Infrastructure for the European Network for Earth System Modelling: IS-ENES3

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ENES Infrastructure strategy 2012-2022, update 2017

https://enes.org

IS-ENES infrastructure projects

- IS-ENES (2009-2013)
- IS-ENES3 (2019-2022)

Support WCRP internationally coordinated climate model experiments (CMIP & CORDEX)

Support sharing of expertise on climate modelling and HPC

http://is.enes.org
IS-ENES third phase

January 2019 – December 2022

22 partners from
FR (3), DE (2), UK (4), ES (2), IT (1), NL (3), SE (2), NO (2), CZ (1), SR (1), GR (1)

EC funding: 9.8 M€/4 years & National support

Main objectives

- Pursue the integration of the climate modelling community & prepare the sustainability of the research infrastructure
- Foster common development of models and tools and efficient use of HPC
- Support exploitation of model data by the Earth system science, the climate change impact and the climate service communities
Main recommendations

- **Models**: Accelerate preparation of exascale
- **HPC**: Exploit blend of facilities & Access to world-class HPC
- **Big data challenge**: Access, documentation, analyses
- **Physical network**: Maximize bandwidth
- **People**: Training at all levels for researchers & engineers
- **New - Model evaluation**: supporting the infrastructure
- **New - Sustainable infrastructure**
IS-ENES3 Data infrastructure activities

**Networking Activities**

Data & metadata
- Needs, priorities, standards, future architectures for ESGF and ES-DOC

Engage with Users
- Trainings, school Requirements

Evaluation
- Standards for diagn. Tools
- Standard on evaluation scientific provenance

Prepare for sustainability

**Data access services**

ESGF data access and publication

Long-term archival, PI, WDCC

Climate4impact portal

New compute services
- For large data pools and evaluation diagnostics

New service on Data and metadata standards
- CF & Data Request

Model documentation
- ES-DOC

**Joint Research Activities**

Data infrastructure development
- Improve:
  - Software stack
  - Computing layer
  - Data standards
  - ES-DOC
  - Climate4impact portal

ESM evaluation developments
- Based on ESMValTool
- Improve, Extend
- Couple to ESGF
ENES Climate Data Infrastructure in the European landscape

ENES Climate Data Infrastructure
ESGF/ES-DOC – C4I

Needs sustainability

Users of ESGF
Climate modelling
(Global & Regional)
Climate Impacts
& Climate services

ENES Data Task Force

Climate Services for a wide range of users
Climate Data Store
Access to set of Climate projections
ESGF nodes
for CMIP and CORDEX
CP4CDS
CORDEX4CDS

Other scientific communities
Sharing of tools/expertise
EUDAT
ENVRIPlus
Interoperability of data
European Open Science Cloud (EOSC)
EOSC-Hub
EOSC-Pilot
DARE

Needs sustainability
Europe: strongly committed to ESGF and international infrastructure supporting WCRP scientific objectives

Main structuring role of IS-ENES EC long-term support but also role of Copernicus & EOSC

Sustainability is an issue: in Europe but also international

On the way to improve service to users and a larger range of users: facilitate access to large multi-model data pools, provide compute services

We would be happy to host one ESGF F2F in Europe (e.g. EGU spring 2020 ?)