es-doc
Earth System Documentation

Status of ES-DOC

Sadie Bartholomew[1, 2]
On behalf of the wider ES-DOC team:
David Hassell[1, 2], Mark Greenslade[3], Charlotte Pascoe[1, 4], Martina Stockhause[5], Atef Bennassser[3], Bryan Lawrence[1, 2], Guillaume Levavasseur[3], Sébastien Denvil[3], Chris Blanton[6], Eric Guilyardi[3]
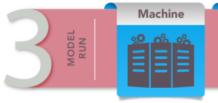
[1] National Centre for Atmospheric Science (NCAS), [2] University of Reading, [3] Institut Pierre Simon Laplace (IPSL), [4] Science and Technology Facilities Council (STFC), [5] Deutsches Klimarechenzentrum (DKRZ), [6] Geophysical Fluid Dynamics Laboratory (NOAA-GFDL)
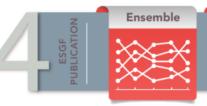
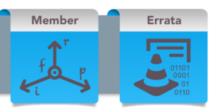# Review: workflow

- CMIP6 documentation workflow:
  - automated or generated by ES-DOC
  - produced when ready by the modelling groups

Status: workflow

- **Arrows** indicate updates relative to first general assembly of March 2020 (**1st → 2nd GA**)
- Only conformance and member documentation fully outstanding

Key, w.r.t. ES-DOC:
- done
- ongoing
- to do

Workflow stages:
1. PROJECT DESIGN — Project, Experiment, Party, Citation
2. MODEL SETUP — Model, Conformance
3. MODEL RUN — Machine, Performance
4. ESGF PUBLICATION — Ensemble, Simulation, Member, Errata

es-doc — Earth System Documentation

is-enes — INFRASTRUCTURE FOR THE EUROPEAN NETWORK FOR EARTH SYSTEM MODELLING

University of Reading

National Centre for Atmospheric Science — NATURAL ENVIRONMENT RESEARCH COUNCIL

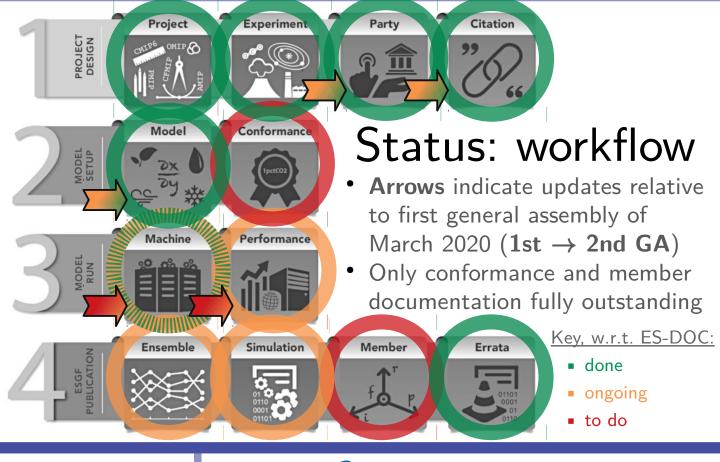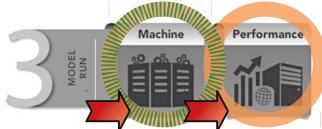# » Status: Machine and Performance

- Tooling now fully designed and partially incorporated into the ES-DOC ecosystem for a two-stage process:
  1) Machine spreadsheets provided to detail all machines per group;
  2) Submissions for (1) seed further spreadsheets to send out, covering all performance documentation applicable to the specified machines.
- 1st-stage/**machine spreadsheets released April 2021**:
  - **11/60 groups** have submitted so far, more encouraged when go live
  - Machine submission **publication to start within in a few weeks**
- 2nd-stage/**performance spreadsheets fully designed**
- Connections fostered with CPMIP team (e.g. V. Balaji, Mario Acosta); IS-ENES3 data collected for CPMIP shared
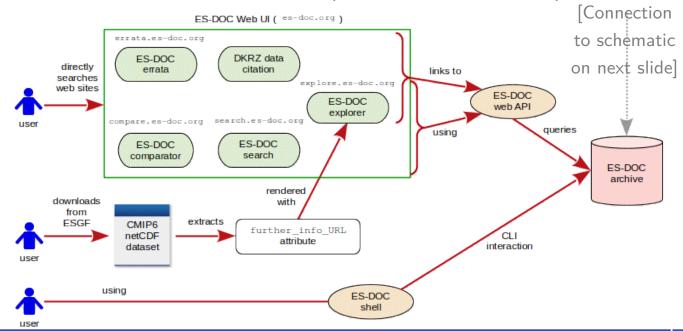
Review: infrastructure, 1. access

- **Access routes** via ES-DOC to CMIP6 documentation…
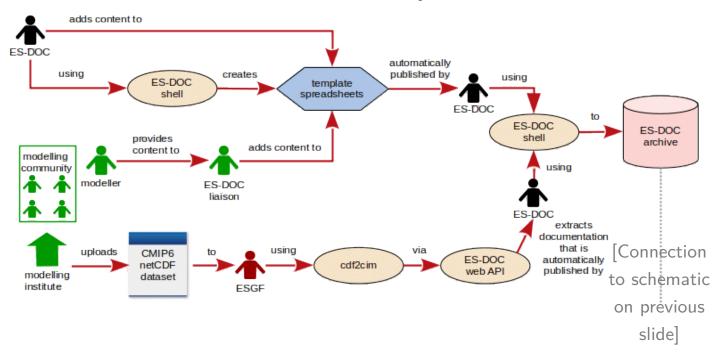 - command-line route is for developers, but shown for completeness

[Connection to schematic on next slide]

… 2. publication

- ES-DOC CMIP6 documentation **publication routes**…

[Connection to schematic on previous slide]

Status: infrastructure

- Mature ecosystem of tools is actively maintained and incrementally updated according to priorities
  - ES-DOC website as a key resource highlighted in next slide

- End user and modelling group support continues to be provided via dedicated email *support@es-doc.org*

- Supplementary work has focused on sustainability
  - Creation of thorough documentation of the ES-DOC software stack
  - Training sessions to facilitate knowledge sharing
  - User engagement and training, e.g. presenting on ES-DOC at the [NICEST2 hackathon on FAIR climate data](#) in March 2021
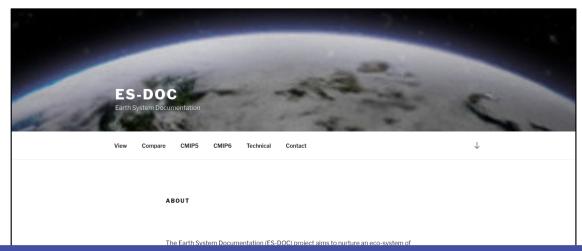
» Status: ES-DOC website

- New CMIP6 model comparator imminent for release
  - Replaces currently-live CMIP5 comparator
  - Currently in alpha testing phase and expect to go live mid-October
- Back-end revamp with WebFaction → OpalStack hosting
  - Review and refinement of tooling during unavoidable service migration

Status: beyond CMIP6

- **CORDEX** supported: models and errata published & live
  - CMIP6 infrastructure adapted to this, showcasing its generalisability
  - Bespoke spreadsheets were created and incorporated into the system
  - Up and running! Search via: search.es-doc.org/?project=cordexp

- ES-DOC metadata being harvested to describe the CMIP6 subset in the **C3S Climate Data Store**

- **CovidMIP** new experiments for DAMIP published & live
  - e.g. see documentation.es-doc.org/cmip6/experiments/ssp245-covid

- Dialogue initiated about future support for **obs4MIPs**
  - Further Info URLs established to cover the obs4MIPs project

es-doc
Earth System Documentation

is-enes
INFRASTRUCTURE FOR THE EUROPEAN NETWORK
FOR EARTH SYSTEM MODELLING

University of
Reading

National Centre for
Atmospheric Science
NATURAL ENVIRONMENT RESEARCH COUNCIL

Summary of progress

- Since the start of IS-ENES3 (~2019 onwards):
  - Operational in general for CMIP6 continuously since December 2018
  - Fully-functional 'Further Info URL' on all CMIP6 netCDF datasets
  - Published CMIP6 documentation for project, experiment, party, citation, model formulation and errata available via the ES-DOC site
  - Ongoing collection of documentation where submitted by groups: **14/60 groups** have (partially) published **36/140 model descriptions**
- ...including selected highlights since the previous update (1st General Assembly, March '20):
  - Creation of tooling, and initiation of documentation collection, for machine and performance; machine input to be published within weeks
  - CMIP6 model comparator to go live on the ES-DOC site this month
  - Support provided for projects beyond CMIP6, notably CORDEX
  - Underlying infrastructure reinforced and increasingly well-documented

Addendum: ES-DOC quick links

- ES-DOC website:
  - project & site root page: es-doc.org
  - CMIP6 overview landing page: es-doc.org/cmip6
  - search app (discover and view all documentation): search.es-doc.org
  - explorer (model formulations + further info URL): explore.es-doc.org
  - comparator: coming later in 2021 (for CMIP**6**) at compare.es-doc.org
  - errata: errata.es-doc.org

- Further Info URL (get it from any CMIP6 netCDF file!):
  - about the concept, including a working example:
    es-doc.org/cmip6-ensembles-further-info-url

![IS-ENES Infrastructure for the European Network for Earth System Modelling]

THE CONSORTIUM

Coordinated by **CNRS-IPSL**, the IS-ENES3 project gathers **22 partners** in **11 countries**

CNRS — with cea — SORBONNE UNIVERSITÉ

Met Office

National Centre for Atmospheric Science — NATURAL ENVIRONMENT RESEARCH COUNCIL

DKRZ — DEUTSCHES KLIMARECHENZENTRUM

BSC — CERFACS — CENTRE EUROPÉEN DE RECHERCHE ET DE FORMATION AVANCÉE EN CALCUL SCIENTIFIQUE

CMCC — Centro Euro-Mediterraneo sui Cambiamenti Climatici — Koninklijk Nederlands Meteorologisch Instituut — Ministerie van Infrastructuur en Waterstaat

SMHI — UK Research and Innovation

UC UNIVERSIDAD DE CANTABRIA — DLR — netherlands eScience — Norwegian Meteorological Institute

METEO FRANCE — Toujours un temps d'avance

MANCHESTER 1824 The University of Manchester — ΔΗΜΟΚΡΙΤΟΣ

WAGENINGEN UNIVERSITY & RESEARCH — CHARLES UNIVERSITY

NORCE — li.u LINKÖPING UNIVERSITY

Our website
https://is.enes.org/

Follow us on Twitter !
@ISENES_RI

Contact us at
is-enes@ipsl.fr

Follow our channel
IS-ENES3 H2020