

IS-ENES – WP 3

D3.7 – Final and comprehensive report on virtual ESM Resource Center

Abstract:

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EXECUTIVE SUMMARY

The enes portal (<https://portal.enes.org>) – formerly known as the portal to the virtual Earth System Modeling Resources Center (v.E.R.C.) - is one of the central outcomes of the IS-ENES project. On the one hand it acts as a communication platform and a central entrance point to the European Earth System Modelling (ESM) community, on the other hand it reflects and represents the results achieved in the IS-ENES project.

It was defined, designed and setup along the structure and requirements of the ESM community and adapted during the course of the project to offer all that is needed, without confusing the user with superfluous content or functions. The outcome is a technically stable, easily maintainable persistent service and information platform that reflects the scientific landscape and requirements of the ESM community. At the same time, the setup is modular and thus flexible to allow for changes and adaptations and further development in the future.

As such the portal constitutes a good starting point for the follow-up project IS-ENES2 to be further established as the community platform and representation of the European ESM community.

1 INTRODUCTION

The ENES portal (<https://portal.enes.org>) was designed to be the single central portal, which acts not only as a common entrance point to the ESM infrastructure built within IS-ENES, but also as a presentation and virtual meeting point of the ESM community. The objective was to collect, integrate and link (IS-ENES) services and information in a coherent fashion, providing an overview of community resources and to offer a communication platform for the ESM community.

To gather the needs of the community, in strong collaboration with WP NA3 and WP SA2 representatives of the community were asked to use the services of the portal and/or to contribute own content by filling the standardized forms. Their feedback as well as the observed usage patterns and pitfalls were used to improve the portal structure and product suite. The usage statistics collected in WP SA1 were used to gain an impression of the general acceptance of the portal.

Thus, in the course of the IS-ENES project the portal has evolved from a sketchy prototype, offering a large suite of functionalities and services, to a sound and well defined system that offers what is needed by the community, without overloading users with superfluous options. The content is reflecting the landscape of earth system modeling and announcements of community relevant news, events and vacancies are regularly updated.

During the first period of the project the focus was on the technical specification of the portal and its basic setup. Plone/Zope¹ was chosen as a framework and the technical setup (i.e. server specification, caching etc.) was defined to allow for easy maintenance and flexible expandability. As a first real-world example the project website was implemented using the same technology. At the end of M18 of the project the portal was reachable at <https://verc.enes.org> (see D3.1)

During the second period, the portal was renamed as the ENES Portal, and evolved to a mature and valuable framework in its beta version. All components were integrated and the navigation structure was continuously filled with information collected on community projects, models, tools etc. The used product suite converged to what was really needed.

The data portal became an integrated part of the portal. It was setup in a modular fashion so that the services and information on the data can be managed and maintained independently by JRA4 and SA2.

The grid portal (NA2, Task 4) and the evaluation portal (JRA3) are integrated via virtual hosting, so that they appear in the same namespace with similar look and feel, but are managed and setup at the partner institutions.

In the last phase of the project the portal development focussed on the consolidation of the beta version of the portal to an up-to-date and stable system with good performance and minimal maintenance, reflecting and fulfilling the actual needs of the community. This implied on the one hand a technical renewal, i.e.

- migrating to the latest software version,
- improving the caching system

¹ Plone is an opensource content management system and Zope is its underlying web server framework

- and optimizing the entire setup and regular maintenance procedures

On the other hand the visual and structural layout of the portal has been revised concerning to observed needs and usage patterns:

- The visual layout has been completely reprogrammed and modernised in collaboration with a professional designer
- The structure has been adapted to better reflect the actual scientific landscape (see also NA3)
- Publication workflows have been designed and enforced by technical means to guarantee a coherent and always up-to-date appearance of the portal

2 THE FINAL STATUS OF THE PORTAL

In its final status, the portal is a technical stable, easy maintainable and sustainable framework with good performance. The layout and navigation structure has been optimized to guide the user along the prominent topics of Earth System Modeling. The publication workflow was adapted to concurrently enable community participation and editorial control. In the following the details of the different aspect are described.

2.1 THE TECHNICAL SETUP

2.1.1 Setup of the production server

The production server is deployed on a virtual machine running the CentOS linux operating system on a server at DKRZ. Virtual machine-based deployment enables easy restart in case of system (e.g. hardware) problems and allows for an update system without unnecessary downtime.

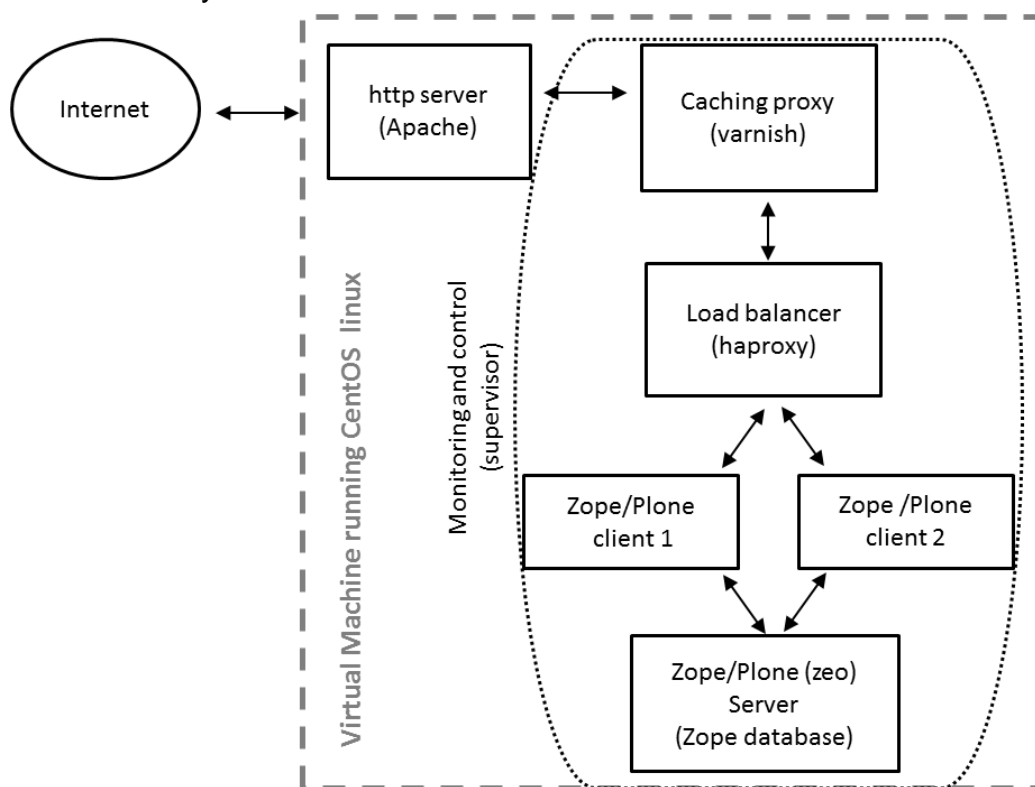


Figure 1: Technical setup of the ENES portal

The basic architectural components are (see Figure 1):

- **HTTP Server:** The Apache server (<http://httpd.apache.org>) acts as the central frontend to the web. Incoming HTTP requests are forwarded to the caching proxy server (Varnish). At the same time the Apache server redirects requests to the different hosted sites (e.g. portal.enes.org and oasis.enes.org) and ensures a secure https connection.
- **Monitoring and controllong:** Supervisor (<http://supervisord.org/>) is a client/server system that is used to monitor and control the basic architectural components

- **Caching Proxy:** Varnish (<https://www.varnish-cache.org/>) acts as the local web request cache for the Zope/Plone subsystem, speeding up the content serving process in the production environment, thus providing scalability to future usage scenarios
- **Load Balancer:** Haproxy (<http://haproxy.1wt.eu/>) is used to divide incoming requests on the two Zope clients
- **Zope/Plone:** A standard Plone (<http://plone.org/>) installation already includes the required Zope application server and a Python interpreter and works out-of-the-box. The Zope/Plone system is set up as a “ZEO Cluster” (Zope Enterprise Objects), allowing multiple Zope instances shared access to a central Zope Database. Currently, the load of incoming requests is divided on two instances by the load balancer (see above)

2.1.2 Maintenance and Error handling

To ensure the 7-24 service, the central monitoring system of DKRZ (Nagios: <http://www.nagios.org/>) controls the broadcast of the portal. In case of a failure the site administrator is notified via Email and the production system (i.e. varnish, haproxy and Zope/Plone) is restarted via the supervisor manager.

To be able to restore the portal after severe failures, the Plone/Zope internal database of the production server, containing all information to rebuild the current state of the portal, is packed once a month and backed up daily.

2.1.3 Development and update procedures

Several software products have been developed to adjust a standard Plone site to the needs of the ESM community. The code of these products is managed in a git repository (<http://git-scm.com/>). Changes or bug fixes are first tested by the developers on their local machines or on a clone of the production server. Once they are submitted to the repository, continuous integration tests governed by Jenkins (<http://jenkins-ci.org/>) are performed and problems are reported to the developer via Email.

The production server is updated, whenever there are significant changes in the developed software or once official security patches or bug fixes are released. The update procedure is formalized and scripted to minimize possible error sources and downtime.

2.2 LAYOUT AND NAVIGATION STRUCTURE

The visual appearance as well as the navigation structure and its functional representation are key elements for an information and communication portal. The user needs to be guided through the navigation and all interactive elements have to be intuitive to ensure optimal usability. At the same time the visual appearance should be up to the state of art, helping new users to orientate themselves and immediately find typical entry points to the content.

2.2.1 The layout

The layout of the ENES portal has been optimized in collaboration with a professional designer and reflects the current state-of-the-art. It follows the widely used three-column structure, apart from the starting page, which has two columns only. The width of the central content is fixed to suit most laptops, but optimized to still ensure an appealing and clear appearance on large monitors. The left column contains the navigation of the current section and the right column offers space for news, events and vacancies (in the community section) or a set of quick links (on the remaining site).

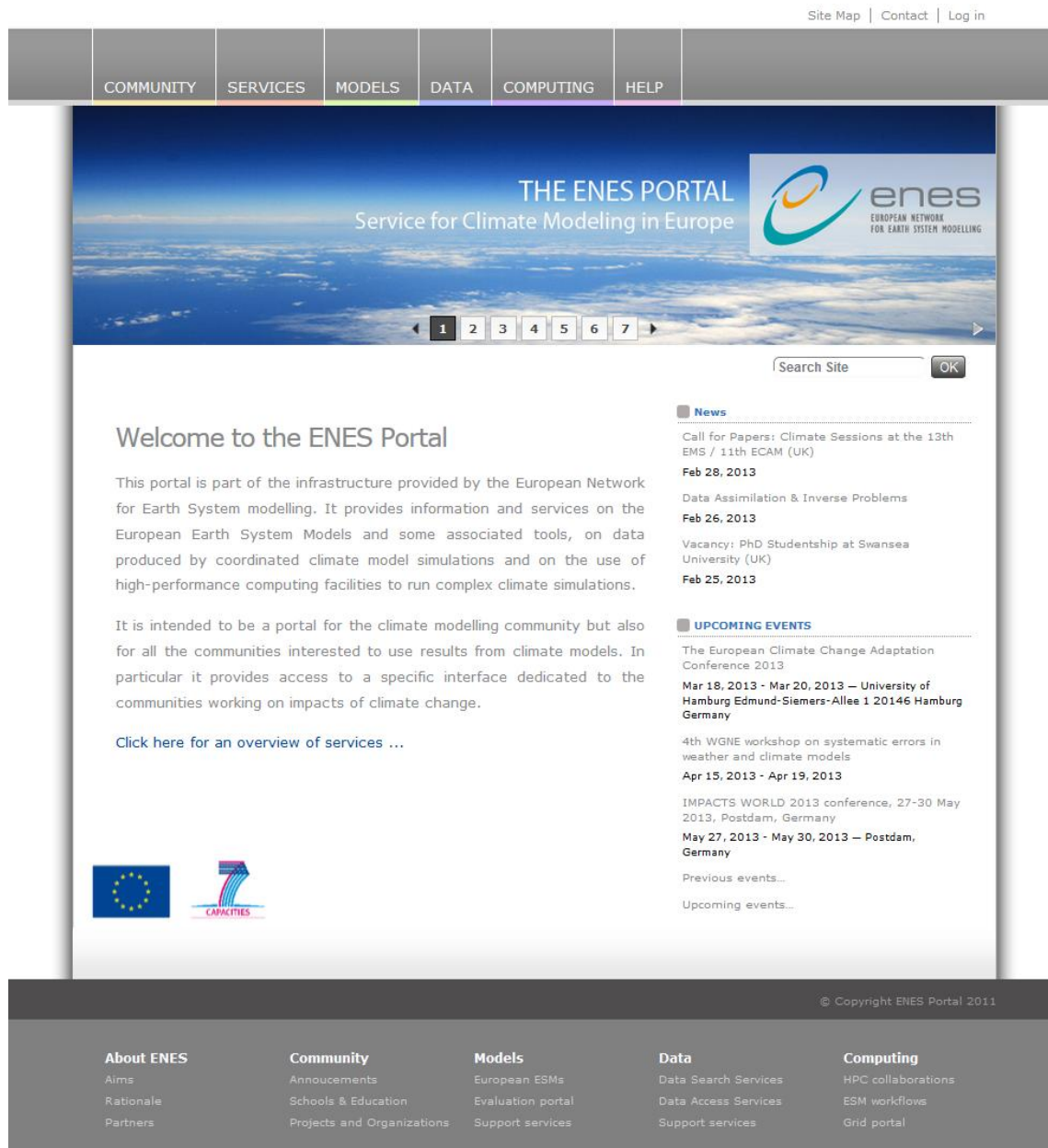


Figure 2: The starting page of the newly designed portal

Further flexible elements, such as an automatic slideshow on the starting page and an alternative sitemap on the footer of each page allow altering the layout over time, when the content evolves (see Figure 2)

2.2.2 The navigation structure

The main structure is organized along the main topics of ESM – models, data, computing and community. Additionally, in the help section all support issues are collected and a glossary is built up and the service section gives direct access to the IS-ENES services. Each section starts with an overview page in a defined layout. On these pages the underlying topics are described and depicted by a characteristic picture. Throughout the portal equal topics (such as “contribution” or “services”) are characterised by identical pictures.

As the IS-ENES project was defined along the main topics of the ESM community, the topical structure of the portal also reflect the project work packages and their results:

The **community section** reflects the work, which has been done in NA1. It offers detailed information on ENES, (rationale, aim, strategy etc.), collects community announcements (news, events, jobs and leaflets), has a separate section on schools and education issues, a comprehensive collection of community projects, organization and programmes and last but not least a feedback forum for the portal user.

The **model section** outlines the modelling world of the European ESM community, representing the results of NA3. Here, information on the prominent modelling groups and their models (including an assembling guide and the CIM documentation) are presented in a standardized way; commonly used software tools and the respective services provided by IS-ENES are documented and linked alongside with the evaluation portal, developed in JRA3.

The **data section** establishes the IS-ENES data portal, developed in JRA4 and operated by SA2. The data portal integrates information and data services provided by the distributed ENES data archive. It is managed and maintained independently by the IS-ENES data provider consortium and guides the user through the landscape of data services, the distributed ENES data infrastructure and highlights prominent data projects. Additionally, it describes and links the impact portal, developed in JRA5.

In the **computing section** the work of NA2 and of the ENES HPC task force on HPC determines the content. Besides short introductions to different European HPC facilities, the HPC collaborations, fostered within IS-ENES are documented, the results and analysis of the unification potential of typical ESM workflows are represented and the grid portal (NA2, Task 4) is described and linked.

In the Appendix you can find a sitemap and screenshots of the entry pages to the main sections and of examples of the standardized representations of projects, tools and models.

2.2.3 The technical implementation of the layout

The implementation of the new layout is done via plone.app.theming (<http://pypi.python.org/pypi/plone.app.theming>), a Plone product that makes use of diazo (<http://diazo.org>). A Diazo server transforms incoming content - in this case the output from "vanilla" Plone - into a different set of HTML markup by applying a set of rules that combine a static HTML mock-up (illustrating the desired end result) with the dynamic content coming from Plone. That is, the content and the layout are separated, allowing the easy use of the same layout for different - not necessarily Plone based - sites. This might be useful if further services are to be integrated in the ENES portal in the future. Currently,

the same layout, with a different colour scheme is used for the OASIS website (<https://oasis.enes.org>), which is also hosted in the same Zope server.

2.3 CONTENT CREATION AND PUBLICATION WORKFLOW

The structure and organization of the content and the content creation has been subject to most changes during the project and will probably undergo the greatest changes in the future, as the portal is supposed to be a communication platform for the community. To support a lively contribution culture, and at the same time ensure a clear navigation structure and coherent overall appearance, a clear publication workflow, as well as a fine granular permission structure, needs to be defined and technically enforced.

Portal section	Responsible reviewer(s)
Community	Reinhard Budich (MPI), Marie Garcia (IPSL)
Models	Sophie Valcke (Cerfacs)
Data	Stephan Kindermann (DKRZ)
Computing	Joachim Biercamp (DKRZ)
Site Administrator	Kerstin Ronneberger (DKRZ)

Table 1: The responsible reviewers for the different portal sections (Feb 2013)

2.3.1 The permission structure

The permissions to edit, change and publish content in this portal are arranged along the main topics: community, models, data and computing.

For each of these topics a separate group of contributors is defined and one or two reviewers are assigned (see Table 1). Members of the respective groups are allowed to view, add and edit new items in the respective topic folder and to submit the edited items for publication (Detailed permissions are defined by the publications workflow). Only the reviewers are allowed to publish items, i.e. make them visible for the public. Thus, they are responsible for the quality and integrity of the public representation of their topic as well as for the adherence to general agreements concerning the structure and style of the portal, as communicated by the site administrator. Keeping the group of reviewers small helps that general decisions on the portal appearance or content organization can be easily discussed and/or implemented.

The main folder "help" as well as the "announcements" folder in the community section include contributions from all main topics and are thus open for members of all different groups. The chief editor (currently the site administrator) will take care that submitted content will be reviewed by an adequate reviewer.

2.3.2 The publication workflow

To ensure that the general structure of the portal is preserved and only reviewed content can be seen by the public each item passes through different states, defined by

permissions for different groups to view and change the item's content and its state.

The following states are passed (see Figure 3)

Private: This is the initial state of each item created.

In this state the item can be viewed, edited and changed (i.e. content can be added to a folder) by all contributors. All other users (anonymous or logged-in users who are not part of the contributors-group) can neither view nor change the item.

Private items can be "submitted for publication" by all contributors, changing its state to "pending for review".

Once an item is submitted for publication, automatically generated E-mails are sent to the

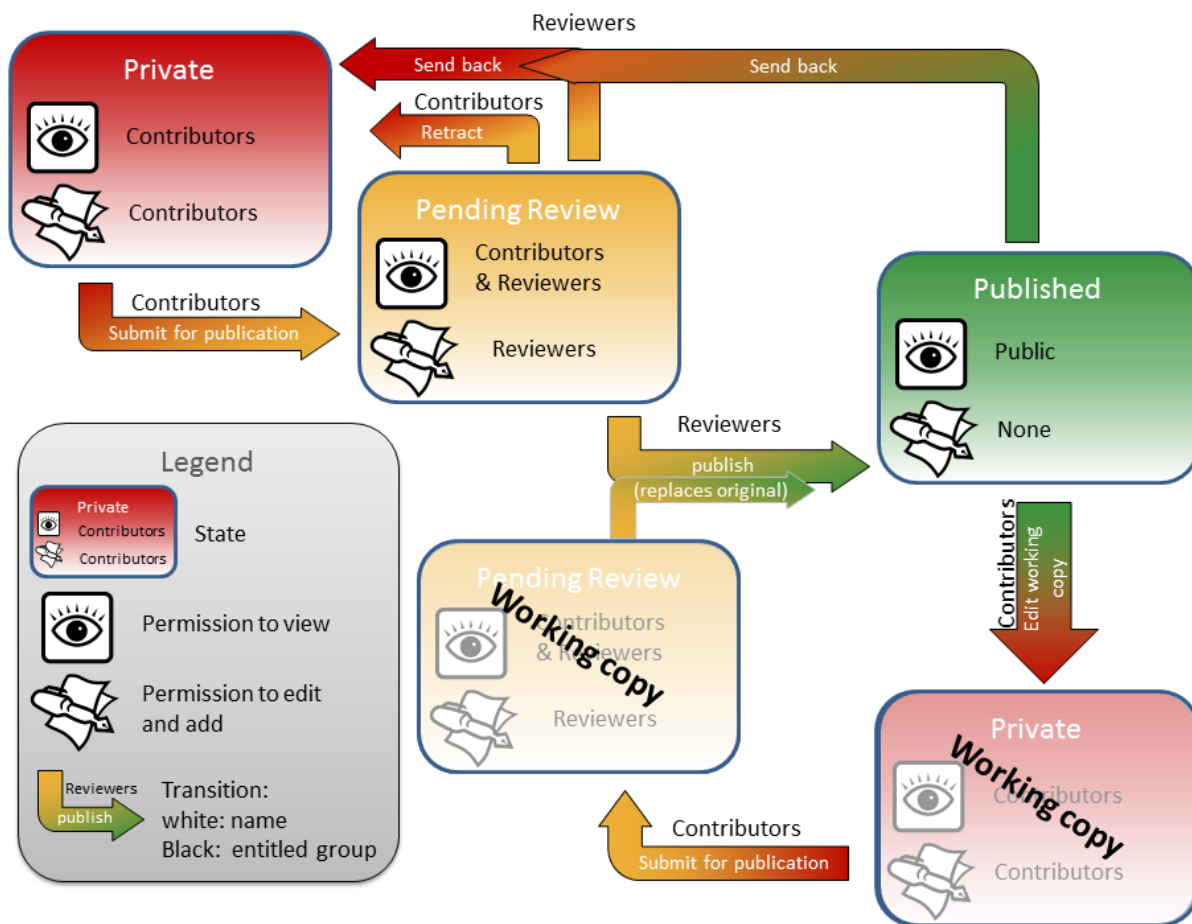


Figure 3: Schematic representation of the publication workflow

submitter and the responsible reviewers. The mail enables the submitter to directly contact the responsible reviewers and the reviewers are informed about the new item awaiting their review.

Pending review: This is the state of items that are submitted for publication but not yet reviewed.

In this state the item can be viewed by all contributors, but edited only by the responsible reviewers.

Items pending for review can be retracted by all contributors and send back by all

reviewers changing the state back to “private”. Reviewers can also publish the item, changing its state to “published”.

Published: This is the state of all items that are part of the "public portal"

In this state the item can be viewed by the public. A published item cannot be edited directly. Instead a working copy is created, that has to be submitted and reviewed again to replace the current version.

A published item can be "edited as working copy" by all contributors, leaving the state of the item unchanged. Reviewers can send back the item, changing the state back to “private”.

2.3.3 Contributing new content

Community member, who wish to contribute content can register to the portal and be added to the contributor group of one or several sections. In this way, the participation of the community is enabled and at the same time a coherent and thus useful overall appearance and structure for the public is guaranteed.

Currently, the largest part of the published content has been created by a small group of IS-ENES project members. For the future a greater participation of the community itself would be desirable. Whether in forums, by means of ideas or via self-published and maintained content - the perception, the requirements and the expertise of the community need to be incorporated in the portal to make it a living and useful community platform.

On the other hand, especially if the community contributions increase, the responsibility to keep track of the overall appearance and benefit of the portal must be clearly allocated. Ideally, one chief editor would trace the portal development, define and create or delegate the creation of important community issues in the portal and review and revise the current navigation and publication structure to define and communicate respective guidelines to the reviewers of the different sections.

3 SUMMARY AND OUTLOOK

The portal is now in a technical stable state with clear maintenance procedures and requirements. The product suite and publication workflow has been optimized for the observed usage pattern and the general structure has evolved to reflect the scientific landscape and has been filled with basic content.

The portal is increasingly being noticed and used by the community, as reflected by the access statistics (as stated in the periodic report of WP SA1) as well as support, contribution and support requests send via the contact form of the portal. This is a good starting point for the continuation and consolidation of the portal in IS-ENES 2 and beyond.

But the next important step is to implement and enforce the portal as the communication platform it was designed to be. Especially for the first phase, in which the use and usage still has to be consolidated and expanded, this requires clear responsibilities concerning the publication and participation structures.

On the one hand, there has to be one or a few responsible people that guarantee that the content is up-to-date, that relevant news, events and job notices are announced as they appear - in short, to guarantee that the portal is a valuable information source for the community.

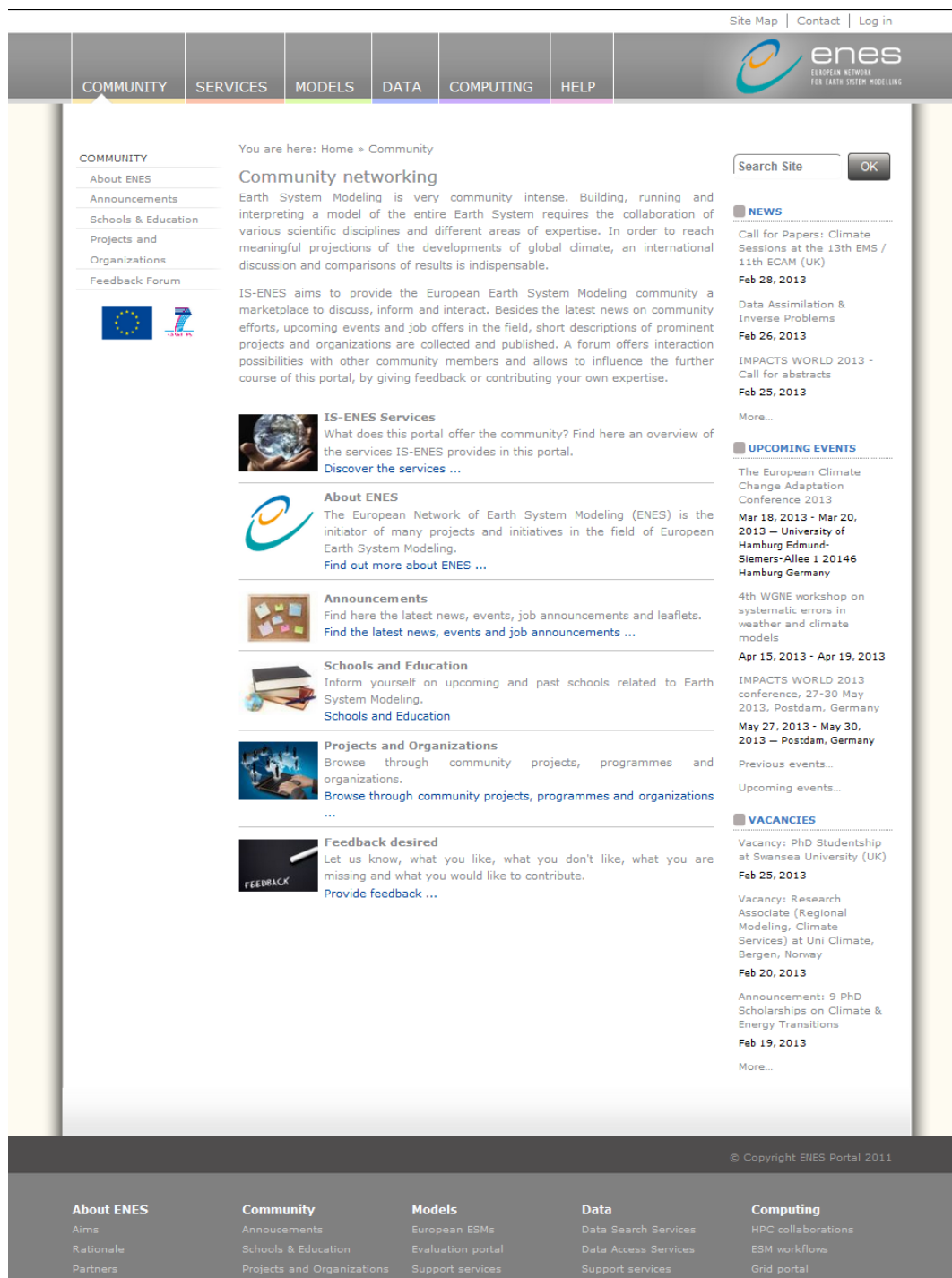
On the other hand a larger participation of the community, by giving feedback and contributing content or ideas, would be desirable. Also here, clear responsibilities and defined actions and reactions to interested users have to be defined and implemented. The portal needs to be advertised on typical community events and flexible and quick reactions to user ideas and contributions need to be guaranteed.

To summarize, the continuity and expansion of the portal as a community platform for IS-ENES 2 and beyond is no longer a technical but an organizational and political issue and has to be integrated in the overall strategy of the ENES community. This is reflected in the structure of IS-ENES 2 by integrating the portal into the strategy work package and by giving responsibility for the quality and relevance of the portals content and services to the ENES scientific officer.

4 APPENDIX

4.1 SCREENSHOTS AND SITEMAP

In the following, we present screenshots of the entry pages to the main sections, as well as examples of the standardized project, modeling group, model and tool representations and the current sitemap



The screenshot displays the ENES website interface. At the top, there is a navigation bar with links for 'Site Map', 'Contact', and 'Log in'. Below this is a main menu with categories: 'COMMUNITY', 'SERVICES', 'MODELS', 'DATA', 'COMPUTING', and 'HELP'. The 'COMMUNITY' section is active, showing a breadcrumb trail 'Home » Community' and a search bar. The main content area is titled 'Community networking' and contains several sub-sections: 'About ENES', 'Announcements', 'Schools & Education', 'Projects and Organizations', and 'Feedback Forum'. Each sub-section includes a brief description and a link to explore further. On the right side, there are sections for 'NEWS', 'UPCOMING EVENTS', and 'VACANCIES', each listing recent updates and opportunities. The footer contains a copyright notice and a detailed sitemap organized into five columns: 'About ENES', 'Community', 'Models', 'Data', and 'Computing', each listing specific sub-pages.

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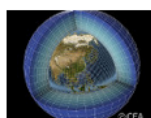
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You are here: Home » Services

IS-ENES services in the ENES portal

This portal is developed by IS-ENES, the infrastructure project of ENES. It is entry point and forum of the European Earth system modeling community and promotes the services developed in the IS-ENES project. It offers a platform to interact, stay informed and share ideas and tools.



IS-ENES services related to climate models

- Documentations of the European Earth system models used in the CMIP5 experiments
- Support on the community component model NEMO
- Support on the widely used software tools CDO and OASIS
- An evaluation portal, promoting data to assess the scientific quality of climate models

[More on model services ...](#)



IS-ENES services related to climate data

- Data Search Services
- Data Access Services
- Data Support Services
- AR4 data archive access

[More on data services ...](#)



Information on IS-ENES High Performance Computing (HPC) activities

- Collaboration with the European HPC ecosystem
- Description and representation of typical ESM workflows
- Access to a prototype grid environment

[More on HPC services ...](#)



Community information

- Community news and announcements of jobs and events related to ESM
- Project and organizations related to global climate modelling
- A forum to provide feedback, discuss and contribute

[More on the community ...](#)



Support

- A comprehensive Glossary terms and acronyms in ESM
- How to use the services in this portal
- How to contribute your expertise to this portal

[Browse the support ...](#)

About ENES

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MODELS

- Earth System Modelling groups
- Software Tools
- Evaluation portal
- IS-ENES support services
- CIM metadata standard
- Contribution



You are here: Home » Models

European Earth System Models and their environment

Simulation results can be interpreted only in the light of the simulation software. The simulation models do not only represent and embody the underlying mental model, they are also the tools to test and analyze new hypotheses. Thus consistent information to models as to highlight their differences, as well as evaluation criteria and variables as to estimate the limits of their validity are essential building blocks of the scientific dialog. To describe for each result dataset the essential details of model, experiment and simulation, the METAFOR project developed the Common Information Model (CIM), a comprehensive metadata scheme.

IS-ENES collects and prepares information on the European Earth System Models and commonly used software tools. Besides short vitae of different software components and guidance on the who, where, what and why of the model landscape, also tools are developed to discover evaluation data and browse through available CIM metadata.

Search Site

OK

IS-ENES model services

- European ESMs
- NEMO
- OASIS
- CDO
- Evaluation portal



Earth System Modelling groups

develop models that include a full representation of the atmosphere circulation coupled to the oceans, sea ice and land surfaces.

[Find the European ESM groups...](#)



Software Tools

The simulation process requires not only models to represent the scientific processes, also tools to post- and preprocess data and to exchange them among model components are needed.

[Find widely used software tools ...](#)



Evaluation portal

To evaluate the validity of Earth System models standardized and harmonized datasets are required. The evaluation portal offers an interface to discover such datasets.

[Query the evaluation portal ...](#)



IS-ENES support services

IS-ENES offers special support for the ESM tools CDO and OASIS and the NEMO ocean model.

[IS-ENES support services](#)



CIM metadata standard

The CIM metadata standard and the related questionnaire aim to support scientists to comprehensively describe their model results, including experiment, model and simulation details.

[Find out about CIM ...](#)



I want to be part of it

Ways to contribute

[Contribute...](#)

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DATA

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- [ENES Data Infrastructure](#)
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You are here: Home » Data

The ENES data services

This section of the portal will help you to find and access the climate data provided by the distributed data centers in the ENES data federation. It also provides information that will help you to get better understanding of these data.

- 

Data Services by Topic
 Find the appropriate data services to retrieve the data needed for your topic.
[Data Services by Topic](#)

- 

ENES Data Infrastructure
 Overview of the ENES data infrastructure and its relation to ESGF and other infrastructures
[ENES Data Infrastructure](#)

- 

ENES Data Support Services
 IS-ENES offers special support in finding, retrieving and exploring data in the ENES data federation
[ENES Data Support Services](#)

- 

Contribute
 Different ways to contribute to the data infrastructures or this portal
[Contribute](#)

- 

Projects
 The ENES data federation is in close collaboration with scientific as well as infrastructure projects to enhance ENES services for the future.
[Projects](#)

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COMPUTING

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You are here: Home » Computing

Information on the IS-ENES High Performance Computing activities

Climate modeling is unthinkable without significant computing capacities and expertise. Input data and driving factors need to be computed, the simulation of the entire earth system resolved in an increasing number of horizontal, vertical and temporal layers and components requires the use of powerful computing architectures and data extensive post processing, analysis and visualization of the results is also done by means of computers. Still, simultaneously being an expert in computer science and earth system modeling is certainly temporally if not also mentally difficult. Thus along with the science of climate modeling a specialized computing branch has developed. Computing centres offer specialized support to efficiently run climate models; infrastructures and tools are developed to support the scientists in their daily workflows; and computer scientists support the optimization of earth system models for current and future computing architectures.

IS-ENES collects and prepares information related to high performance computing (HPC) and climate modelling. The collaboration between ENES and large European infrastructure projects is fostered and documented. Typical earth system modeling workflows are analyzed and research into improving and facilitating the HPC dependent parts of this workflow is performed.



HPC Facilities

Browse through short descriptions of national and international High Performance Facilities with interest to earthsystem modeling

[HPC Facilities](#)



HPC Collaborations

ENES and it's HPC task force foster collaborations between European and International institutions dealing with climate modelling and with the European HPC-infrastructure (e.g. PRACE)

[HPC Collaborations](#)



Workflows

What are the typical workflows in earthsystem modeling and how do they differ or equal among different modeling centres

[Workflows](#)



Job Submission and Monitoring Portal

The CMCC develops a prototype grid environment to run automated and distributed earthsystem modeling simulations.

[Job Submission and Monitoring Portal](#)

Search Site

Quick computing links

[CMIP5 data workflow](#)

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HELP

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You are here: Home » Help

Find help and answers to your questions



Glossary

Find here an overview of terms and acronyms used in earthsystem modeling

[Leaf through the glossary...](#)



How-to pages

Several how-to pages on the services of our portal

[Browse through the How-tos...](#)



Contribute to this portal

Instructions how to contribute your ideas to this portal

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IS-ENES

InfraStructure for the European Network for Earth System Modelling

Name:	IS-ENES
Contact:	Sylvie Joussaume
Start:	Mar 01, 2009
End:	Feb 28, 2013
Lead:	CNRS-IPSL (France)
Participants:	16 partners from 10 countries
Funded by:	EU FP7-INFRASTRUCTURE
Cost:	10670 k€
Funding:	7590 k€
Homepage:	is.enes.org

Contributing Institutes

[click here to see the list of partners](#)

Component models used

NEMO: representing the ocean

Earthsystem models used

- C-ESM
- CNRM-CM5
- COSMOS
- EC-Earth
- HadGEM2-ES
- IPSLESM

Earth system modelling tools used

Oasis

References

<https://is.enes.org/the-projec...>

Abstract

Global climate models are at the basis of climate change science and of the provision of information to decision-makers and a large range of users. Within Europe, the European Network for Earth System Modelling (ENES) gathers together the European climate/Earth system modelling community, which is working on understanding and prediction of future climate change.

Climate Earth system models are key tools to understanding climate change and its effects on society and are at the basis of the [International Panel on Climate Change projections \(IPCC\)](#).

ENES, through IS-ENES, promotes the development of a **common distributed modelling research infrastructure** in Europe in order to facilitate the development and exploitation of climate models and better fulfill the societal needs with regards to climate change issues. IS-ENES gathers 18 partners from 10 European countries and includes the 6 main European Global Climate Models. IS-ENES combines expertise in climate **Earth system modelling (ESM)**, in **computational science**, and in studies of **climate change impacts**.

IS-ENES will use the standards developed by the [FP7 ENES METAFOR project](#) "Common Metadata for Climate Modelling Digital repositories".

Most of these information have been collected from [IS-ENES's homepage](#). They have been last updated at Mar 06, 2013

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Call for Papers: Climate Sessions at the 13th EMS / 11th ECAM (UK)

Feb 28, 2013

Data Assimilation & Inverse Problems

Feb 26, 2013

IMPACTS WORLD 2013 - Call for abstracts

Feb 25, 2013

More...

UPCOMING EVENTS

The European Climate Change Adaptation Conference 2013

Mar 18, 2013 - Mar 20, 2013 - University of Hamburg Edmund-Siemers-Allee 1 20146 Hamburg Germany

4th WGNE workshop on systematic errors in weather and climate models

Apr 15, 2013 - Apr 19, 2013

IMPACTS WORLD 2013 conference, 27-30 May 2013, Postdam, Germany

May 27, 2013 - May 30, 2013 - Postdam, Germany

Previous events...

Upcoming events...

VACANCIES

Vacancy: PhD Studentship at Swansea University (UK)

Feb 25, 2013

Vacancy: Research Associate (Regional Modeling, Climate Services) at Uni Climate, Bergen, Norway

Feb 20, 2013

Announcement: 9 PhD Scholarships on Climate & Energy Transitions

Feb 19, 2013

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CNRM-CERFACS

"Centre National de Recherches Météorologiques" and "Centre Européen de Recherche et de Formation Avancée en Calcul Scientifique"

Name	CNRM-CERFACS
Homepage:	www.cnrm-game.fr
Lead:	CNRM-GAME (France) CERFACS (France)

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Short Description of CNRM-CERFACS

CNRM-GAME and CERFACS are two different laboratories, both affiliated with CNRS (The French Centre National de la Recherche Scientifique). They collaborate since 1995 in the development of CNRM-CM. Regarding model development, CERFACS main contribution is with the coupler and the adaptation of the model to advanced HPC platforms, while CNRM focuses on model components (atmosphere, chemistry, surface and sea-ice) and simulations workflow. Regarding scientific interest, CERFACS recently focused on decadal simulations, while CNRM focused on control, paleo-climate, D&A and scenarios simulations

CNRM-CERFACS Earth System Models

- CNRM-CM5 (ESM developed at Météo-France and CERFACS)

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CNRM-CM5

ESM developed at Météo-France and CERFACS

Name: CNRM-CM5

Contact: [David Salas](#), [Christophe Cassou](#)

Homepage: www.cnrm-game.fr

Assembling Guide: [CNRM-CM5_AssemblingGuide.pdf](#)

- *Projects, the model is/was used in*
CMIP5

• *Component models used*

- ARPEGE: representing the atmosphere
- SURFEX: representing the land-surface
- NEMO: representing the ocean
- GELATO: representing the sea-ice
- TRIP: representing the river routing

• *Model versions (CIM views)*

CNRM-CM5:

Abstract

CNRM-CM5 is the CMIP5 version of the ESM developed jointly by CNRM-GAME (Météo-France and CNRS) and CERFACS since 1995. The atmospheric component, ARPEGE, is a specific version of the French weather forecast model developed by ECMWF (IFS) and CNRM, adapted for climate simulations. ARPEGE is available for the scientific community with an exclusive aim of research, within the framework of the "Community Climate Model" project. The oceanic component, provided by CNRS/LOCEAN was updated to Nemo 3.2 for version 5. The SeaIce model, Gelato, developed by CNRM and included from version 2, in 1999, is now at version 5. The river routing scheme TRIP, developed by U.Tokyo and adapted by CNRM, was included in version 3 for CMIP3. The surface scheme SURFEX, which involves the Land Surface scheme ISBA and the sea-flux surface scheme ECUME, was developed by CNRM and included for version 5, for CMIP5. The coupler is OASIS3, developed by CERFACS, and the model workflow is developed at CNRM. For CMIP5, CERFACS undertook decadal simulations, while CNRM took in charge the control, academic, historical, scenarios and paleo-climate simulations

Assembling guide (coupling interfaces between the components) :

In [CNRM-CM5_Assembling Guide](#)

Most of these information have been collected from [CNRM-CM5's homepage](#). They have been last updated at Mar 13, 2013

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OASIS

Name: OASIS
 Contact: **Sophie Valcke**
 Lead: **CERFACS (France)**
 Homepage: verc.enes.org
 User Guide: www.cerfacs.fr

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Abstract

The OASIS coupler, currently developed in the framework of the EU FP7 IS-ENES project, is software allowing synchronized exchanges of coupling information between numerical codes representing different components of the climate system. Current OASIS developers are CERFACS (Toulouse, France), DKRZ (Deutsches Klimarechenzentrum, Hamburg, Germany), and Centre National de la Recherche Scientifique (Paris, France).

OASIS3 is the direct evolution of the OASIS coupler developed since about 20 years at CERFACS (Toulouse, France). Low-intrusiveness and portability are OASIS3 key design concepts. After compilation, OASIS3 sources form a separate executable, which main function is to interpolate the coupling fields exchanged between the component models, and a coupling interface library linked to the component models, the OASIS3 PRISM Model Interface Library (OASIS3 PSMILE). The OASIS3 separate executable can be parallel, each process treating a subset of complete coupling fields; this results in a pseudo-parallelisation of OASIS3 on a field-per-field basis. The component models remain separate executables with main characteristics, such as internal parallelisation, untouched with respect to their uncoupled mode. The coupling interface library API includes calls to receive and send the coupling fields usually implemented within the model timestep loop. OASIS3 supports 2D coupling fields only. OASIS3 is currently used by approximately 35 climate modelling groups in Europe, USA, Canada, Australia and Asia.

The development of a new parallel version of the coupler, OASIS3-MCT, is going on in IS-ENES. OASIS3-MCT is in fact a coupling library that performs the interpolation of the coupling fields as a parallel matrix-vector product directly on the source or target component processes and a parallel redistribution of the coupling fields directly from the source to the target component processes (without gathering the whole coupling field on an additional process as in the previous OASIS3 versions. A first prototype is available for few beta tester groups and the first official release is planned before the summer.

Most of these information have been collected from [OASIS's homepage](#). They have been last updated at Jul 09, 2012

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