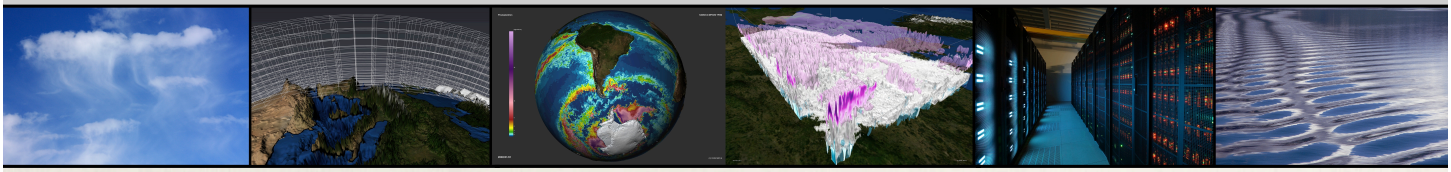
esiwace
CENTRE OF EXCELLENCE IN SIMULATION OF WEATHER AND CLIMATE IN EUROPE

DKRZ
DEUTSCHES KLIMARECHENZENTRUM



PROJECT OBJECTIVE

ESiWACE will form a joint scientific community around **Earth System Modelling** (ESM) from the two communities of **Weather** research and **Climate** research by leveraging two established European networks

- the European Network for Earth System Modelling (ENES) (https://verc.enes.org) representing the European **Climate** modelling community
- the world leading European Centre for Medium-Range **Weather** Forecasts (ECMWF) (http://www.ecmwf.int)

ESiWACE will

- Substantially facilitating efficiency and productivity of numerical **weather** and **climate** simulation on high-performance computing (**HPC**) platforms by
  - Easing cooperative development of models and tools
  - Supporting the end-to-end workflow of global Earth system modelling (ESM) in **HPC** environments.
- Build a critical mass and expertise to increase the community impact on
  - Hardware development towards the extreme scale
  - Future international ExaScale initiatives

The Consortium:

Coordinator: DKRZ

WEATHER: ECMWF; Deutscher Wetterdienst; Met Office; SMHI

CLIMATE: Max-Planck-Institut für Meteorologie; Institut Pierre Simon Laplace; cmcc; CERFACS; National Centre for Atmospheric Science

HPC: BSC; Bull atos technologies; SEAGATE; allinea; Science & Technology Facilities Council; ICHEC

PROJECT IMPACTS

Weather and **Climate** computing has always been amongst the key drivers for **HPC** development, with domain-specific scientific and technical requirements that stretch the capability and capacity of existing software and hardware to the limits.

By developing solutions for Europe and at European scale, ESiWACE directly impacts on an improved understanding of and solutions to societal problems as pointed out by the IPCC assessment reports on global change.

ESiWACE directly impacts the competitiveness of the European **HPC** industry by

- Opening the potential for engendering new products
- Providing opportunities for exploitation beyond the project itself
- Enhancing the skills base of staff in both industry and academia

Interested in finding out more?

Contact the ESiWACE Project Office
E-Mail: esiwace@dkrz.de
Web: www.esiwace.eu

PROJECT METHODOLOGY

- ESiWACE is thematic: It focuses on the **HPC** application domain of **Weather** and **Climate** modelling
- ESiWACE is transversal: It covers several aspects of computational science
- ESiWACE is challenge-driven: Climate and weather predictability represent a major societal issue

ESiWACE will become a focal point for the community to

- Foster joint developments of models and tools
- Identify and eliminate bottlenecks in community wide used models and tools
- Pave its way to the **HPC** future and to ExaScale Computing

ESiWACE will address three core themes:

- **Scalability** of models and tools to the extreme scale
- **Usability** of **HPC** systems for the Earth System Modelling workflow
- **Exploitability** of climate data fostering new IO paradigms

4th ENES HPC Workshop

As an important outcome of the project, ESiWACE and IS-ENES2 jointly organized a meeting on **HPC** for **Climate** and **Weather** in Toulouse (France) from 06.04.16 – 07.04.16.
The topics of the sessions were

- The European HPC ecosystem
- Innovative developments and today's high - resolution models
- New paradigms (languages, standards, next-generation models)

The slides of the talks are available at:
www.esiwace.eu/direct/4hpc/

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