
Sub-Experiment +
Variant Label +
Grid Label +

Table ID +
Frequency +
Realm +
Variable +
CF Standard Name +

Data Node +

Enter Text:

 Search Display 10 results per page [More Search Options](#)

☐ Show All Replicas ☐ Show All Versions ☐ Search Local Node Only (Including All Replicas)

Search Constraints:  CFMIP

Total Number of Results: 863

1 2 3 4 5 6 Next >>

Add all displayed results to Data Cart Remove all displayed results from Data Cart
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Data Node: vesg.ipsl.upmc.fr

Version: 20180605

Total Number of Files (for all variables): 1

Full Dataset Services: [[Show Metadata](#)] [[List Files](#)] [[THREDDS Catalog](#)] [[WGET Script](#)] [[LAS](#)] [[Show Citation](#)] [[PID](#)] [[Globus Download](#)] [[Further Info](#)]

 Add to Data Cart


2. CMIP6.CFMIP.IPSL.IPSL-CM6A-LR.abrupt-0p5xCO2.r11p1f1.CFmon.chcalipso.gr

Data Node: vesg.ipsl.upmc.fr

Version: 20180605

Total Number of Files (for all variables): 5

Full Dataset Services: [[Show Metadata](#)] [[List Files](#)] [[THREDDS Catalog](#)] [[WGET Script](#)] [[LAS](#)] [[Show Citation](#)] [[PID](#)] [[Globus Download](#)] [[Further Info](#)]

 Add to Data Cart

3. CMIP6.CFMIP.IPSL.IPSL-CM6A-LR.abrupt-0p5xCO2.r11p1f1.CFmon.ruucs.gr

Data Node: vesg.ipsl.upmc.fr

Version: 20180605

Total Number of Files (for all variables): 1

Full Dataset Services: [[Show Metadata](#)] [[List Files](#)] [[THREDDS Catalog](#)] [[WGET Script](#)] [[LAS](#)] [[Show Citation](#)] [[PID](#)] [[Globus Download](#)] [[Further Info](#)]

 Add to Data Cart

4. CMIP6.CFMIP.IPSL.IPSL-CM6A-LR.abrupt-0p5xCO2.r11p1f1.3hr.rds.gr

Data Node: vesg.ipsl.upmc.fr

Version: 20180605

Citation page



Metadata for 'CMIP6.CFMIP.IPSL.IPSL-CM6A-LR.abrupt-0p5xCO2'

General Information

General Information

Name CMIP6.CFMIP.IPSL.IPSL-CM6A-LR.abrupt-0p5xCO2

Abstract Coupled Model Intercomparison Project Phase 6 (CMIP6) data sets. These data includes all datasets published for 'CMIP6.CFMIP.IPSL.IPSL-CM6A-LR.abrupt-0p5xCO2' according to the Data Reference Syntax defined as 'mip_era.activity_id.institution_id.source_id.experiment_id.member_id.table_id.variable_id.grid_label.version'.

The Earth System Model IPSL-CM6A-LR, released in 2017, includes the components: atmos: LMDZ (NPv6, N96; 144 x 143 longitude/latitude; 79 levels; top level 40000 m), land: ORCHIDEE (v2.0, Water/Carbon/Energy mode), ocean: NEMO-OPA (eORCA1.3, tripolar primarily 1deg; 362 x 332 longitude/latitude; 75 levels; top grid cell 0-2 m), ocnBgchem: NEMO-PISCES, seaIce: NEMO-LIM3.

The model was run by the Institut Pierre Simon Laplace, Paris 75252, France (IPSL) in native nominal resolutions: atmos: 250 km, land: 250 km, ocean: 100 km, ocnBgchem: 100 km, seaIce: 100 km.

Project: These data have been generated as part of the internationally-coordinated Coupled Model Intercomparison Project Phase 6 (CMIP6); see also CMD Special Issue: http://www.geosci-model-dev.net/special_issue590.html. The

Cite this data

Citation (2018). *IPSL IPSL-CM6A-LR model output prepared for CMIP6 CFMIP abrupt-0p5xCO2*. Earth System Grid Federation. <http://cera-www.dkrz.de/WDCC/meta/CMIP6/CMIP6.CFMIP.IPSL.IPSL-CM6A-LR.abrupt-0p5xCO2>



BibTeX



RIS

Model and experiment documentation

1. CMIP6.CFMIP.IPSL.IPSL-CM6A-LR.abrupt-0p5xCO2.r11i1p1f1.CFmon.albiscpp.gr

Data Node: vesg.ipsl.upmc.fr

Version: 20180605

Total Number of Files (for all variables): 1

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Further Info



You are at the ESGF@DOE/LLNL node

[Technical Support](#)

Last Search | [My Data Cart \(1\)](#)

MIP Era +
Activity -
☒ CFMIP (863)
Model Cohort +
Product +

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Data Node: vesg.ipsl.upmc.fr

Version: 20180605

Total Number of Files (for all variables): 5

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Data Node: vesg.ipsl.upmc.fr

Version: 20180605

Total Number of Files (for all variables): 1

Full Dataset Services: [[Show Metadata](#)] [[List Files](#)] [[THREDDS Catalog](#)] [[WGET Script](#)] [[LAS](#)] [[Show Citation](#)] [[PID](#)] [[Globus Download](#)] [[Further Info](#)]

[Add to Data Cart](#)

4. CMIP6.CFMIP.IPSL.IPSL-CM6A-LR.abrupt-0p5xCO2.r11i1p1f1.3hr.rds.gr

Data Node: vesg.ipsl.upmc.fr

Version: 20180605

Further Info URL: <https://furtherinfo.es-doc.org/cmip6.ipsl.ipsl-cm6a-lr.dcppa-hindcast-niff.s2000.r1>

ES-DOC Documentation

MIP Era	CMIP6
Institution	IPSL
Consortia	IPSL
Model	IPSL-CM6A-LR
Experiment	dcppA-hindcast-niff
Ensemble Description	N/A
Machine Performance	N/A

Dataset Documentation

Dataset ESGF Search	N/A
Dataset Errata	N/A
Dataset Citation(s)	https://cera-www.dkrz.de/WDCC/meta/CMIP6/CMIP6.DCPP.IPSL.IPSL-CM6A-LR.dcppA-hindcast-niff

Other Documentation

WCRP CMIP6 Homepage	https://www.wcrp-climate.org/wgcm-cmip/wgcm-cmip6
ES-DOC CMIP6 Homepage	https://es-doc.org/cmip6

Further Info URL: <https://furtherinfo.es-doc.org/cmip6.ipsl.ipsl-cm6a-lr.dcppa-hindcast-niff.s2000.r1>

ES-DOC Documentation

MIP Era	CMIP6
Institution	IPSL
Consortia	IPSL
Model	IPSL-CM6A-LR
Experiment	dcppA-hindcast-niff
Ensemble Description	N/A
Machine Performance	N/A

This web page already exists for every ensemble that will be run by every group

Links to ES-DOC documentation, as it becomes available

Dataset Documentation

Dataset ESGF Search	N/A
Dataset Errata	N/A
Dataset Citation(s)	https://cera-www.dkrz.de/WDCC/meta/CMIP6/CMIP6.DCPP.IPSL.IPSL-CM6A-LR.dcppA-hindcast-niff

Other Documentation

WCRP CMIP6 Homepage <https://www.wcrp-climate.org/wgcm-cmip/wgcm-cmip6>

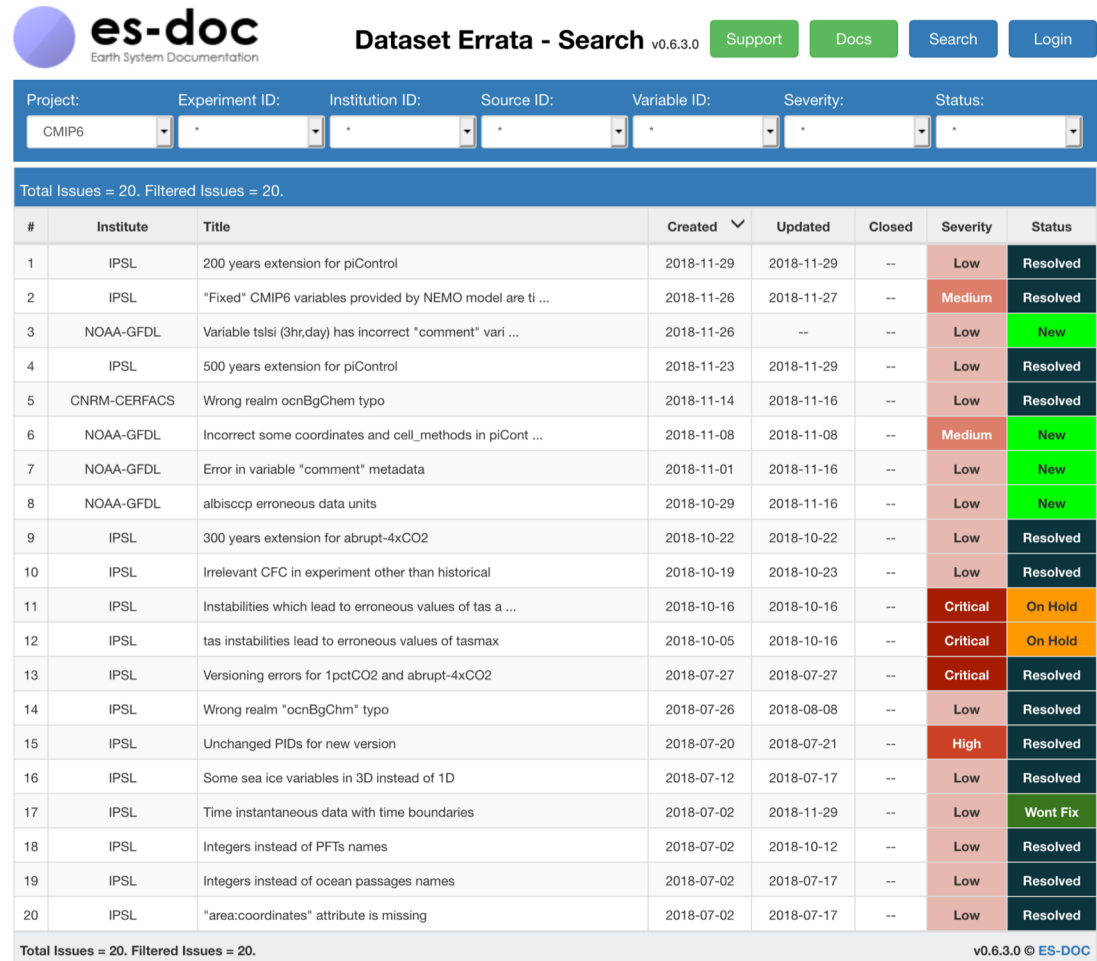
ES-DOC CMIP6 Homepage <https://es-doc.org/cmip6>

- Documents:
 - 22 MIPs and 289 experiments fully documented
 - 13 groups working on documenting models
 - Landing pages for ~200,000 ESGF datasets on the ES-DOC server
- Group engagement :
 - 37 out of 45 groups (82%) have named an “ES-DOC liaison”
 - 8 out of 45 (18%) have not: AS-RCEC, CAMS, CSIRO, DKRZ, E3SM-Project, INM, NERC, NIMS-KMA (requests sent)
- Groups who have published at least one model realm :
 - 4 out of 45 (9%): IPSL, MIROC, MOHC, NCAR
 - These will appear in AR6 FOD model table, the rest in SOD
- Groups who have started work on model documentation :
 - 13 out of 45 (29%): CCCR-IITM, CNRM-CERFACS, ECMWF, HAMMOZ-CONSORTIUM, INPE, IPSL, MESSY-CONSORTIUM, MIROC, MOHC, MPI-M, MRI, NCAR, NOAA-GFDL

CMIP6 documentation on track - nudge from WGCM helps
Good feedback on process by groups (beta testing is key)
Feeding in IPCC process and 3 papers in preparations

CMIP6 data errata is provided by ES-DOC

- Entry page <https://search.es-doc.org/>
- Any simulation/data problems must be reported using the ES-DOC errata service
- This will trigger a response (and resolution) by the contributing modelling group

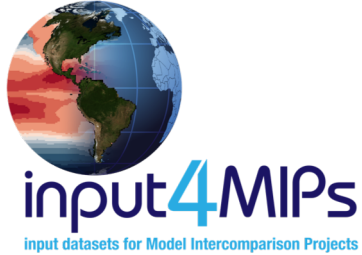


The screenshot displays the ES-DOC Dataset Errata Search interface. At the top, the ES-DOC logo is visible, along with the text "Dataset Errata - Search v0.6.3.0". Navigation buttons for "Support", "Docs", "Search", and "Login" are present. Below the navigation bar is a search filter section with dropdown menus for "Project" (set to "CMIP6"), "Experiment ID", "Institution ID", "Source ID", "Variable ID", "Severity", and "Status". Below the filters, a summary bar indicates "Total Issues = 20. Filtered Issues = 20." A table lists 20 issues, each with columns for #, Institute, Title, Created, Updated, Closed, Severity, and Status. The issues are sorted by creation date. The table shows a mix of resolved, new, and on-hold issues, with varying severity levels from Low to Critical. At the bottom of the table, another summary bar shows "Total Issues = 20. Filtered Issues = 20." and the version "v0.6.3.0 © ES-DOC".

#	Institute	Title	Created	Updated	Closed	Severity	Status
1	IPSL	200 years extension for piControl	2018-11-29	2018-11-29	--	Low	Resolved
2	IPSL	"Fixed" CMIP6 variables provided by NEMO model are ti ...	2018-11-26	2018-11-27	--	Medium	Resolved
3	NOAA-GFDL	Variable tslsi (3hr,day) has incorrect "comment" vari ...	2018-11-26	--	--	Low	New
4	IPSL	500 years extension for piControl	2018-11-23	2018-11-29	--	Low	Resolved
5	CNRM-CERFACS	Wrong realm ocnBgChem typo	2018-11-14	2018-11-16	--	Low	Resolved
6	NOAA-GFDL	Incorrect some coordinates and cell_methods in piCont ...	2018-11-08	2018-11-08	--	Medium	New
7	NOAA-GFDL	Error in variable "comment" metadata	2018-11-01	2018-11-16	--	Low	New
8	NOAA-GFDL	albiscpp erroneous data units	2018-10-29	2018-11-16	--	Low	New
9	IPSL	300 years extension for abrupt-4xCO2	2018-10-22	2018-10-22	--	Low	Resolved
10	IPSL	Irrelevant CFC in experiment other than historical	2018-10-19	2018-10-23	--	Low	Resolved
11	IPSL	Instabilities which lead to erroneous values of tas a ...	2018-10-16	2018-10-16	--	Critical	On Hold
12	IPSL	tas instabilities lead to erroneous values of tasmax	2018-10-05	2018-10-16	--	Critical	On Hold
13	IPSL	Versioning errors for 1pctCO2 and abrupt-4xCO2	2018-07-27	2018-07-27	--	Critical	Resolved
14	IPSL	Wrong realm "ocnBgChm" typo	2018-07-26	2018-08-08	--	Low	Resolved
15	IPSL	Unchanged PIDs for new version	2018-07-20	2018-07-21	--	High	Resolved
16	IPSL	Some sea ice variables in 3D instead of 1D	2018-07-12	2018-07-17	--	Low	Resolved
17	IPSL	Time instantaneous data with time boundaries	2018-07-02	2018-11-29	--	Low	Wont Fix
18	IPSL	Integers instead of PFTs names	2018-07-02	2018-10-12	--	Low	Resolved
19	IPSL	Integers instead of ocean passages names	2018-07-02	2018-07-17	--	Low	Resolved
20	IPSL	"area:coordinates" attribute is missing	2018-07-02	2018-07-17	--	Low	Resolved

<https://errata.es-doc.org/static/index.html>

ESGF provides access to CMIP6 forcing datasets and some observations



- CMIP6 forcing datasets (P. Durack's Poster)

<https://esgf-node.llnl.gov/search/input4mips/>



- Observations conforming to CMIP6 data specifications (P. Gleckler and D. Waliser)

<https://esgf-node.llnl.gov/projects/obs4mips/>

CMIP6 Guide: <https://pcmdi.llnl.gov/CMIP6/>

Program for Climate Model Diagnosis & Intercomparison

Google Custom Search

[Home](#) [About](#) [Research](#) [CMIP6](#) [MIPs](#) [Publications](#) [Software](#) [CMIP Data \(ESGF Portal\)](#)

CMIP6 - Coupled Model Intercomparison Project Phase 6

Overview:

The [WCRP Working Group on Coupled Modelling \(WGCM\)](#) oversees the Coupled Model Intercomparison Project, which is now in its 6th phase. Background information about CMIP and its phases can be found on [WGCM website](#) as well as on the [PCMDI-hosted pages](#). An [introductory overview](#) of CMIP6 is also provided by the WGCM.

Practical information for those interested in participating in CMIP6 is provided in [three guides](#), tailored to different groups:


1. [Modelers](#) carrying out CMIP6 simulations,
2. [Data managers](#) responsible for data node operations, and
3. [Data users](#) analyzing and making use of CMIP6 model output

CMIP6 Endorsed MIPs:

- [WCRP Endorsed \(Model Intercomparison Project\) MIPs overview page](#)
- [CMIP6 Ocean Model Intercomparison Project \(OMIP\) overview page](#)




Additional information for CMIP6:

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Example: Guidance document for data users



Program for Climate Model Diagnosis & Intercomparison

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CMIP6 Guidance for Data Users

[Link back to guide homepage](#)

Karl E. Taylor, Paul J. Durack, Sasha Ames, Martina Stockhause, ...

Document overview:

1. Experiment design
2. Model output specifications
3. Accessing model output
4. Terms of use and citation requirements
5. Model and experiment documentation
6. Reporting suspected errors
7. Registering published work based on CMIP6
8. CMIP6 organization and governance

1. Experiment design

The CMIP6 protocol and experiments are described in a [special issue](#) of design and scientific strategy provided in the lead article of that issue b


- Points to information on experimental design
- Describes and links to controlled vocabularies
- Documents essential model output specifications
- Describes how to access output

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2017	Quesada Benjamin, Arneth Almut, et al.	Atmospheric, radiative, and hydrologic effects of future land use and land cover changes: A global and multimodel climate picture (Citation) (More Info) (Abstract) (BibTex)
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2017	Zazulie, N, Rusticucci, M, et al.	Regional climate of the subtropical central Andes using high-resolution CMIP5 models—part I: past performance (1980–2005) (Citation) (More Info) (Abstract) (BibTex)
2016	DeAngelis, Anthony M., Qu, Xin, et al.	Importance of vegetation processes for model spread in the fast precipitation response to CO2 forcing (Citation) (More Info) (Abstract) (BibTex)
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Publication Count: 1161

- Experiment
- Frequency
- Keyword
- Model
- Status
- Type
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- Year