

Documenting CMIP6 with ES-DOC

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EGU 2017 PICO Presentation Session CL5.13

Towards CMIP6 internationally coordinated climate modeling experiments:
the role and use of modeling and observation research infrastructures

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Timeline

Phase 1

Protocols

Q1 2016 - Q2 2017



MIP

Experiment

Numerical Requirement



Spreadsheet, Script

Phase 2

Model Descriptions

Q2 2017 – Q4 2018



Model

Realm

Process



IPython, Questionnaire

Phase 3

Ensembles

Q3 2017– Q1 2019



Conformance

Ensemble

Simulation



Spreadsheet, Script

Phase 4

Post-Simulation

Q1 2018 – Q4 2019



Dataset Errata

Machine

Performance



IPython, Script

MIP

Experiment

Numerical Requirement

Forcing Constraint

Temporal Constraint

Ensemble Requirement

Multi-Ensemble

- Extensive interactions with **WCRP & MIPs**
- A single **spreadsheet** used to capture > 1000 documents
- Major task was **mapping**:

MIPs --> Experiments

Experiments --> Requirements

- Mandated by WCRP as **reference** CMIP6 experimental documentation
- Online @ documentation.es-doc.org/cmip6
- Creation tools: Spreadsheet, script



- **Realms** defined by WCRP-CMIP, e.g. ocean
- ES-DOC co-ordinates with realm experts to define **specializations**:
 - Processes - e.g. ocean advection
 - Properties – e.g. monotonic flux limiter for vertical tracer
- ES-DOC co-ordinates with WGCM to define **short tables**
- Institutes create **documents** using various tools
- Creation tools: IPython, online questionnaire, script

Ensemble

Ensemble Member

Simulation

Conformance

- Ensemble document(s) **auto-initialized** when datasets are published
- Institutes must supply experimental requirement **conformances**:
 - A spreadsheet to be filled in with **default** conformances
 - A spreadsheet per MIP with **specific/non** conformances
- CMIP6 NetCDF files have a **further_info_url** header which will link to the full set of published ensemble documentation
- Creation tools: Spreadsheet , Script

Machine

Performance

Dataset Errata

- **After** simulations have been run:
 - Metrics concerning **HPC performance** can be published
 - Performance information **is linked to** relevant ensembles
 - Creation tools: **IPython**
- As **dataset errors** are discovered:
 - **Errata** information is published
 - **Persistent Identifier** (PID) services are notified
 - Creation tools: **Script**

White Paper

<http://bit.ly/2p3BgLb>

Email

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Further information

es-doc.org/cmip6

Published Documents

documentation.es-doc.org/cmip6

Social Media

twitter.com/esdocumentation