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INFRASTRUCTURE FOR THE EUROPEAN NETWORK FOR EARTH SYSTEM MODELLING

2nd General Assembly

4-6 October 2021
Virtual

IS-ENES3 Overview

Sylvie Joussaume (IPSL-CNRS)
Bryan Lawrence (UREAD-NCAS)

The IS-ENES3 project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 824084

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January 2019 – December 2022
22 partners from 11 countries
01/07/2020-31/12/2021: Second Reporting Period

3 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

New Project Officer:
Emiliano Carozza
At **Research Executive Agency**

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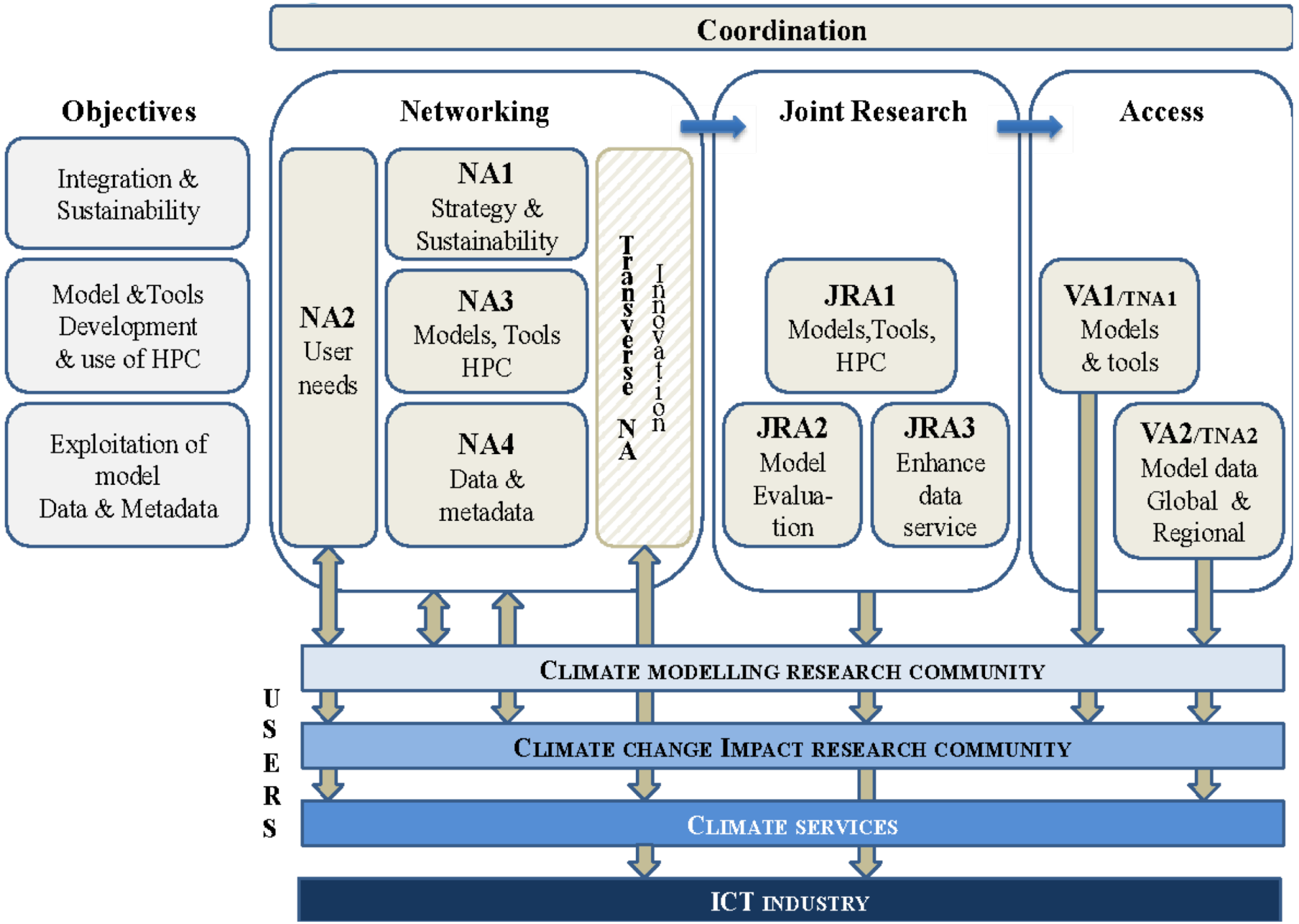

WP1/ Mgt

WP2/NA1-sustain
WP3/NA2-users
WP4/NA3-hpc
WP5/NA4-data

WP6/VA1-hpc
WP7/VA2-data

WP8/JRA1-hpc
WP9/JRA2-eval
WP10/JRA3-data

WP11/ Ethics

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Objective 1: Integration & sustainability

Networking activities

NA1-sustain

Governance: Task Forces (data and HPC) & ENES scientific officer

Prepare for sustainability: scoping, designing & possibly implementing

Innovation cross-WP activity: Technology and Societal innovation

Revise infrastructure strategy for 2022-2032

NA2-users

Engage with users: workshops & training

Widen the user community: VIA, Climate services

Nurture the existing community

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Objective 2: Models, tools and HPC activities

Networking Activities

NA3-hpc

Community models
QA for NEMO
New platform for sea ice

HPC performance
CMIP6 Metrics
Machine Learning & Tech tracking
Coupling workshop, HPC WS

Innovation
Tools & HPC

Engage with Users
School on big data
Requirements
Prepare for sustainability

NA2-users

NA1-sustain

Models and tools access services

Level 1 services:
Model information
CMIP5 & CMIP6 models

Level 2 services:
Access to codes
HADGEM/EC-Earth /NorESM
NEMO

European tools
OASIS, CDO
XIOS, Cylc/Rose
ESMValTool

VA1-hpc

Joint Research Activities

Community models
Improve NEMO
HPC performance
Develop new sea ice platform

Community tools
Develop
OASIS
XIOS
Cylc/Rose

JRA1-hpc

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Objective 3: Data infrastructure

Networking Activities

NA4-data

Data & metadata

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

Evaluation

Standards for diagn. Tools

Standard on evaluation scientific provenance

Engage with Users

Trainings, schools

Requirements

NA2-users

Innovation

Climate services & C3S

NA1-sustain

Prepare for sustainability

Data access services

ESGF data access and publication

Long-term archival, PI, WDCC

Climate4impact portal

Compute services

For large data pools and evaluation diagnostics

Service on Data and metadata standards

CF & Data Request

Model documentation

ES-DOC

VA2-data

Joint Research Activities

Data infrastructure development

Improve:

Software stack

Computing layer

Data standards

ES-DOC

Climate4impact portal

JRA3-data

ESM evaluation developments

Based on ESMValTool

Improve

Extend functionalities

Adapt to standard interfaces

Couple to ESGF

JRA2-eval

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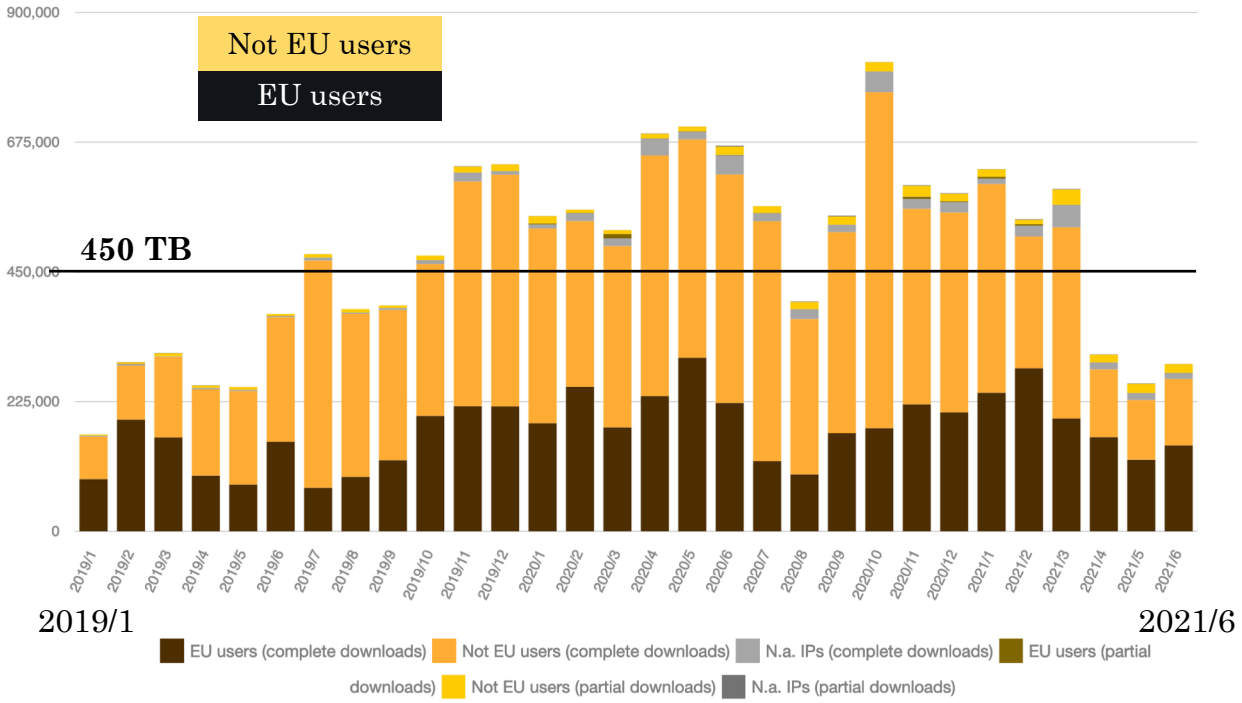
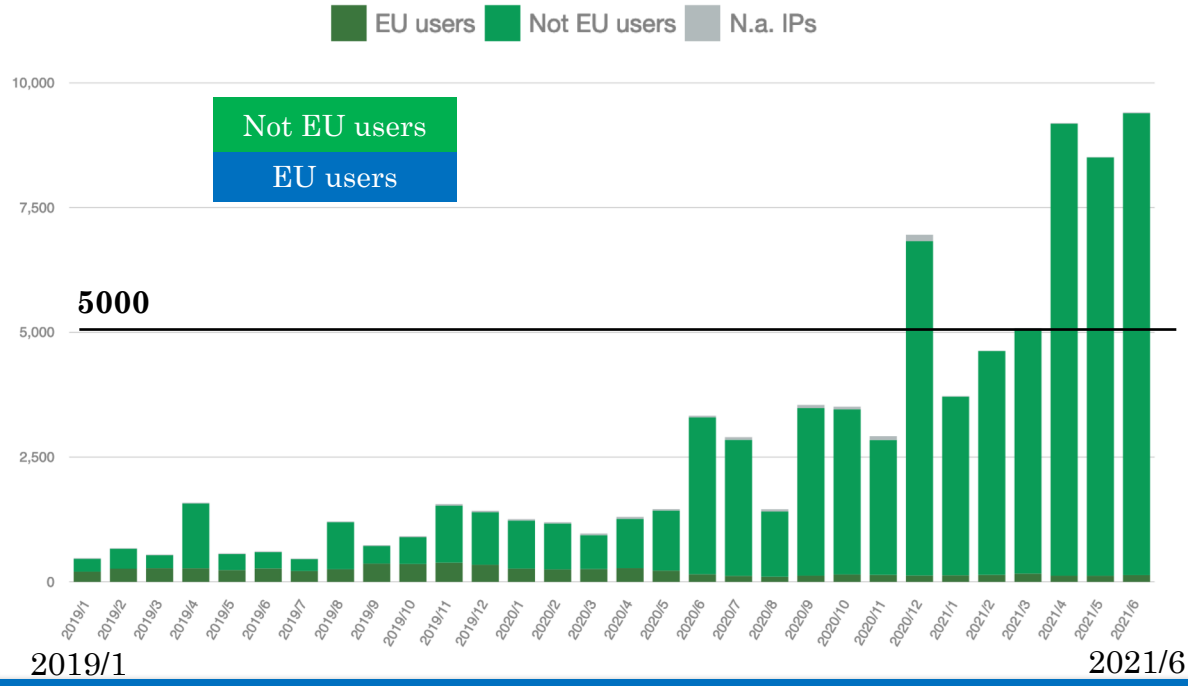
IS-ENES3 KPIs (from Jan 2019 to June 2021)

Downloaded data volume [GB]



Number of distinct clients



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European & International context

European

- **New projects on next generation ESMs (2021-2025): NextGEMS** (B. Stevens) & **ESM2025** (R. Séférian)
- **Data policy**: open access, EOSC - collaborations with EGI (lead CMCC) and EUDAT (lead DKRZ)
- **Copernicus C3S**: New project on operational access to CMIP/CORDEX from ESGF (PI IPSL)
- **ENVRI** (environmental RI): Collaboration (SJ & FA) – new proposal on climate related risks (PI UKRI)
- **DestinE**: towards very high resolution climate models for adaptation policy
- **EuroHPC:** HPC pre-exascale machines available (LUMI early 2022)
  and HPC exascale plans (2023-2024)

International

- **CMIP:** New WCRP CMIP International Project Office, hosted by ESA – starting September 2021
- **ESGF:** New team selected by DOE

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Main structure of agenda

General session: ALL

Overview & Sustainability

New ESM projects

Carbon footprint

Grant Agreement issues

Topic session: one at least

Model evaluation / Data and metadata / Models, tools, hpc

Status, Highlights, Cross-WP issues

Introduce “Around Coffee” parallel sessions

Wednesday morning: Cross-WP issues & Plenary

Wednesday afternoon: Around Coffee parallel sessions - open slots

Although a virtual GA: facilitate discussion!! Lunch time: Gathertown

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THE CONSORTIUM

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

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

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