

IS-ENES3 General Assembly 2020-03-25

# ES-DOC status, March 2020

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DKRZ  
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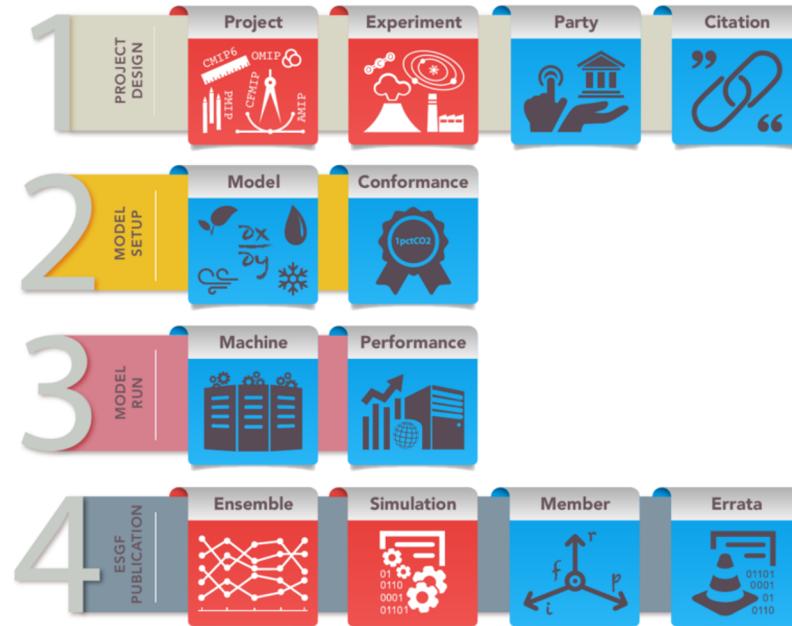


The IS-ENES3 project has received funding from the European Union's Horizon 2020  
research and innovation programme under grant agreement No 824084

# ES-DOC in support of CMIP6

## Documentation workflow:

- About half of the documents **automated or ES-DOC generated**
- The others **produced by groups** when ready
- **Further Info URL**
  - Binds all available documentation together in a “bottom up” approach



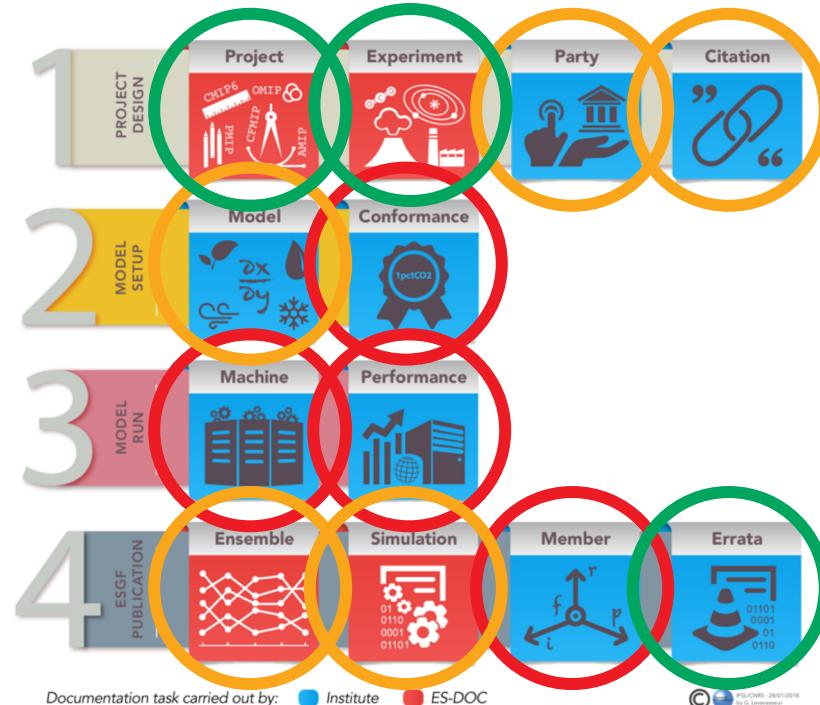
Documentation task carried out by: ■ Institute ■ ES-DOC

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by G. Lemoine et al.

# ES-DOC in support of CMIP6

## Documentation workflow:

- About half of the documents **automated or ES-DOC generated**
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  - Binds all available documentation together in a “bottom up” approach
- **Done**
- **Ongoing**
- **Under development, due later in 2020**



# Status of CMIP6 operations

- Operational for CMIP6 since December 2018
- **Experiments** fully documented by ES-DOC at <http://search.es-doc.org>
- Modelling groups have started to use the ES-DOC infrastructure to document their **model formulations**: **10/49** Groups have (partially) published **18/130** model descriptions
  - Spreadsheets disseminated via GitHub are filled in, returned to GitHub, and then automatically published to <http://search.es-doc.org>
- This methodology has been designed to be generalisable to the other types of documentation that will be rolled out later in 2020
  - **conformance, machine, performance, differences between ensemble members**
- **Simulations** are documented by an automated script running as part of the ESGF publisher
  - Metadata from **995** institute/model/experiment combinations spanning from **2230267** publications have been collected, more arriving every all the time.
  - These are currently being reduced to O(1000) unique publishable simulation descriptions
- **Further Info URL** found in each CMIP6 netCDF files is fully functional, including links to errata citation services

# Underpinning papers

<https://doi.org/10.5194/gmd-2019-98>  
Preprint. Discussion started: 5 June 2019  
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## Designing and Documenting Experiments in CMIP6

Charlotte Pascoe<sup>1,2</sup>, Bryan N Lawrence<sup>2,3</sup>, Eric Guilyardi<sup>2,4</sup>, Martin Juckes<sup>1,2</sup>, and Karl E Taylor<sup>5</sup>

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<sup>2</sup>National Centre of Atmospheric Science, UK.

<sup>3</sup>Departments of Meteorology and Computer Science, University of Reading, UK.

<sup>4</sup>LOCEAN/IPSL, Sorbonne Université/CNRS/IRD/MNHN, Paris, France

<sup>5</sup>PCMDI, Lawrence Livermore National Laboratory, Livermore, CA, USA

- Accepted in *IEEE Access*:

- **Documenting numerical simulation workflows with a new ontology and a new ontology specification language**
  - Bryan Lawrence, Mark Greenslade, David Hassell, Eric Guilyardi, Sébastien Denvil

# Further Info URL

- Found in *every* CMIP6 netCDF dataset
- Provides access to all documentation relating the dataset

```
$ ncdump pr_Amon_piControl_IPSL.IPSL-CM6A-LR-LR_r1i1p1f1.nc | grep further_info_url
:further_info_url = "https://furtherinfo.es-doc.org/CMIP6.IPSL.IPSL-CM6A-LR.piControl.none.r1i1p1f1";
```

# Further Info URL



CMIP6 Further Information v1.1.2

Support

Help

Further Info URL: <https://furtherinfo.es-doc.org/CMIP6.IPSL.IPSL-CM6A-LR.piControl.none.r1i1p1f1>

ES-DOC Documentation	
MIP Era	CMIP6
Institution	IPSL
Model	IPSL-CM6A-LR
Experiment	piControl
Ensemble Description	N/A
Machine Performance	N/A

Dataset Documentation	
ESGF Search	<a href="#">View @ PCMDI</a>
Errata	<a href="#">View @ ES-DOC</a>
Citation (Institute)	<a href="#">View @ DKRZ</a>
Citation (Experiment)	<a href="#">View @ DKRZ</a>

Other Documentation	
WCRP CMIP6 Homepage	<a href="https://www.wcrp-climate.org/wgcm-cmip/wgcm-cmip6">https://www.wcrp-climate.org/wgcm-cmip/wgcm-cmip6</a>
ES-DOC CMIP6 Homepage	<a href="https://es-doc.org/cmip6">https://es-doc.org/cmip6</a>

# Further Info URL



CMIP6 Further Information v1.1.2

Support

Help

Further Info URL: <https://furtherinfo.es-doc.org/CMIP6.IPSL.IPSL-CM6A-LR.piControl.none.r1i1p1f1>

ES-DOC Documentation	
MIP Era	CMIP6
Institution	IPSL
Model	IPSL-CM6A-LR
Experiment	piControl
Ensemble Description	N/A
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Dataset Documentation	
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Errata	<a href="#">View @ ES-DOC</a>
Citation (Institute)	<a href="#">View @ DKRZ</a>
Citation (Experiment)	<a href="#">View @ DKRZ</a>

Other Documentation	
WCRP CMIP6 Homepage	<a href="https://www.wcrp-climate.org/wgcm-cmip/wgcm-cmip6">https://www.wcrp-climate.org/wgcm-cmip/wgcm-cmip6</a>
ES-DOC CMIP6 Homepage	<a href="https://es-doc.org/cmip6">https://es-doc.org/cmip6</a>



# Model documentation



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ES-DOC Explorer v1.1.2

CMIP6 Model: IPSL > IPSL-CM6A-LR

Institute	IPSL
Model	IPSL-CM6A-LR
<b>Realm &gt; Process</b>	
<b>Top Level</b>	
Radiative Forcings	
<b>Atmosphere</b>	
Grid	
Dynamical Core	
Radiation	
Turbulence Convection	
Microphysics Precipitation	
Cloud Scheme	
Observation Simulation	
Gravity Waves	
Natural Forcing	
<b>Land Surface</b>	
Grid	
Soil	
Snow	
Vegetation	
Energy Balance	
Carbon Cycle	
Nitrogen Cycle	
River Routing	
Lakes	
<b>Ocean</b>	
Grid	

<b>IPSL &gt; IPSL-CM6A-LR :: Top Level</b>	
<b>Top Level Properties</b>	
<b>Top Level &gt; Model Name</b>	
Description	Name of coupled model
Value	IPSL-CM6A-LR
<b>Top Level &gt; Model Keywords</b>	
Description	Keywords associated with coupled model
Value	IPSL, climate model, earth system model, LMDz atmospheric general circulation model, NEMO oceanic general circulation model, ORCHIDEE land surface model
<b>Top Level &gt; Model Overview</b>	
Description	Top level overview of coupled model
Value	-- Awaiting modelling group input --
<b>Top Level &gt; Model Type</b>	
Description	Model type
Value	GCM
<b>Top Level &gt; Model Long Name</b>	
Description	Model long name
Value	-- Awaiting modelling group input --
<b>Top Level &gt; Model Coupler</b>	
Description	Name of model coupler
Value	-- Awaiting modelling group input --
<b>Top Level &gt; Model Version</b>	
Description	Model version
Value	-- Awaiting modelling group input --
<b>Top Level &gt; Flux Correction &gt; Details</b>	
Description	Describe if/how flux corrections are applied in the model
Value	None.

# Experiment documentation

**es-doc**  
Earth System Documentation

Documentation Viewer v1.0.0 [Support](#)

## CMIP6 Tier 1 Experiment: piControl

### Overview

MIP Era	CMIP6
Related MIPs	AerChemMIP   C4MIP   CDRMIP   CMIP   DAMIP   DCPP   DECK   FAFMIP   GeoMIP   HighResMIP   ISMIP6   LUMIP   PMIP   RFMIP   VolMIP
Canonical Name	piControl
Previous Names	control
Long Name	Pre-Industrial Control
Tier	1
Description	A pre-industrial control simulation with non-evolving pre-industrial conditions. Conditions chosen to be representative of the period prior to the onset of large-scale industrialization, with 1850 being the reference year. The piControl starts after an initial climate spin-up, during which the climate begins to come into balance with the forcing. The recommended minimum length for the piControl is 500 years.
Rationale	To study the unforced variability of the climate system. It is the control experiment against which perturbations are compared, it serves as a baseline for experiments that branch from it. To allow us to determine unforced model variability. The control experiment should be long enough to extend to the furthest point in time reached by the end of the perturbation experiments, thus the control should allow us to subtract any residual, unforced drift from all perturbation simulations.
Keywords	CMIP   Tier 1   DECK   Diagnosis Evaluation and Characterization of Klima (Climate)   pre-industrial   reference   control   climate

### Relationships

Parent	piControl-spinup
Siblings	esm-piControl
Children	1pctCO2   1pctCO2-bgc   1pctCO2Ndep   1pctCO2Ndep-bgc   G1   abrupt-0p5xCO2   abrupt-2xCO2   abrupt-4xCO2   abrupt-soilmp   abrupt-sol4p   dcppc-amv-ExTrop-neg   dcppc-amv-ExTrop-pos   dcppc-amv-NexTrop-neg   dcppc-amv-NexTrop-pos   dcppc-ipv-neg   dcppc-ipv-pos   dcppc-pac-control   deforest-globe   faf-all   faf-heat   faf-passiveheat   faf-stress   faf-water   hist-CO2   hist-GHG   hist-aer   hist-all-aer2   hist-all-na2   hist-bgc   hist-nat   hist-noLu   hist-piAer   hist-piNTCF   hist-so   hist-spAer-aer   hist-spAer-all   hist-stratO3   hist-volc   histSST   histSST-piAer   hisSST-piC4H   hisSST-piL2O   hisSST-piNTCF   histSST-piO3   historical   piClim-NTCF   piSST-4xCO2-solar   volc-cluster-ctrl   volc-long-eq   volc-long-hN   volc-long-hS   volc-pinatabo-full   volc-pinatabo-strat   volc-pinatabo-surf
Provides Control To	1pctCO2   abrupt-0p5xCO2   abrupt-2xCO2   abrupt-4xCO2   control-slab   ism-piControl-self   piControl-withism   volc-cluster-mill
Provides Constraints To	dcppc-alt-control   dcppc-pac-control   piClim-2xDM5   piClim-2xNOx   piClim-2xVOC   piClim-2xdust   piClim-2xfire   piClim-2xss   piClim-4xCO2   piClim-BC   piClim-CH4   piClim-HC   piClim-N2O   piClim-NOx   piClim-NH3   piClim-O3   piClim-OC   piClim-SO2   piClim-VOC   piClim-aer   piClim-anthro   piClim-control   piClim-control   piClim-ghg   piClim-histaer   piClim-histall   piClim-histghg   piClim-histnat   piClim-lu   piClim-spAer-aer   piClim-spAer-anthro   piClim-spAer-histaer   piClim-spAer-histall   piSST   piSST-4xCO2   piSST-4xCO2-rad   piSST-pxK   ssp245-stratO3

### Temporal Constraints

500 Years	
Required Duration	500 years
Description	Run for 500 years.
Keywords	500 years   control   idealized

# Errata service



## Dataset Errata - Search v0.7.0.0

[Support](#)[Docs](#)[Search](#)[Login](#)

Project:	Experiment ID:	Institution ID:	Source ID:	Variable ID:	Severity:	Status:
CMIP6	piControl	IPSL	IPSL-CM6A-LR	*	*	*

Total Issues = 176. Filtered Issues = 13.

#	Institute	Title	Created	Updated	Closed	Severity	Status
1	IPSL	Convert climatologies to monthly time serie	2019-10-03	2019-10-15	--	Medium	Resolved
2	IPSL	Wrong co2mass units	2019-09-05	2019-12-06	--	Medium	Resolved
3	IPSL	Missing sub-periods	2019-05-22	2019-05-23	--	Medium	Resolved
4	IPSL	Wrong depth dimension name	2019-03-11	2019-03-19	--	Low	Resolved
5	IPSL	200 years extension for piControl	2018-11-29	2019-02-21	--	Low	Resolved
6	IPSL	"Fixed" CMIP6 variables provided by NEMO model are ti ...	2018-11-26	2019-03-11	--	Medium	Resolved
7	IPSL	500 years extension for piControl	2018-11-23	2018-11-29	--	Low	Resolved
8	IPSL	Irrelevant CFC in experiment other than historical	2018-10-19	2019-03-11	--	Low	Resolved
9	IPSL	Instabilities which lead to erroneous values of tas a ...	2018-10-16	2020-03-11	--	Critical	On Hold
10	IPSL	tas instabilities lead to erroneous values of tasmax	2018-10-05	2020-03-11	--	Critical	On Hold
11	IPSL	Wrong realm "ocnBgChm" typo	2018-07-26	2019-12-03	--	Low	Resolved
12	IPSL	Some sea ice variables in 3D instead of 1D	2018-07-12	2019-08-02	--	Low	Resolved
13	IPSL	Time instantaneous data with time boundaries	2018-07-02	2019-03-11	--	Low	Wont Fix

Total Issues = 176. Filtered Issues = 13.

v0.7.0.0 © ES-DOC

# Citation service



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DOI for 'CMIP6.CMIP.IPSL.IPSL-CM6A-LR.abrupt-4xCO2'  
doi:10.22033/ESGF/CMIP6.5109

**General Information**    **Creators**    **Editors**

### General Information

**Name** CMIP6.CMIP.IPSL.IPSL-CM6A-LR.abrupt-4xCO2  
**Abstract** Coupled Model Intercomparison Project Phase 6 (CMIP6) data sets.  
These data includes all datasets published for 'CMIP6.CMIP.IPSL.IPSL-CM6A-LR.abrupt-4xCO2' 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 model used in climate research named IPSL-CM6A-LR, released in 2017, includes the components:  
atmos: LMDZ (NPV6, N96; 144 x 143 longitude/latitude; 79 levels; top level 80000 m), land: ORCHIDEE (v2.0, Water/Carbon/Energy mode), ocean: NEMO-OPA (eORCA1.3, tri polar primarily 1deg; 362 x 332 longitude/latitude; 75 levels; top grid cell 0-2 m), ocnBgcchem: 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, ocnBgcchem: 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 GMD Special Issue: [http://www.geosci-model-dev.net/special\\_issue590.html](http://www.geosci-model-dev.net/special_issue590.html)). The simulation data provides a basis for climate research designed to answer fundamental science questions, and the results will undoubtedly be relied on by authors of the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC-AR6).  
  
CMIP6 is a project coordinated by the Working Group on Coupled Modelling (WGCM) as part of the World Climate Research Programme (WCRP). Phase 6 builds on previous phases executed under the leadership of the Program for Climate Model Diagnosis and Intercomparison (PCMDI) and relies on the Earth System Grid Federation (ESGF) and the Centre for Environmental Data Analysis (CEDA) along with numerous related activities for implementation. The original data is hosted and partially replicated at a federated collection of data nodes, and most of the data relied on by the IPCC is being archived for long-term preservation at the IPCC Data Distribution Centre (IPCC DDC) hosted by World Data Centre for Climate (WDCC) at DKRZ.  
  
The project includes simulations from about 120 global climate models and around 45 institutions and organizations worldwide. - Project website: <https://pcmdi.llnl.gov/CMIP6>.

**Subjects** CMIP6.CMIP.IPSL.IPSL-CM6A-LR.abrupt-4xCO2 (DRS: [https://github.com/WCRP-CMIP/CMIP6\\_CVs](https://github.com/WCRP-CMIP/CMIP6_CVs))  
CMIP6  
climate

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**License** CMIP6 model data is evolving in the sense that datasets are changed and added as new versions. The author list and the title are not final, either. Cite this data collection including the latest dataset version according to the Data Citation Guidelines (<https://bit.ly/2qBQmM>). Individuals using the data must abide to the terms of use for CMIP6 data (<https://pcmdi.llnl.gov/CMIP6/TermsOfUse>). Details on any license restrictions are recorded as global attributes in the files.

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Foujols, Marie Alice (✉ [marie-alice.foujols@ipsl.jussieu.fr](mailto:marie-alice.foujols@ipsl.jussieu.fr))

### Cite this data

**Citation** Boucher, Olivier; Denvil, Sébastien; Cauvel, Arnaud; Foujols, Marie Alice (2018). IPSL.IPSL-CM6A-LR model output prepared for CMIP6 CMIP abrupt-4xCO2. Version YYYYMMDD<sup>[1]</sup> Earth System Grid Federation. <https://doi.org/10.22033/ESGF/CMIP6.5109>

[BibTeX](#) [RIS](#)

[1] Please use the latest dataset version or if not available the latest data download date as version in your data citation.

### Data Access

[http://esgf-data.dkrz.de/search/cmip6-dkrz/?mip\\_era=CMIP6&activity\\_id=CMIP6&institution\\_id=IPSL&source\\_id=IPSL-CM6A-LR&experiment\\_id=abrupt-4xCO2](http://esgf-data.dkrz.de/search/cmip6-dkrz/?mip_era=CMIP6&activity_id=CMIP6&institution_id=IPSL&source_id=IPSL-CM6A-LR&experiment_id=abrupt-4xCO2)  
[http://esg-node.llnl.gov/search/cmip6/?mip\\_era=CMIP6&activity\\_id=CMIP6&institution\\_id=IPSL&source\\_id=IPSL-CM6A-LR&experiment\\_id=abrupt-4xCO2](http://esg-node.llnl.gov/search/cmip6/?mip_era=CMIP6&activity_id=CMIP6&institution_id=IPSL&source_id=IPSL-CM6A-LR&experiment_id=abrupt-4xCO2)

### Related Data

IPSL IPSL-CM6A-LR model output prepared for CMIP6 CMIP

**Metadata Export**

[XML](#) [JSON](#)