



Poster X5.357

Vienna, Austria, April 2018  
Tuesay, 10 Apr 2018  
author in attendance: 17:30-19:00



### Abstract

The Paleoclimate Modelling Intercomparison Project (PMIP) is a long standing initiative that has provided an efficient mechanism for coordinating paleoclimate modelling activities. The resulting model output database is used not only by climate modellers, but also by ecological niche modellers and other multidisciplinary research dealing with environment and society.

The fourth phase (PMIP4) has started in 2015 and the 19 modelling groups involved will run all or part of the following experiments: Last Millennium, Mid-Holocene, Last Glacial Maximum, Last Interglacial, Mid Pliocene, transient simulations and sensitivity experiments. PMIP4 follows the CMIP6 (Coupled Model Intercomparison Project) requirements, which makes it possible to use the CMIP6 database model data distribution tools (Earth System Grid Federation).

We will present the latest list of the PMIP4 participating groups and the status of the experiments they are running, and give an outline of the data life cycle in the database.

The first CMIP6 data files should be distributed on the ESGF network in mid-2018, but there is a long way from the raw model output to data files being cited in publications using PIDs (Persistent Identifiers), with lots of intermediate QC (Quality Control) steps to validate the data and document errors. The documentation is an important component of the QC and we will also present how the es-doc project will be used to document the PMIP4 models and the PMIP4 experiments.

# Documentation and the data life cycle in the PMIP4-CMIP6 Database

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## PMIP4 groups and experiments

Information as of April 5<sup>th</sup> 2018

Update ALL your group information directly on this panel ! And also send a mail to Jean-Yves ...

Institute	Country	Ok	LM	6k	21k	Last Interglacial	Mid Pliocene	Other PMIP4	Atm	Ocn	Model id	Data Node
institution_id		piControl	past1000 (1000 years)	midHolocene	lgm	lig127k	midPliocene-eo400	experiments	i_lon x j_lat x lev	i_lon x j_lat x lev	source_id	
1	AWI	Germany	No	No	No	Yes	No		192x96 x L47	256x220 x L40 126859 x L46	MPI-ESM-1-2-LR AWI-CM-1-0-LR	DKRZ
2	CNRM-CERFACS	France	No	?	No	No	No		[256 to 20]x128 x L91	362x294 x L75	CNRM-CM6-1	CNRM
3	CAS CAS-ESM	China	No	No	No	No	No		256x128 x L30	362x196 x L30	CAS-ESM1-0	
4	CAS CAS-FGOALS	China	No	No	No	No	No		180x90 x L26	360x218 x L30	FGOAL-g3	
5	CSIRO-CSIRO	South Africa							Cube192 x L35	Cube384 x L35	VRESM-1-0	
6	INM	Russia	Done	Yes	No	Yes	No		180x120 x L21	360x318 x L40	INM-CM4-8	
7	IPSL	France	No end-2018	No end-2018	No end-2018	No end-2018	No end-2018		144x143 x L79	362x332 x L75	IPSL-CM6A-LR	IPSL
8	KIOST	Korea	No	No	No	No	No	No	Cube48 x L32	360x200 x L52	KIOST-ESM	
9	MIROC (University of Tokyo and JAMSTEC)	Japan	No mid-2018	No mid-2018	No mid-2018	No late-2018	No late-2018		128x64 x L40	360x256 x L63	MIROC-ES2L	DIAS Japan
10	MPI-M	Germany	No end-2018	No end-2018	No end-2018	No end-2018	No end-2018	Yes	192x96 x L47	256x220 x L40	MPI-ESM-1-2-LR	DKRZ
11	MRI	Japan	No	No	No	No	Done		320x160 x L80	360x364 x L61	MRI-ESM2-0	
12	NASA-GISS	USA	No	No	No	No	Yes end-2018		144x90 x L40 Cube90 x L102	360x180 x L32	GISS-E2-1-G GISS-E3-G	
13	NCAR	USA	No end-2018	No end-2018	No end-2018	No end-2018	No end-2018		288x192 x L32	320x384 x L60	CESM2	
14	NCC (BCCR)	Norway	No July 2018	No July 2018	No July 2018	No July 2018	No July 2018		144x96 x L32	360x384 x L53	NorESM2-LM	NCC Norway
15	NUIST	China	No mid-2018	No mid-2018	No mid-2018	No mid-2018	No mid-2018		192x96 x L47	384x362 x L46	NESM3	
16	EC-Earth Consortium (Stockholm University)	Sweden	No	No	No	No	No		320x160 x L62 320x160 x L62 512x256 x L91	362x292 x L75	EC-Earth3-LR EC-Earth3-Veg-LR EC-Earth3-GrIS	
17	UK Academic Community	UK	No	No	No	No	Done		192x144 x L85	360x292 (ORCA1) x L75	UKESM1-0-LL HadGEM3-GC31-LL	
18	University of Tasmania	Australia	No	No	No	No	No		64x56 x L18	128x112 x L31	CSIRO-Mk3L-1-3	ANU NCI
19	UoT	Canada	Done	No end-2018	Done	Done	Done		288x192 x L26	384x320 x L60	UoT-CCSM4	
20	VUAmsterdam	The Netherlands	No mid-2018	No mid-2018	No mid-2018	No mid-2018	No mid-2018		64x32 x L3	120x65 x L20	iLOVECLIM1.2	IPSL?

### PMIP Working Groups

- PMIP data distribution  
M. Kageyama
- Past2Future: insights from a constantly varying past  
J. Hargreaves, C. Brierley, P. Braconnot
- Past2K  
J. Jungclaus
- PMIP-DATA  
P. Bartlein, S. Harrison, P. Bartlein, M. Crucifix, A. Paul
- Data assimilation  
M. Crucifix
- PlioMIP  
A. Haywood, H. Dowsett
- Quaternary Interglacials  
B. Otto-Bliesner, D. Lunt
- Pre-Pliocene climates  
D. Lunt, B. Otto-Bliesner
- Ice sheet uncertainties  
A. Abe-Ouchi
- Isotope modelling  
A. LeGrande
- Last Deglaciation  
R. Ivanović, L. Gregoire, D. Roche

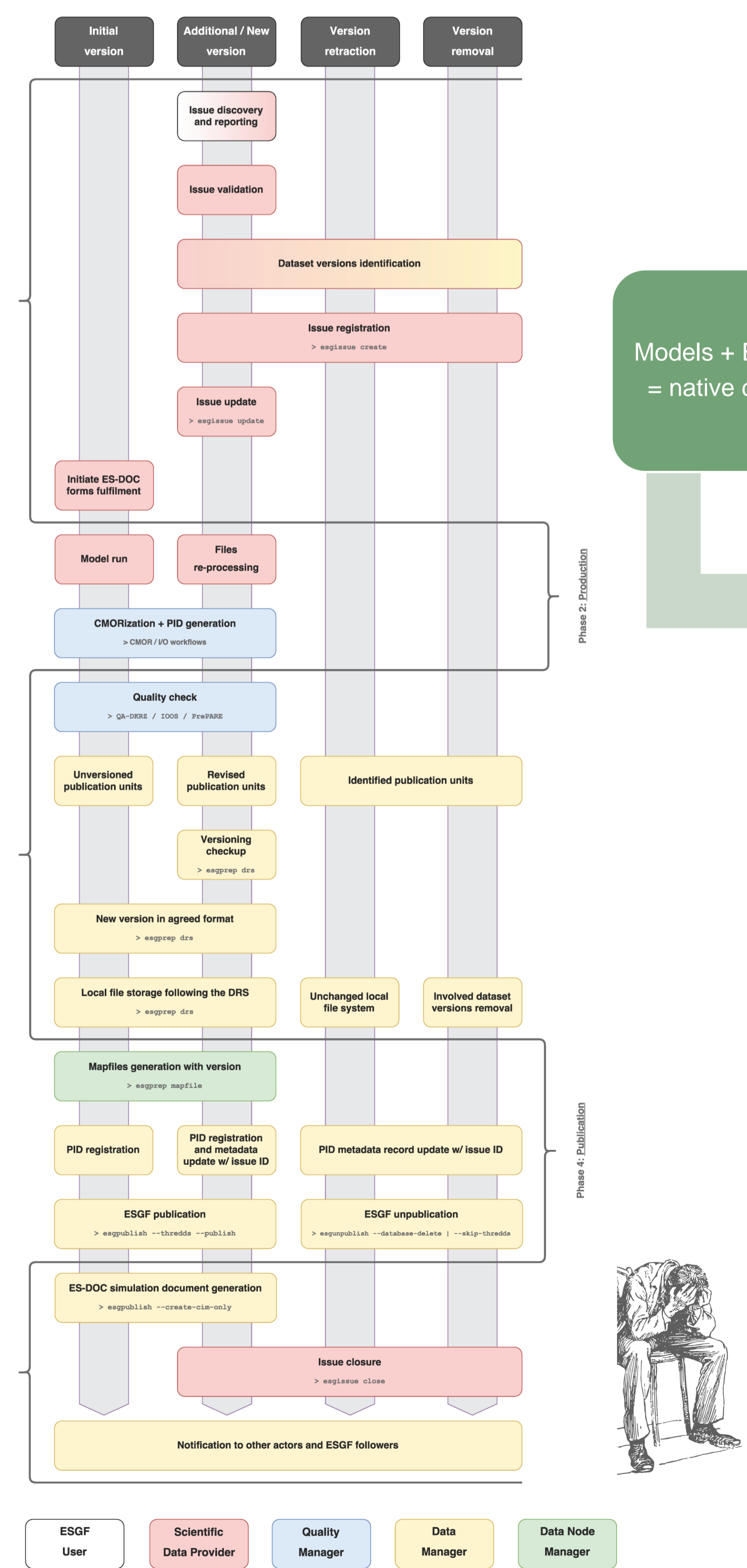


### IPCC AR6 timeline & CMIP6

- June 2018 : ESGF ready for CMIP6 data distribution
- 31 January 2020 : journal articles submitted
- October 2020 : journal articles accepted



### ESGF publication workflow for CMIP6



Models + Experiments = native data output

Data + Data Request + Controlled Vocabulary + CMOR 3 + ESGF = distributed CMIP6 data

CMIP6 data + Quality Control + PIDs + Documentation = reproducible science + great papers!

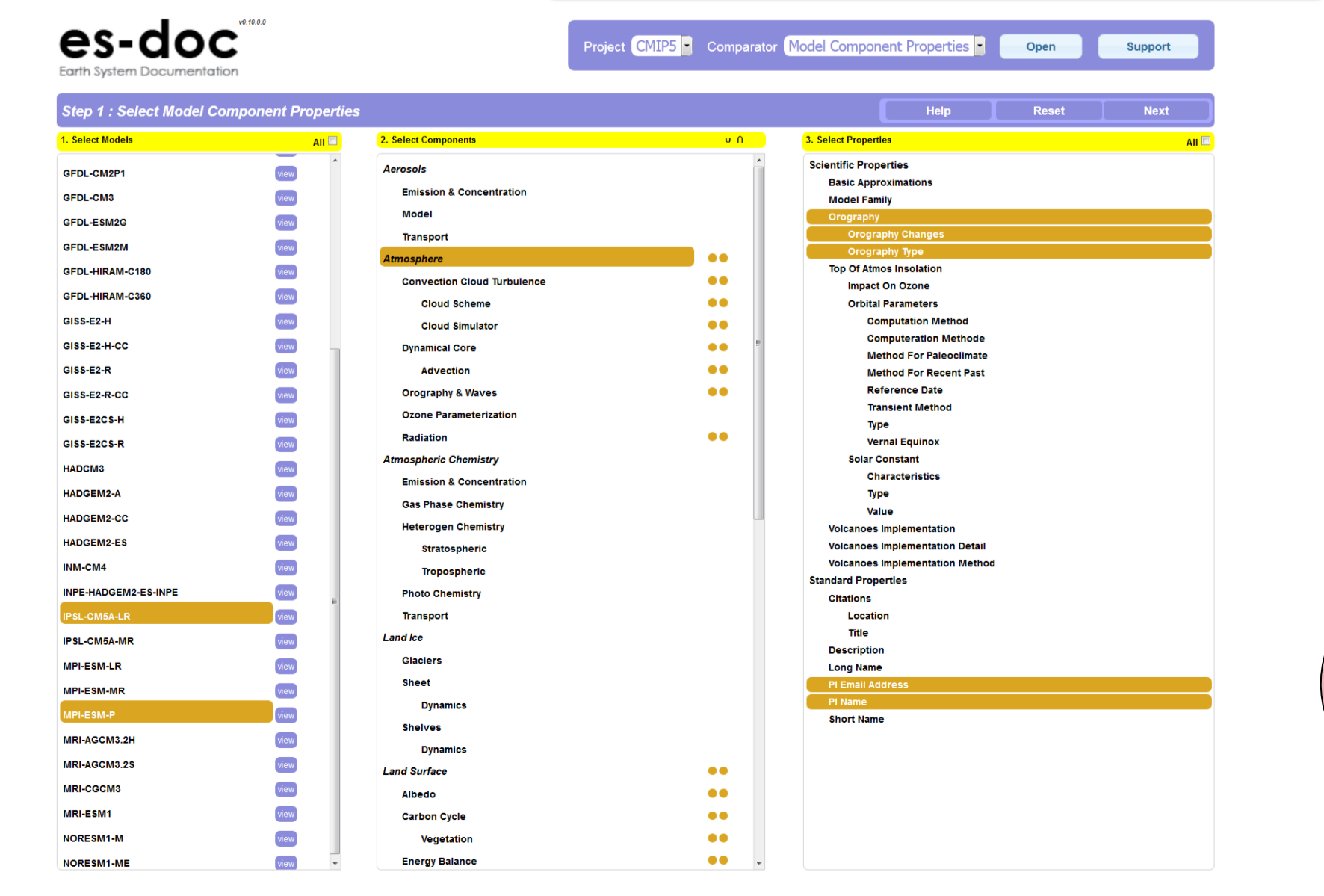
Legend

Running status	expected completion date	Available in CMIP6 DB (nb ens x nb years in CMIP6 DB)
No	Yes	Available in PMIP4 DB (nb years in PMIP4 DB)
Done	Won't do	

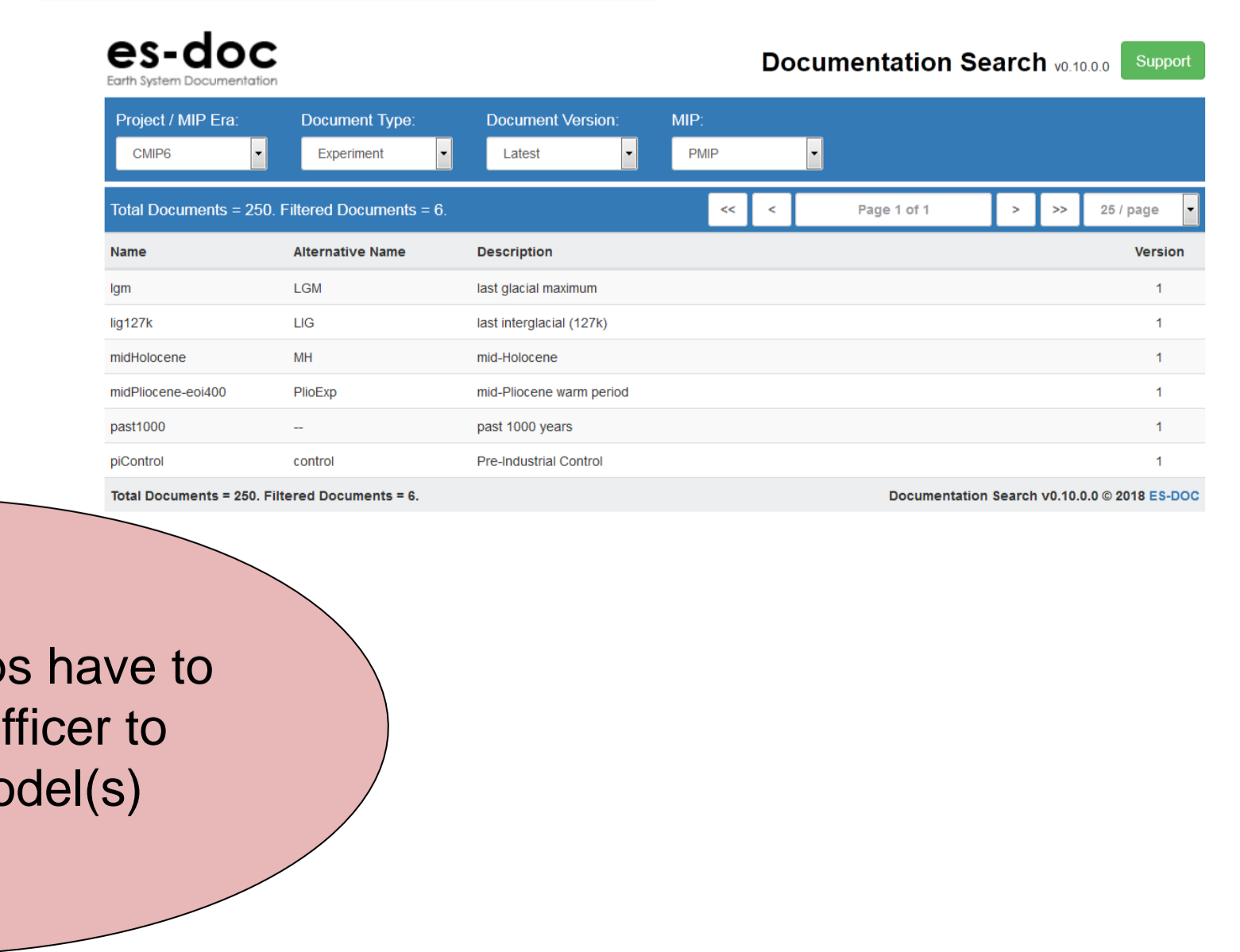
### CMIP6 Controlled Vocabulary source\_id and experiment\_id examples

experiment_id	activity_id	experiment	site	sub_experiment_id	parent_experiment_id	required model components	additional allowed model components	start year	end year	site number	parent activity id	description
iso-ig17k-e01	ISMIP6	iso-ig17k-e01	1	none	no parent	ISM		2000	no parent	no parent		Last interglacial simulation of ice sheet evolution driven by PMIP ig17k.
lign	PMIP	last glacial maximum	1	none	no parent	AOGCM	AER-CHEM-BOC	100	no parent	no parent		main forcing: sea-level, trace gases, dust (lev. or fluxes) of last cycle (represented in model)
lig127k	PMIP	last interglacial (127k)	1	none	no parent	AOGCM	AER-CHEM-BOC	100	no parent	no parent		main forcing: sea-level, trace gases, dust (lev. or fluxes) of last cycle (represented in model)
midHolocene	PMIP	midHolocene	1	none	no parent	AOGCM	AER-CHEM-BOC	200	no parent	no parent		main forcing: trace gases, orbital parameters, dust (lev. or fluxes) of last cycle (represented in model)
midPliocene-eo400	PMIP	midPliocene-eo400	1	none	no parent	AOGCM	AER-CHEM-BOC	100	no parent	no parent		main forcing: trace gases, orography, land-use
past1000	PMIP	last millennium	1	none	no parent	AOGCM	AER-CHEM-BOC	850	1850	1000	no parent	main forcing: trace gases, volcanoes, solar variability, land use
volc-climate-e01	VMIP	17th century volcanic climate simulated data	1	none	parent1000	AOGCM	AER-CHEM-BOC	1700	1850	69	PMIP	Parallel experiment to volc-climate-e01 but with initial conditions taken from the millennium simulation to account for the PMIP-CMIP6 requirements and the quality of the data. All forcings except volcanic kept constant from year AD 1700 on.

### es-doc Comparator



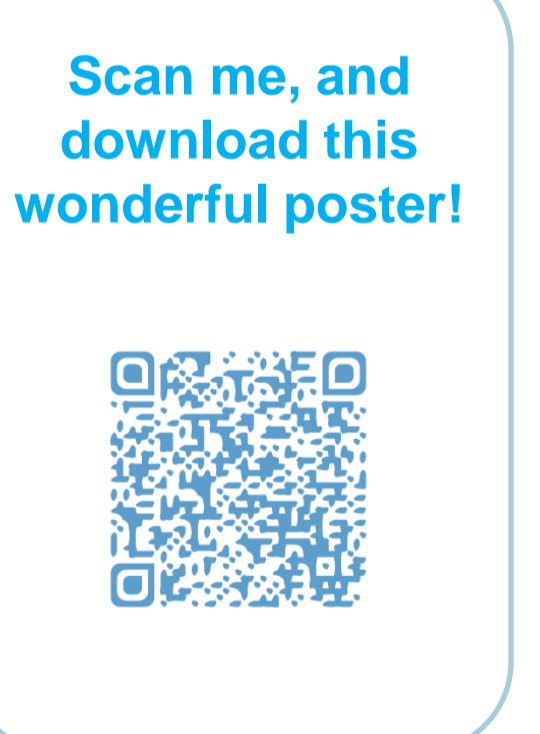
### es-doc Search



The PMIP4 groups have to find an ES-DOC officer to document their model(s)

### References

- PMIP4: <https://pmip4.lsce.ipsl.fr>
- ESGF: <https://esgf.llnl.gov>
- CMIP6 Participation Guidance for Modelers: <https://pcmdi.llnl.gov/CMIP6/Guide/modelers.html>
- CMIP6 CV: [https://github.com/WCRP-CMIP/CMIP6\\_CVs](https://github.com/WCRP-CMIP/CMIP6_CVs)
- CMIP6 Data Request: <https://earthsystemdoc.org/projects/wip/CMIP6DataRequest>
- es-doc: <https://es-doc.org>
- es-doc model description: <https://es-doc.org/cmip6-models/>
- PrePARE: [https://cmor.llnl.gov/mydoc\\_cmip6\\_validator/](https://cmor.llnl.gov/mydoc_cmip6_validator/)
- QC: <https://readthedocs.org/projects/qa-dkrz>
- PID: [https://esgf-data.dkrz.de/projects/esgf-dkrz/datacart\\_pid](https://esgf-data.dkrz.de/projects/esgf-dkrz/datacart_pid)



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