ES-DOC status, March 2020

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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

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- **Done**
- **Ongoing**
- **Under development, due later in 2020**
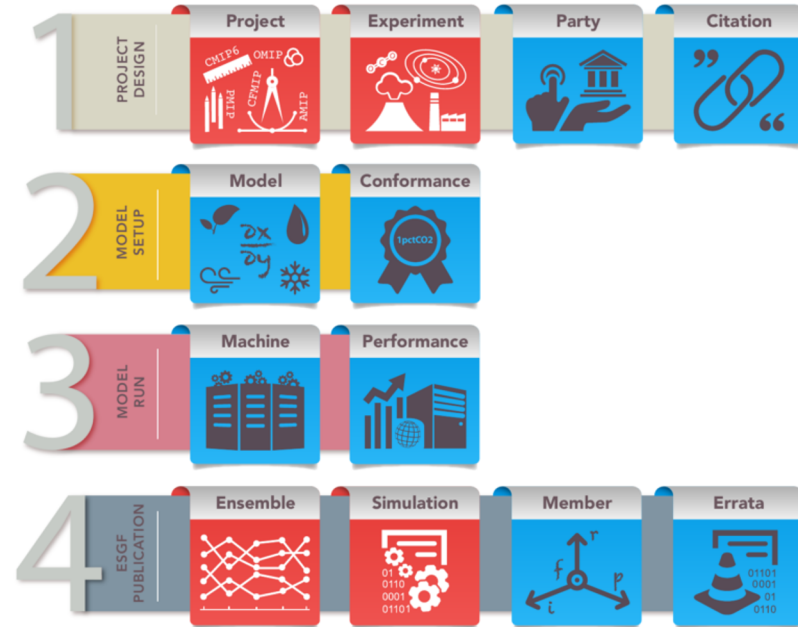
Documentation task carried out by: ⬤ Institute ⬤ ES-DOC

Status of CMIP6 operations
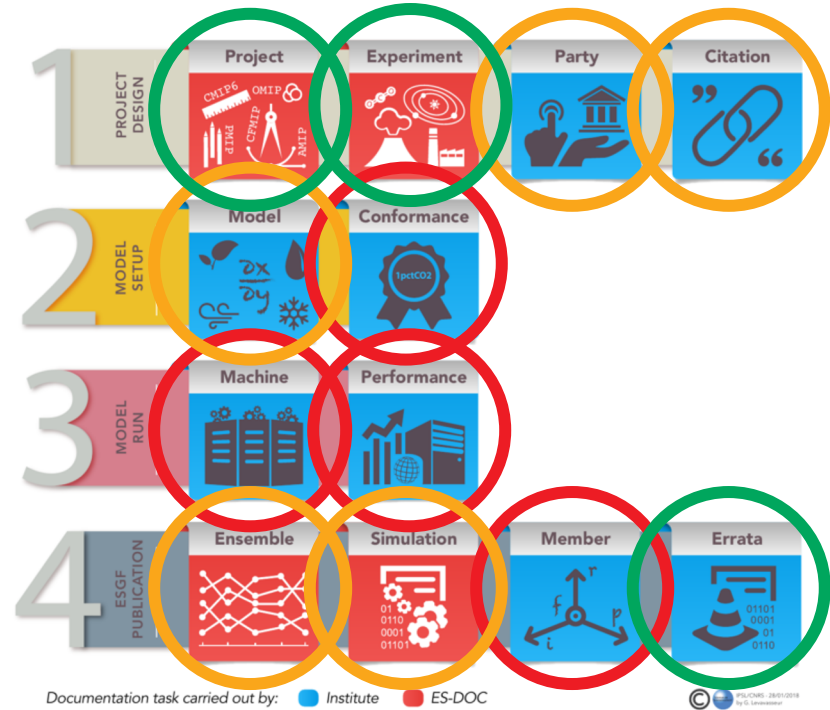
- Operational for CMIP6 since December 2018

- **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

Geoscientific
Model Development
Discussions

Designing and Documenting Experiments in CMIP6

Charlotte Pascoe[1,2], Bryan N Lawrence[2,3], Eric Guilyardi[2,4], Martin Juckes[1,2], and Karl E Taylor[5]

[1]STFC Rutherford Appleton Laboratory, UK.
[2]National Centre of Atmospheric Science, UK.
[3]Departments of Meteorology and Computer Science, University of Reading, UK.
[4]LOCEAN/IPSL, Sorbonne Université/CNRS/IRD/MNHN, Paris, France
[5]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

- 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

WCRP World Climate Research Programme

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	View @ PCMDI
Errata	View @ ES-DOC
Citation (Institute)	View @ DKRZ
Citation (Experiment)	View @ DKRZ

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

WCRP World Climate Research Programme

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
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Ensemble Description	N/A
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Dataset Documentation	
ESGF Search	View @ PCMDI
Errata	View @ ES-DOC
Citation (Institute)	View @ DKRZ
Citation (Experiment)	View @ DKRZ

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

Model documentation

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	1pctCO2-rad	1pctCO2Ndep	1pctCO2Ndep-bgc	G1	abrupt-0p5xCO2	abrupt-2xCO2	abrupt-4xCO2	abrupt-solm4p	abrupt-solp4p	dcppC-amv-ExTrop-neg	dcppC-amv-ExTrop-pos	dcppC-amv-Trop-neg	dcppC-amv-Trop-pos	dcppC-amv-neg	dcppC-amv-pos	dcppC-atl-control	dcppC-ipv-NexTrop-neg	dcppC-ipv-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-nat2	hist-bgc	hist-nat	hist-noLu	hist-piAer	hist-piNTCF	hist-sol	hist-spAer-aer	hist-spAer-all	hist-stratO3	hist-volc	histSST	histSST-piAer	histSST-piCH4	histSST-piN2O	histSST-piNTCF	histSST-piO3	historical	piClim-NTCF	piSST-4xCO2-solar	volc-cluster-ctrl	volc-long-eq	volc-long-hIN	volc-long-hIS	volc-pinatubo-full	volc-pinatubo-strat	volc-pinatubo-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-atl-control	dcppC-pac-control	piClim-2xDMS	piClim-2xNOx	piClim-2xVOC	piClim-2xdust	piClim-2xfire	piClim-2xss	piClim-4xCO2	piClim-BC	piClim-CH4	piClim-HC	piClim-N2O	piClim-NH3	piClim-NOx	piClim-NTCF	piClim-O3	piClim-OC	piClim-SO2	piClim-VOC	piClim-aer	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	idealised

Errata service

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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