

## IS-ENES – WP 4

### D4.3 - OASIS complete web site accessible via the v.E.R.C. portal (WP3)

**Abstract:**

A comprehensive web site, including news and events, source download, documentation, tutorial, technical information, FAQ and forum, and dissemination information has been set up for the OASIS coupler. This web site (see <https://verc.enes.org/models/software-tools/oasis>) is completely integrated in the IS-ENES virtual Earth system Resource Center (v.E.R.C.). This web site will provide high quality support to the numerous OASIS users and will facilitate their interaction with OASIS developers.

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## Executive Summary

The OASIS coupler is software allowing synchronized exchanges of coupling information between numerical codes representing different components of the Earth system and is used by about 35 groups around the world. A comprehensive web site, completely integrated in the IS-ENES virtual Earth system Resource Center has been set up for OASIS. This web site (see <https://verc.enes.org/models/software-tools/oasis>) includes news and events, source download, documentation, tutorial, technical information, FAQ and forum, and dissemination information. This web site will provide high quality support to OASIS users and will facilitate interaction both between them and with the OASIS developers. This is an important step in the strengthening of the European network on Earth System Modelling.



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## 1. INTRODUCTION

The OASIS coupler is software allowing synchronized exchanges of coupling information between numerical codes representing different components of the climate system. OASIS is currently used by approximately 35 climate modelling groups in Europe, USA, Canada, Australia and Asia. OASIS is being further developed within the IS-ENES project by CERFACS (Toulouse, France), DKRZ (Deutsches Klimarechenzentrum, Hamburg, Germany), and Centre National de la Recherche Scientifique (Paris, France). It is therefore essential within IS-ENES to offer active OASIS user support and strengthen the interaction between the OASIS users and developers and between OASIS users among themselves. In this perspective, a comprehensive web site, including news and events, source download, documentation, tutorial, technical information, FAQ and forum, and dissemination information has been set up for the OASIS coupler within the IS-ENES virtual Earth system Resource Center (v.E.R.C., see D3.1 deliverable) covering the two versions of the coupler available today, OASIS3 and OASIS4.

The OASIS web site is completely integrated in the IS-ENES v.E.R.C and therefore uses the same technology i.e. Zope/Plone, which is a well established and maintained open source content management and web framework software. It has been extended and adapted to “Earth system modelling” specific needs by developments done within IS-ENES workpackage 3. The OASIS web site is available at: <https://verc.enes.org/models/software-tools/oasis>. The different folders of this web site that appear as specific tabs at the top of each page, i.e. News & Events, Download, User Support, Technical, FAQ & Forum, and Dissemination, are presented hereafter in more detail in this document, which concludes with a perspective on future developments.

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## 2. OASIS WEB SITE CONTENT

### 2.1 Home page

The home page of the OASIS web site (see Fig. 1) was created automatically using the content type “Tool” created explicitly for the v.E.R.C. to describe the software tools used in or for Earth system modelling. Adding a new “Tool” content can be done directly by clicking on the “Add content ...” link in the v.E.R.C Software Tools page (<https://verc.enes.org/models/software-tools>) for someone logged in with appropriate rights (see details in section 4.2 of Deliverable 3.1) The specific query form was filled with relevant information and submitted. Standard basic information about the tool name, contact person, leading and contributing institutes, link to the User Guide, representative references and a general description of OASIS therefore appears on the home page.



**OASIS**

A code coupler for climate modelling

**References**

- S. Valcke, 2006: OASIS3 User Guide (prism\_2-5), Technical Report TR/CMGC/06/73, PRISM Report No 2, CERFACS, Toulouse, France. 60 pp
- R. Redler, S. Valcke and H. Ritzdorf, 2010: OASIS4 – A Coupling Software for Next Generation Earth System Modelling, Geoscience Model Development, 3, 87 – 104, DOI:10.5194/gmd-3-87-2010.
- <http://www.geosci-model-dev.net/3/87/2010/gmd-3-87-2010.html>

**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). Today, two versions of the coupler are available, OASIS3 and OASIS4.

**OASIS3**

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. At run-time, OASIS3 acts as a separate executable, which main function is to interpolate the coupling fields exchanged between the component models, and as 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 30 climate modelling groups in Europe, USA, Canada, Australia and Asia.

**OASIS4**

As the climate modelling community is progressively targeting higher resolution climate simulations run on massively parallel platforms with coupling exchanges involving a higher number of (possibly 3D) coupling fields at a higher coupling frequency, the development of a new fully parallel coupler, OASIS4, started during the EU FP7 PRISM project. The concepts of parallelism and efficiency drove OASIS4 developments, at the same time keeping in its design the concepts of low-intrusiveness and portability that made the success of OASIS3. During the run, OASIS4 Driver extracts the configuration information defined by the user in XML files and organizes the process management of the coupled simulation. OASIS4 Transformer performs, in a fully parallel mode, the interpolation of the coupling fields. OASIS4 supports 3D and 2D coupling fields. To interact with the rest of the coupled model, the component models have to include specific calls to the OASIS4 PRISM System Model Interface Library (OASIS4 PSMILe), which, at runtime, performs fully parallel MPI-based exchanges of coupling data including automatic repartitioning, either directly or via additional Transformer processes, and file I/O using the GFDL mpp-io library. The OASIS4 PSMILe Application Programming Interface (API) was kept as close as possible to OASIS3 PSMILe API. This should ensure a smooth and progressive transition between OASIS3 and OASIS4 use in the climate modelling community. A first version of OASIS4 is currently available for beta-tester groups.

Tool – short vita	
Name	OASIS
Contact	Sophie Valcke
Leading institute(s)	CERFACS  (Sophie Valcke)
Contributing institute(s)	CERFACS  (Sophie Valcke) CNRS  (Laure Coquart) DKRZ  (Moritz Hanke)
Homepage	<a href="https://verc.enes.org/models/oasis">https://verc.enes.org/models/oasis</a>
Userguide	<a href="http://www.cerfacs.fr/globc/pu...">http://www.cerfacs.fr/globc/pu...</a>

Figure 1: OASIS home page in IS-ENES virtual Earth system Resource Center

### 2.2 News & Events

This folder contains two sub-folders, News and Events. The Events folder contains information about meetings or workshops organised around OASIS, such as the workshop on "Coupling Technologies for Earth System Modelling : Today and Tomorrow" organised last December in CERFACS. The News folder will contain a content of type “News Item” each time a news will be published, for example to announce new



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releases, calls for dedicated user support, training sessions, etc.

## 2.3 Download

The main purpose of the download folder is to provide an easy access to OASIS3 and OASIS4 source code to any interested users. This folder also contains information on OASIS Copyright, a link to a page describing the differences between OASIS3 and OASIS4, a link to a page listing the previous OASIS3 and OASIS4 downloads automatically generated (see below), and a link to examples of current OASIS3 and OASIS4 users.

Even if OASIS is open source and released under a Lesser General Public Licence (LGPL, see <http://www.gnu.org/copyleft/lesser.html>), it is interesting for the developers to know who is using the software and for which purpose. Therefore, to access the download information, the user first has to fill a registration form (see Fig 2) asking for the user identity, whether he/she wants to use OASIS3 or OASIS4, the component models he/she would like to couple with OASIS, whether it is a new coupled model or an upgrade of an existing one, the target compute platform, and the project. The user can also tick a box if he/she agrees to appear on the OASIS download page and another box if he/she wants to subscribe to OASIS mailing list.

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powered by  
is-enes

**Home**   **News & Events**   **Download**   **User Support**   **Technical**   **FAQ**

You are here: Home → Download → OASIS registration form

Navigation

- [OASIS registration form](#)
- [OASIS download list](#)
- [OASIS3 Copyright](#)
- [OASIS4 Copyright](#)
- [OASIS download list \(full\)](#)

Contents   View   Edit   Sharing

**OASIS registration form**

Please fill in this form to obtain information on how to download OASIS3 and/or OASIS4 sources

**E-Mail Address** ■

**Name & Surname** ■

**Laboratory** ■

**Address**

I want to download OASIS3 sources

I want to download OASIS4 sources

**Component models** ■  
List the component models you want to couple with OASIS (comma-separated). Example: "ECHAM5, MPI-OM"

This download is to set-up a new coupled model

This download is to upgrade an existing coupled model

**Target compute platform**  
Example: "IBM Power6"

**Project**

I agree that my institution appears on the OASIS Download page  
If you tick this box, your institute and the component models you want to couple with OASIS will automatically appear on the OASIS Download page (Support)

I want to subscribe to the OASIS mailing list  
If you tick this box, your address will be added to OASIS mailing list

Thank you for filling this registration form

**Figure 2: Registration form for OASIS source download**

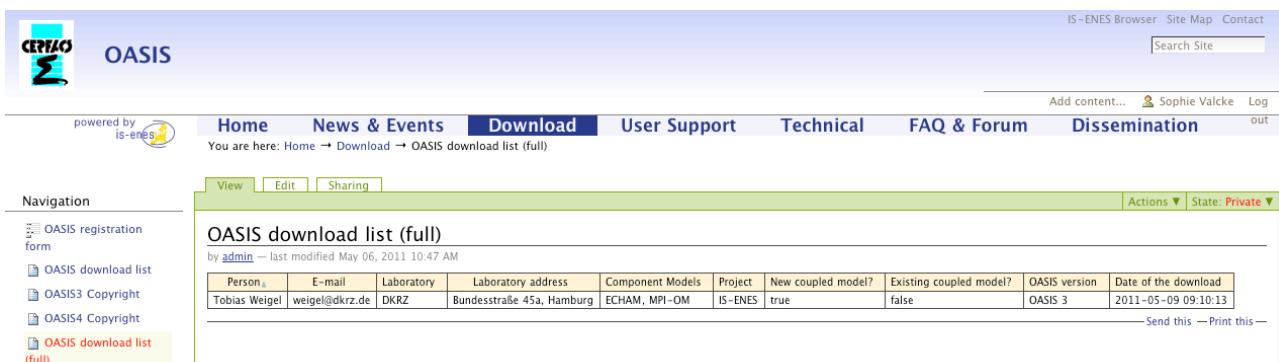
After submitting the form, a new page appears with detailed instruction on how to download the OASIS3 or OASIS4 sources, either from the OASIS SVN server at CERFACS, memphis, or from CERFACS anonymous ftp site. The sources distributed are the latest ones registered on the SVN trunk; these sources always represent stable versions of the code as the registration on the SVN trunk is done only after development and quality tests on parallel SVN branches. The sources in the tar balls available from the ftp site are automatically update each day.

If the user has ticked the box “I agree that my institution appears on the OASIS Download page”, this download page, publicly available at <https://verc.enes.org/models/software-tools/oasis/download/oasis-download-list>, is automatically updated with the laboratory name, the component models, the OASIS version, and the date of the download. The information the user has entered in the form is automatically stored in the same Sesame triple store instance as the semantic search information of the v.E.R.C. (see deliverable D3.1). Thus, some basic information from the OASIS download form also shows up in the semantic search interface (the IS-ENES browser), e.g. which institutions use OASIS, which is a good extension of the information collected with the mechanisms covered in D3.1.

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Apart from this selected information, all form entries are stored in a second RDF database as well, which feeds another private page (see Fig 3) with all information entered in the form; this later page, accessible to OASIS developers only, conveniently lists all the download details.

The translation between form fields and RDF is based on the same mechanisms that also powers the semantic search interface, forming an evolving middleware behind the portal. Most importantly, the solution is generic: any form can be harvested, and database table views, such as the OASIS download list, can be created and reconfigured easily.



Person	E-mail	Laboratory	Laboratory address	Component Models	Project	New coupled model?	Existing coupled model?	OASIS version	Date of the download
Tobias Weigel	weigel@dkrz.de	DKRZ	Bundesstraße 45a, Hamburg	ECHAM, MPI-OM	IS-ENES	true	false	OASIS 3	2011-05-09 09:10:13

Figure 3: The page containing full download information (private access only)

If the user has ticked the box “I want to subscribe to OASIS mailing list”, this list *oasis\_users@lists.enes.org* is automatically updated after approval by the mailing list administrator. The subscription of users is established through the mailman mail API. After form submission, Plone sends out an e-mail in a specific format to the mailing list server, requesting to add the user to the “*oasis\_users*” list. The mailman server will then ask both the user and the administrator for approval to prevent spam registrations.

This automation will save precious time to OASIS developers as all these steps (asking interested users about the characteristics of their coupled model and whether he/she wanted to be on the OASIS mailing list, registering him/her to the mailing list, sending updated information on how to download the sources, compiling the relevant download information in a file) was done by hand and specifically for each user request.

## 2.4 User Support

This folder provides all relevant information for people who want to start using OASIS3 or OASIS4. The subfolder Documentation contains links to the OASIS3 and OASIS4 User Guides in html and pdf. Every day, the pdf and the Latex sources of the User Guide sources are automatically extracted from OASIS SVN server and the corresponding html pages, allowing interactive navigation in the different chapters, are generated on CERFACS web site (at e.g. for OASIS4: [http://www.cerfacs.fr/oa4web/oasis4/OASIS4\\_User\\_Guide/OASIS4\\_User\\_Guide.html](http://www.cerfacs.fr/oa4web/oasis4/OASIS4_User_Guide/OASIS4_User_Guide.html)) using the “*latex2html*” utility. The OASIS Documentation page points to CERFACS’ web site within an iframe so as to publish always the most up-to-date version of the OASIS3 and OASIS4 User Guides. The HTML iframe element provides a way to display one complete web site embedded in the layout of another web site. By default, such features are disabled in Plone. They are now enabled in the v.E.R.C. and through the use of a standard Plone page with some minimal custom HTML code inserted in it, the OASIS user guide is automatically fetched from the CERFACS servers whenever the page is viewed by a user. No software modifications were required to enable this feature.

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The subfolder Getting Started contains an overview of what one needs to know to start setting up a coupled model with OASIS3 or OASIS4. In this subfolder one can find the page describing OASIS3 and OASIS4 differences, and a summary of the different steps that the user will have to take to build his/her coupled model with OASIS3 or OASIS4.

After downloading OASIS3 or OASIS4 sources and reading the Getting Started pages, the user should naturally be looking for a tutorial to learn more about the use of OASIS. The Tutorial subfolder contains detailed explanation on how to compile and run the “tutorial1” toy coupled model (i.e. the components perform real coupling exchanges but contains no real physics or dynamics), and for which Fortran source code is distributed with OASIS sources.

Finally two additional folders present information specifically on the OASIS Dedicated User Support provided each year within the framework of the IS-ENES project (subfolder Dedicated User Support) and on more general training sessions regularly organized at CERFACS (subfolder Training sessions).

## 2.5 Technical

The Technical folder provides more technical details about the OASIS coupler, for example a more precise description of the different interpolation algorithms supported and the computing platforms the coupler has been compiled and tested on.

## 2.6 FAQ & Forum

In this folder, a new page for Frequently Asked Questions (FAQ) has been started and will be regularly updated by OASIS developers with new user questions and corresponding answers. A forum has also been started for OASIS3 and for OASIS4 using the Plone Message Board functionality. For each one, 4 forums respectively on “Installation and compilation”, “Tutorial and toy models”, “Transformation and interpolation” and “Real coupled models” are currently open; they should progressively host more and more conversations as the community of users becomes accustomed to this interaction medium.

## 2.7 Dissemination

Finally, the dissemination folder contains links to different OASIS presentations and publications. Having access to such information can be useful for new users and for the public in general as it is also a way to evaluate OASIS dissemination.

# 3. FURTHER DEVELOPMENTS

Before IS-ENES, OASIS was lacking a proper web site but OASIS developers were already interacting through the OASIS TRAC project management system located at: <https://oasistrac.cerfacs.fr/>. This TRAC system allows the following of developments through TRAC tickets (see <https://oasistrac.cerfacs.fr/report>). The associated wiki pages were also used as a very crude web site to share information with the users. Now that the IS-ENES v.E.R.C. provides a complete web site answering the needs of OASIS users, the CERFACS TRAC wiki pages will be kept only for interactions between the developers.

Regarding the evolution of the OASIS web site, the following functionality will be considered and possibly implemented before the end of the project. Currently, a user who has a specific question can either consult the FAQ page or open a conversation on the forum (see 2.6 above). In some cases, the user will want to have a direct contact with an OASIS developer if he/she did not get a satisfactory reply to his question or e.g. if he/she has a bug to report. In these cases, the user is simply invited, on the User Support page, to send a mail to [oasis4\\_help@lists.enes.org](mailto:oasis4_help@lists.enes.org). The developers will receive the mail and answer it but no record of the



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interaction will be automatically kept.

In the future, it is planned to implement a specific form that the user will fill out in order to ask a question or report a bug. A ticket would be automatically generated in the project management system that would then be used to follow the user-developer interaction on the specific issue reported. If the issue turns out to be only a question, the ticket would remain in the default category “user questions”; but the ticket could be turned into a “bug report” or “requested development” ticket depending on its content. This would allow an easier tracking of the numerous user requests the OASIS developers get and an automatic connection with the OASIS project management system. Although the technical details are not yet defined, it is most likely that the OASIS project management system, currently TRAC (see <https://oasistrac.cerfacs.fr/>), will most likely have to evolve to support this new functionality.

## 4. CONCLUSIONS

The developments described in this document form a comprehensive web site for the OASIS coupling software, offering information on news and events, source download, documentation, tutorial, technical issues, FAQ and forum, and dissemination. This web site is completely integrated in the IS-ENES virtual Earth system Resource Center (v.E.R.C.) and covers the two versions of the coupler available today, OASIS3 and OASIS4. Some evolution of the web site will also be considered before the end of the project to increase even further the support and the networking offered by the IS-ENES v.E.R.C. for the different climate modelling groups in Europe.