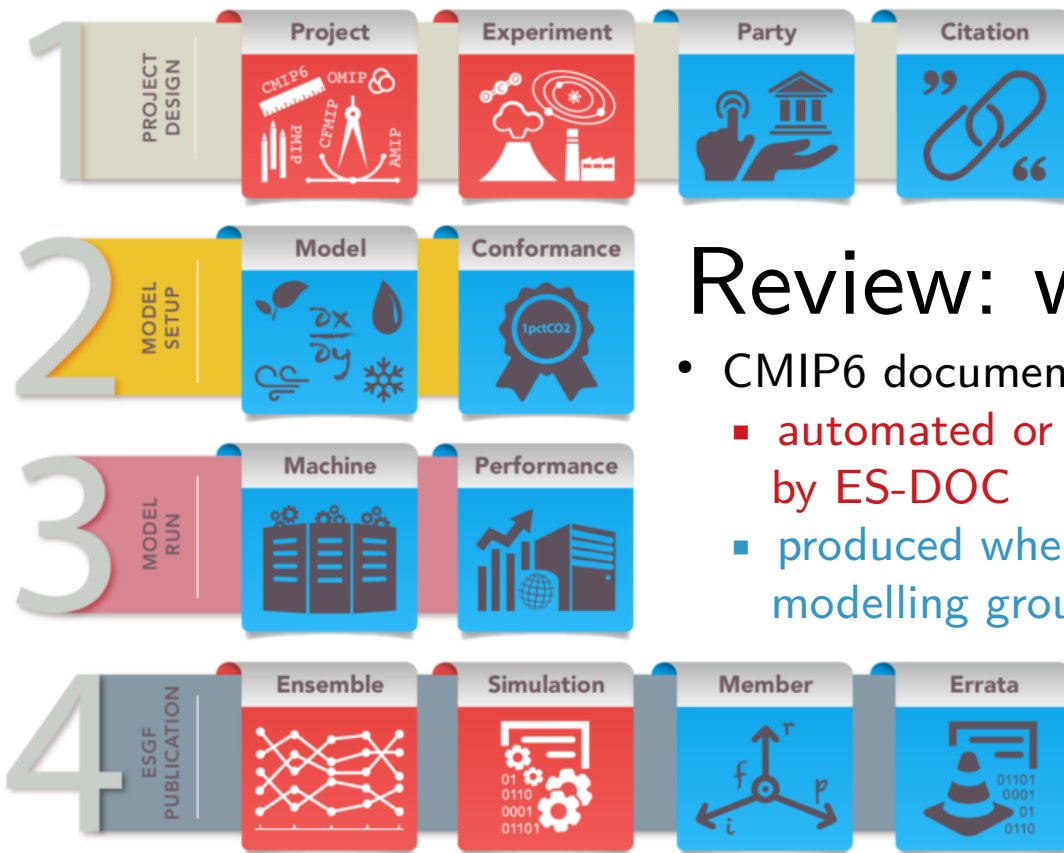es-doc
Earth System Documentation

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]
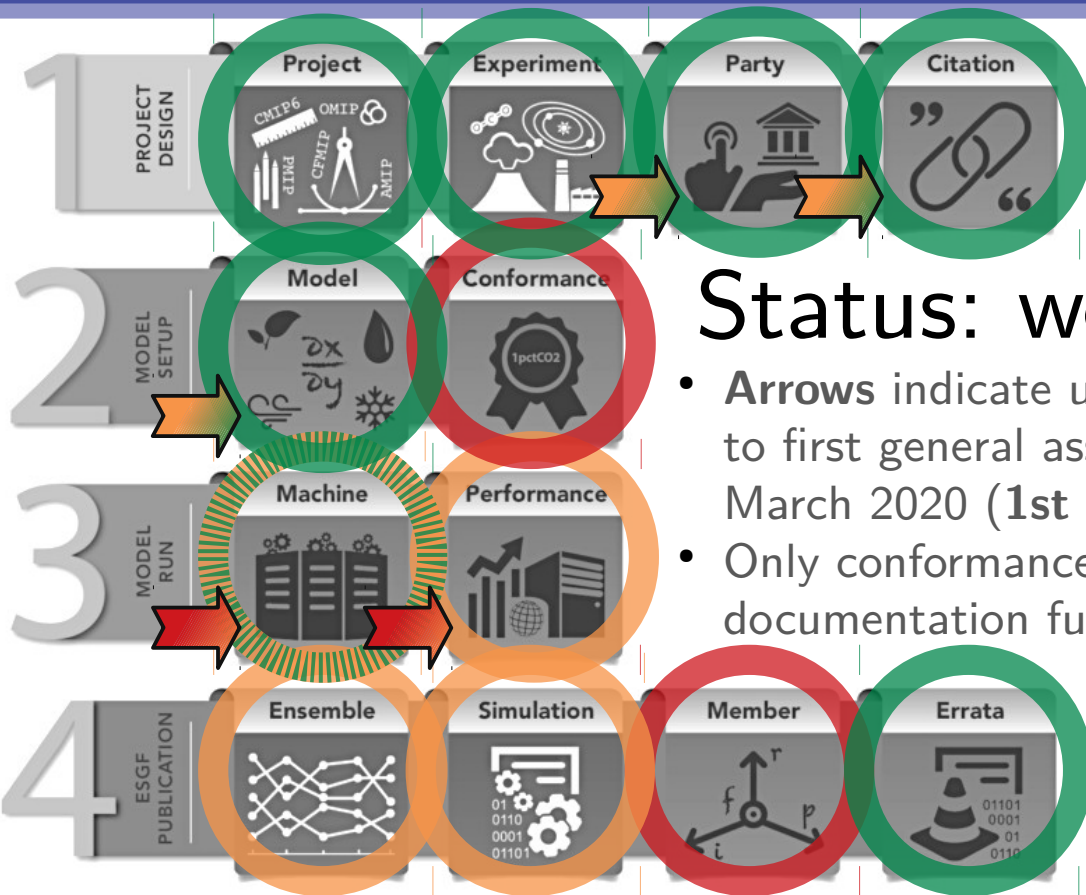
[1] National Centre for Atmospheric Science (NCAS), [2] University of Reading, [3] Institut Pierre Simon Laplace (IPSL), [4] Science and Technology Facilities Council (STFC), [5] Deutsches Klimarechenzentrum (DKRZ), [6] Geophysical Fluid Dynamics Laboratory (NOAA-GFDL)

Review: workflow

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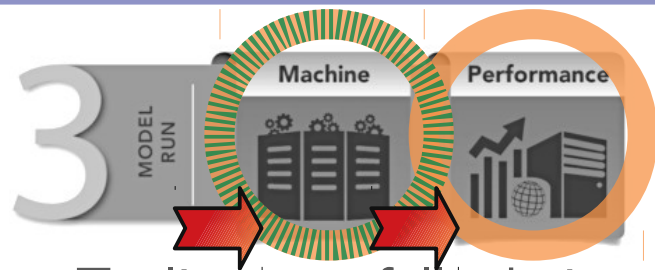 - produced when ready by the modelling groups

Status: workflow

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

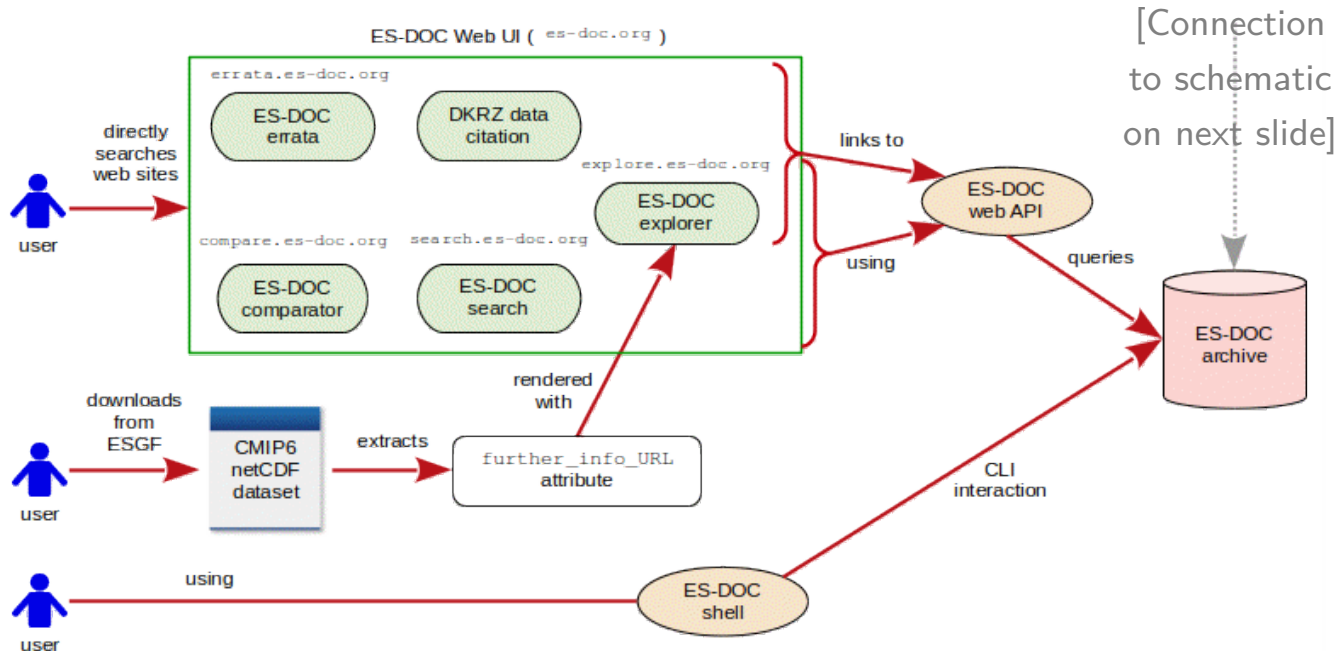Key, w.r.t. ES-DOC:
- done
- ongoing
- to do

» 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
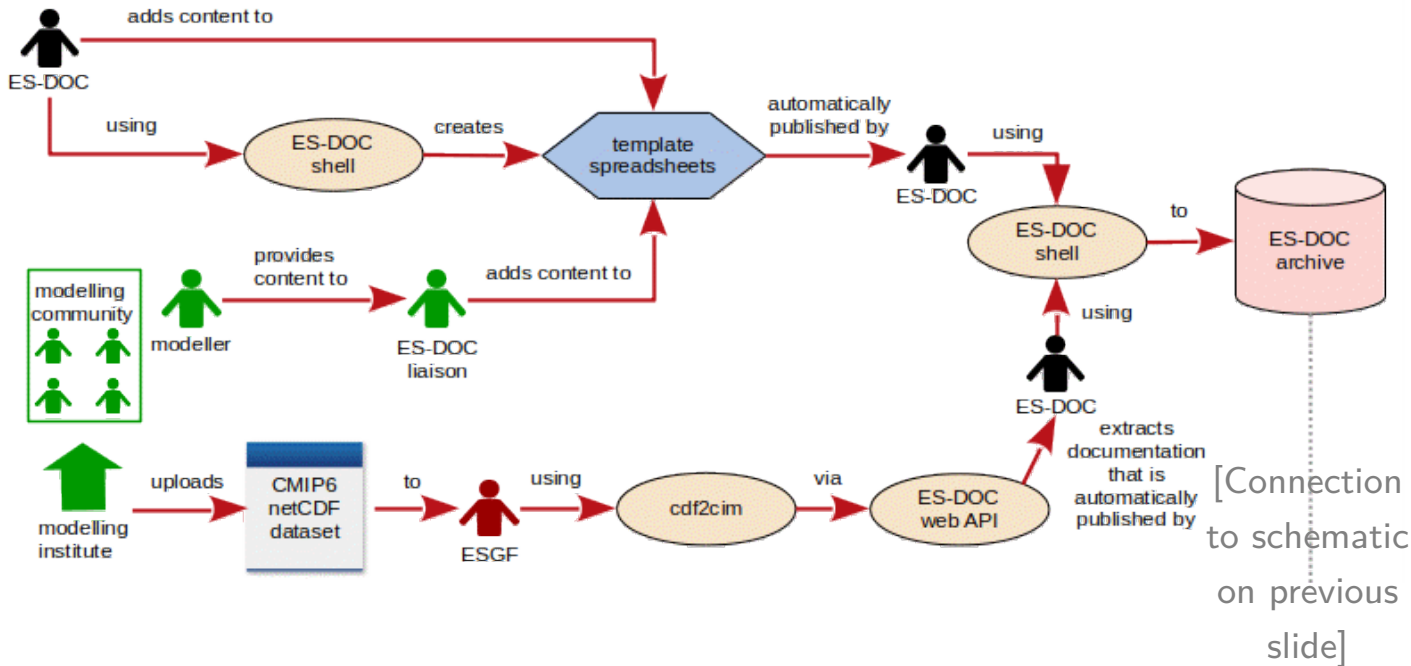
Review: infrastructure, 1. access

- **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**...

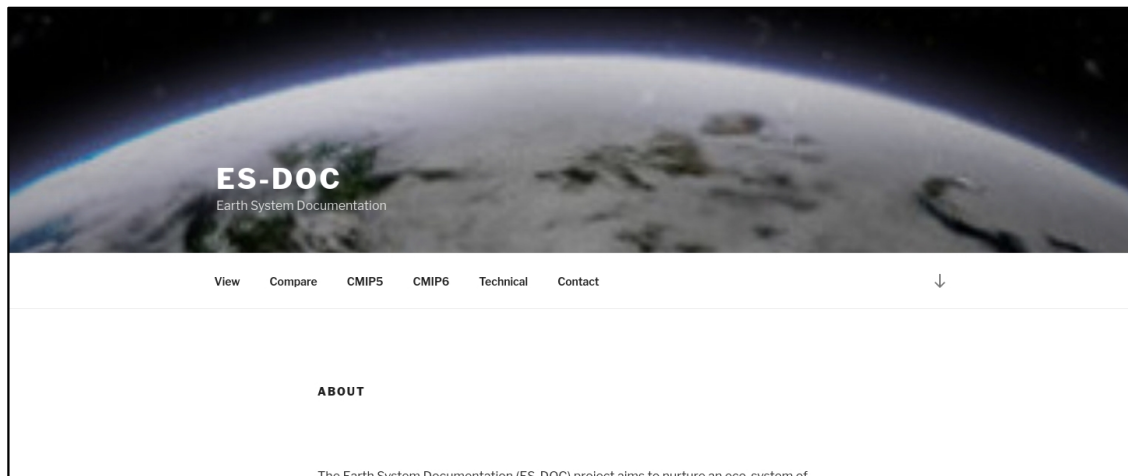[Connection to schematic on previous slide]

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

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

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°824084

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