



Introduction Session

IS-ENES3 Overview

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CNRS-IPSL, Coordinator of IS-ENES3

HAPPY NEW YEAR 2019 !

Frohes neues Jahr, Bon any nou, Feliz año nuevo, Bonne Année,
Ευτυχισμένο το νέο έτος, Boldog új évét, Felice anno nuovo, Gelukkig nieuwjaar,
Godt nytt år, Срећна Нова година, Gott nytt år, Šťastný nový rok



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ENES Infrastructure strategy 2012-2022, update 2017

<https://enes.org>



IS-ENES infrastructure projects

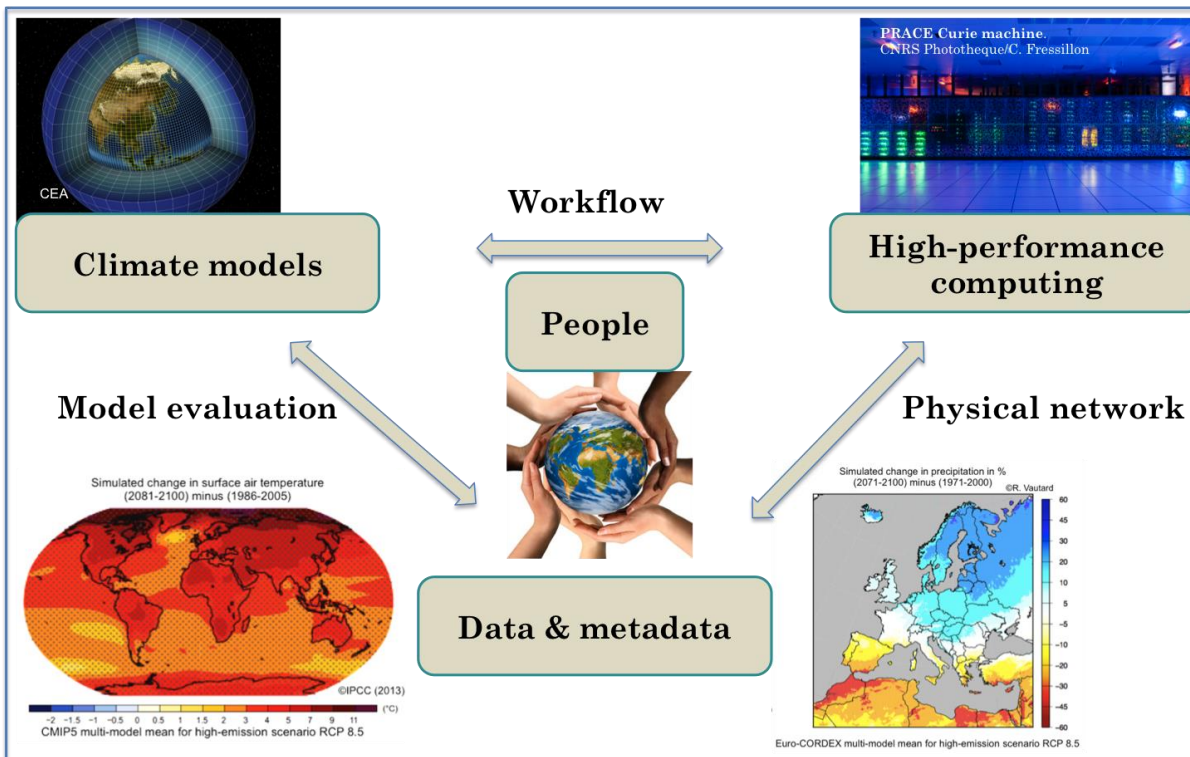
- IS-ENES (2009-2013)
- IS-ENES2 (2013-2017)
- IS-ENES3 (2019-2022)

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

Support sharing of expertise on

climate models, tools & HPC

<https://is.enes.org>



Foster the integration of the European climate and Earth system modelling community

Global & Regional
climate modelling

Contribute to international
governance ESGF & ESDOC, WIP

2017 update of ENES
infra strategy

Enhance the development of ESMs for the understanding of climate variability and change

Service on models and tools
New Access to climate models

Sharing of SW and expertise
Config. Mangt, workflow

Int. Benchmarking of
coupling technologies

Support high-end simulation to better understand and predict climate variations and change

Technology tracking
Coupled benchmarks

Model HPC performance:
Metric & improve IO & coupler

Paved the way to
ESIWACE CoE

Support the dissemination of Earth system model simulations

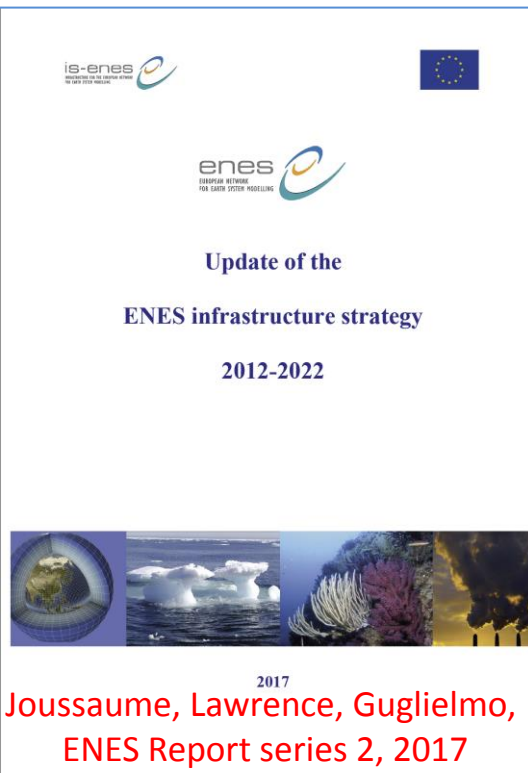
Lead international CORDEX
data infrastructure

International devt of ESGF &
ESDOC for CMIP6

Implementation of
Climate4impact portal

Innovation: Interaction with HPC vendors
Societal innovation: contribution to the development of Copernicus C3S

Based on ENES infrastructure strategy 2017 update



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**

January 2019 – December 2022

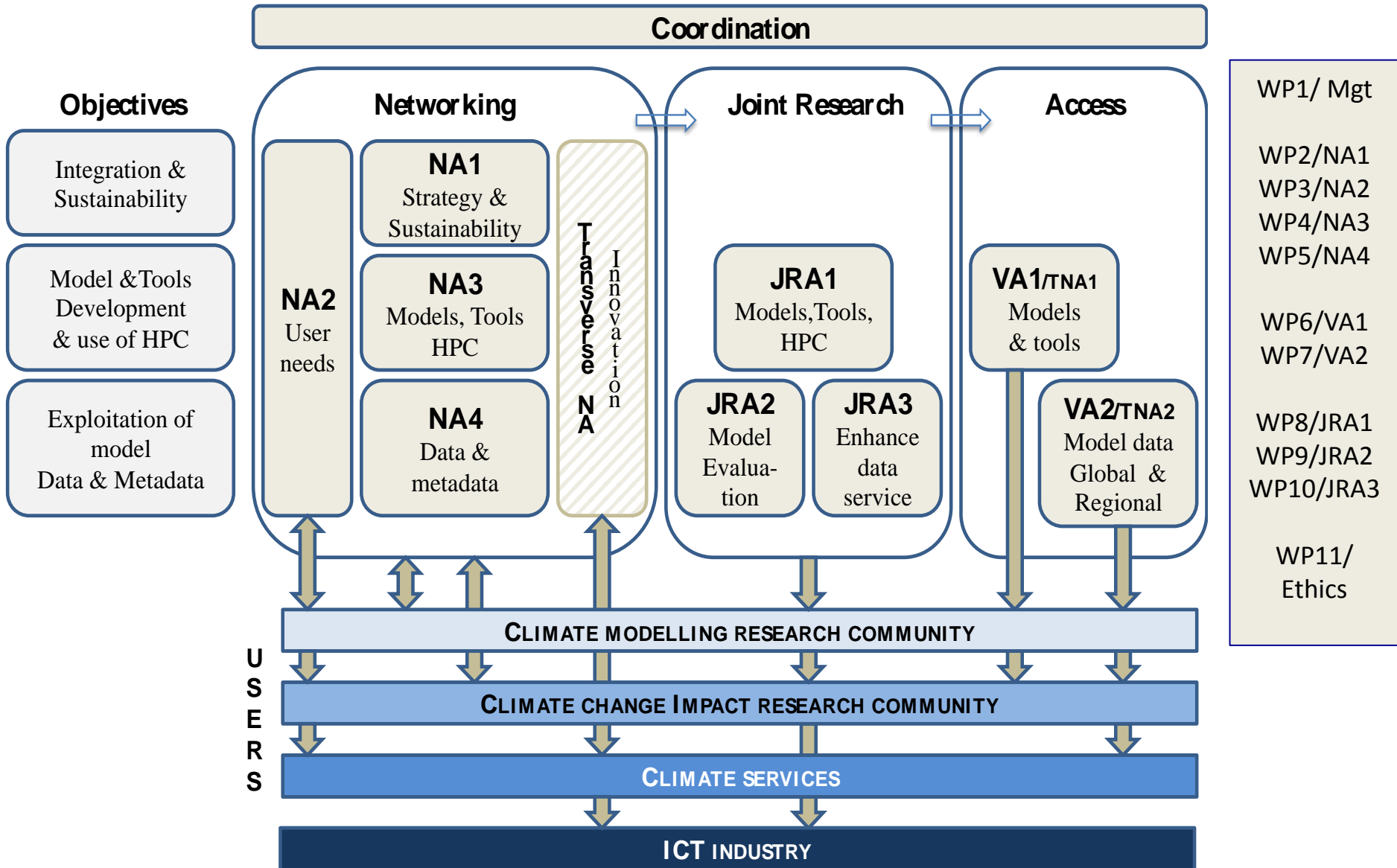
22 partners from 11 countries

CNRS-IPSL with CEA and SU (FR); UREAD-NCAS (UK); DKRZ (DE); CERFACS (FR); Met Office (UK); BSC (ES); KNMI (NL); CMCC (IT); UKRI (UK); SMHI (SE); DLR (DE); NLeSC (NL); UC (ES); Met.no (NO); MF-CNRM (FR); UNIMAN (UK); NCSR-D (GR); WENR (NL); CUNI (CZ); FPUB (SR); NORCE (NO); LiU (SE)

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





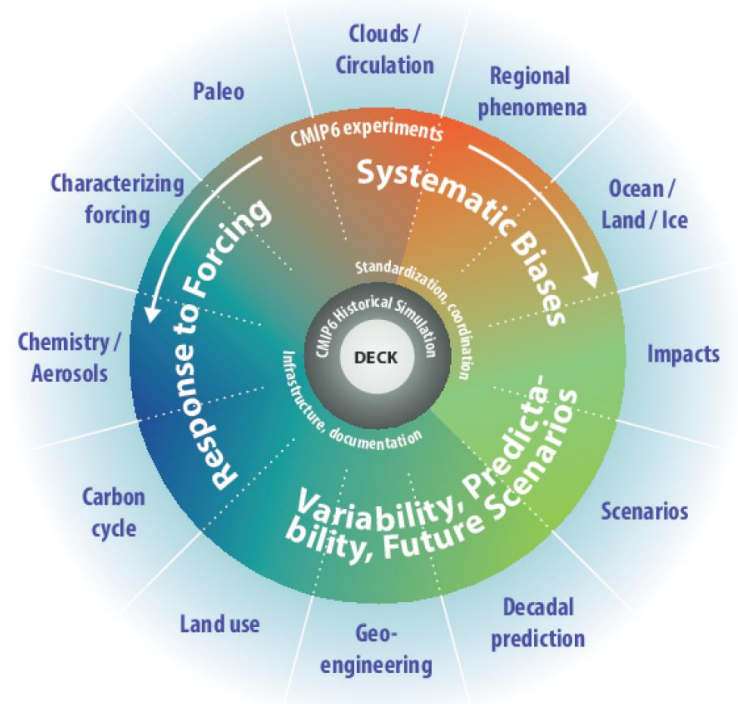
Operational phase of CMIP6

Data challenge:
from 1.8 PB for CMIP5 to ca 20 PB for CMIP6

2019: key for the exploitation for IPCC AR6
2020-2022 full exploitation of CMIP6

Increasing user community:

Vulnerability, Impact, Adaptation (VIA)
Climate services, e.g. Copernicus C3S



Change of paradigm in HPC

End of Moore's Law; Increasing complexity of architectures
Big data and HPC – Collaboration with ESIWACE2

See Bryan Lawrence's talk



Networking activities

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

Engage with users: workshops & training

Widen the user community: VIA, Climate services

Nurture the existing community

Models, tools and HPC activities

Networking Activities

Community models

QA for NEMO
New platform for sea ice

HPC performance

Metrics
Machine Learning & Tech
tracking
Community workshops

Innovation

Tools & HPC

Engage with Users

School on big data
Requirements

Prepare for sustainability

Models and tools access services

Level 1 services:

Model information
CMIP5 & CMIP6 models

Level 2 services:

Access to codes
HADGEM/EC-Earth / NEMO
New: NorESM

European tools

OASIS, CDO
New: XIOS, Cylc/Rose
New: ESMValTool

Joint Research Activities

Community models

Improve NEMO
HPC performance
Develop new sea ice
platform

Community tools

Develop
OASIS
XIOS
Cylc/Rose



Networking Activities

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, school
Requirements

Innovation

Climate services & C3S

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

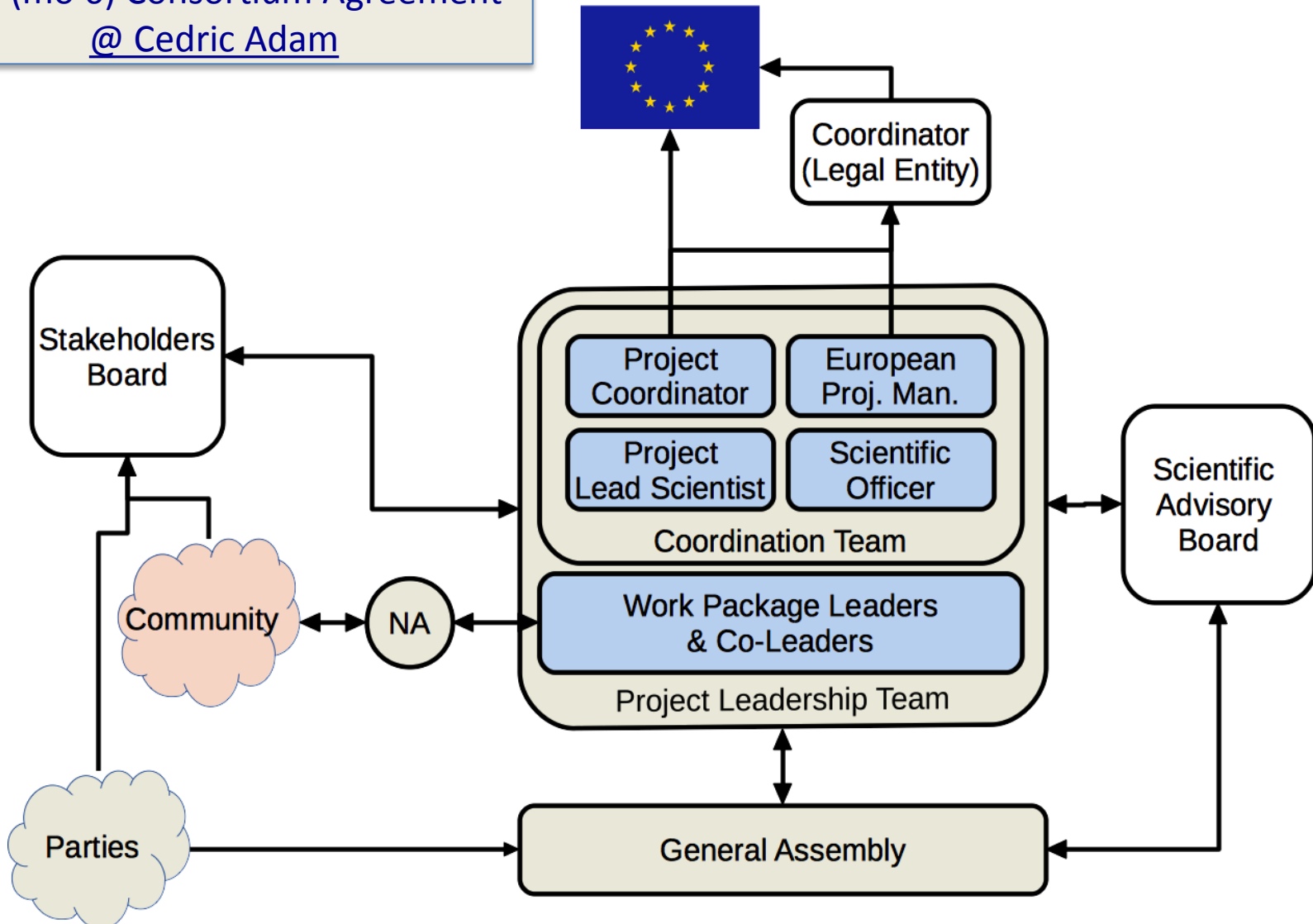
Improve:
Software stack
Computing layer
Data standards
ES-DOC
Climate4impact portal

ESM evaluation
developments

Based on ESMValTool
Improve
Extend functionalities
Adapt to standard
interfaces
Couple to ESGF



D1.2 (mo 6) Consortium Agreement
@ Cedric Adam



Project Leadership Team (Executive Body)

Coordination Team: Sylvie Joussaume, Bryan Lawrence Sophie Morellon,
Francesca Guglielmo continues as ENES SO within ClimatEurope CSA

WP number	WP Leader Participant short name	WP Leader	WP Co-Leader Participant Short name	WP Co-Leader
1	CNRS-IPSL	Sylvie Joussaume (F)	UREAD-NCAS	Bryan Lawrence (M)
2	UREAD-NCAS	Bryan Lawrence (M)	DKRZ	Michael Lautenschlager (M)
3	CNRS-IPSL	Eric Guilyardi (M)	KNMI	Janette Bessembinder (F)
4	Met Office	Mick Carter (M)	BSC	Mario Acosta (M)
5	CNRS-IPSL	Sébastien Denvil (M)	SMHI	Klaus Zimmermann (M)
6	SMHI	Uwe Fladrich (M)	CERFACS	Eric Maisonnave (M)
7	DKRZ	Stephan Kindermann (M)	KNMI	Wim Som de Cerff (M)
8	CERFACS	Sophie Valcke (F)	CMCC	Italo Epicoco (M)
9	DLR	Veronika Eyring (F)	BSC	Kim Serradell (M)
10	CMCC	Sandro Fiore (M)	CERFACS	Christian Pagé (M)

IS-ENES3 Scientific Advisory Board

Ben Evans (NCI, AU), Peter Gleckler (PCMDI, USA),
Mariana Vertenstein (NCAR, USA), Gunilla Svensson (Bert Bolin Centre, SE),
Gabriella Zsebehazi (Hungary Met service), Claas Teichmann (GERICS, DE)



Data Management Plan (draft in Part B) – **Open Research Data Pilot - NEW**

Types of data that will be collected or generated, their associated standards and the measures to be implemented for their exploitation and possible re-use, as well as for their curation and preservation

D1.1 (mo 4) Data Management Plan
@ Bryan Lawrence

Ethics requirements: **NEW WP**

EU's 2016 General Data Protection Regulation (GDPR)

1) Participation of humans:

D11.1 (mo 3) @ Sophie M.

The procedures and criteria that will be used to identify/recruit research participants; consent procedures (Surveys, trainings, schools, TNAs ...)

2) Personal data:

D11.2 (mo 3) @ Sophie M.

Consent procedures in regard to the collection, storage, and protection of personal data (All workshops, meetings, lists ...)

Communication & Dissemination

D1.3 (mo 6) Dissemination and exploitation plan
@ Sylvie J. with Sophie M.

How to improve Internal & external communication ? Ensure best dissemination ?



Main structure of agenda

- **General Introduction**
- **Sessions per objective**
 - Introducing WPs & general talks
- **Breakout group sessions:**
 - Thursday: Models, tools and HPC / Data and metadata
 - Friday: Model evaluation / Sustainability/ possible technical groups
- **Cross-WP plenary discussion sessions:**
 - Innovation
 - General aspects
 - Community engagement

**Ensure we are all on track to start efficiently IS-ENES3 !!
Enjoy the meeting !**



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