Dissemination and Exploitation Plan

Deliverable D5.5

About this document

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1. Abstract

The current Plan summarises the beneficiaries' strategy and concrete actions related to the protection, dissemination and exploitation of the project results.

Horizon 2020 is a Research and Innovation programme aiming at fostering competitiveness and growth and increasing benefits to the European Union economy and citizens. Public investment in projects are to be converted into socio-economic benefits for the society, as clearly indicated in the Horizon 2020 Rules for Participation[1], with a clear accent to the beneficiaries' obligations to exploit and disseminate the outcomes of the funded activities. The Horizon 2020 work programme 2014-2015 explicitly specifies that project proposals shall include a draft Plan for the Exploitation and Dissemination of Results.

This Plan is a strategic document indicating how the partnership establishes the basis for the intellectual property strategy, dissemination and exploitation activities, and summarises the beneficiaries' strategy and concrete actions related to the protection, dissemination and exploitation of the project results.

2. Conclusion & Results

We have set up an innovation management system, agreed on a common terminology among the partners in the consortium, and set up a system for tracking down dissemination and exploitation activities implemented by the partners. The consortium has agreed on:

- A mid-term plan for dissemination activities for the upcoming reporting period (month 19 to month 36);
- A long-term plan for dissemination activities (month 19 to month 51).

3. Project objectives

This deliverable contributes directly and indirectly to the achievement of all the macro-objectives and specific goals indicated in section 1.1 of the Description of the Action:

Macro-objectives	Contribution of this deliverable?
Improve the efficiency and productivity of numerical weather and climate simulation on high-performance computing platforms	No
Support the end-to-end workflow of global Earth system modelling for weather and climate simulation in high performance computing environments	Yes
The European weather and climate science community will drive the governance structure that defines the services to be provided by ESiWACE	Yes
Foster the interaction between industry and the weather and climate community on the exploitation of high-end computing systems, application codes and services.	Yes
Increase competitiveness and growth of the European HPC industry	Yes

Specific goals in the workplan	Contribution of

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[1] See Article 43 Horizon 2020 Rules for Participation
http://ec.europa.eu/research/participants/data/ref/h2020/legal_basis/rules_participation/h2020-rules-participation_en.pdf

	this deliverable?
Provide **services** to the user community that will impact beyond the lifetime of the project.	No
Improve **scalability** and shorten the time-to-solution for climate and operational weather forecasts at increased resolution and complexity to be run on future extreme-scale HPC systems.	No
Foster **usability** of the available tools, software, computing and data handling infrastructures.	No
Pursue **exploitability** of climate and weather model results.	Yes
Establish governance of common software management to avoid unnecessary and redundant development and to deliver the best available solutions to the user community.	No
Provide **open access** to research results and **open source** software at international level.	Yes
Exploit **synergies** with other relevant activities and projects and also with the global weather and climate community	Yes

4. Detailed report on the deliverable

ESiWACE set up for dissemination and exploitation

Our innovation management system relies on the following pillars (Table 1):

Phases	Responsibilities	Description
1. Securing the foundations	Top level management: Coordination and WPL leads and co-leads, representatives of the partners in the General Assembly	In the Consortium Agreement each partner has identified the background brought into the project and agreed on rules for the IP and innovation management. Additional rules have been set for: - Joint ownership - Transfer of Results - Dissemination of own Results - Cooperation obligations - Exclusive licenses - Access Rights: Background, accessing rights for implementation, accessing rights for exploitation
2. Proactive monitoring of project outputs	**WPL leads and co-leads**, support by the project office	Proactive monitoring of research outputs - regular reviews within the work packages. Identifying all relevant IP such as software, papers, know-how, etc.
3. Management and protect the project outputs	**Legal advisors of the project partners** in collaboration with the project office	- Clarify ownership in compliance with the clauses of the consortium agreement. - Check for "hidden traps"

		(publications, posters, etc), which might affect potential patentability.
4. Dissemination of the project outputs according to the timeline	**Coordination and WP** leads and co-leads, single scientists involved In collaboration with the project office	• Regular dissemination activity. • Regular record keeping at project level.

Terminology adopted by the consortium

The terms "exploitation", "dissemination" are defined under the Horizon 2020 Rules for Participation as follows and have been adopted by our project.

- **Exploitation** means the use of results in further research activities other than those covered by the action concerned, or in developing, creating and marketing a product or process, or in creating and providing a service, or in standardisation activities;
- **Dissemination** means the public disclosure of the results by any appropriate means (other than resulting from protecting or exploiting the results), including scientific publications in any medium.
- **Innovation Management** (EC Definition) is the "overall management of all activities related to understanding needs, with the objective of successfully identifying new ideas, and managing them, in order to develop new products and services which satisfy these needs."
- **Results** generated under the project could be any tangible or intangible output, more particularly data, knowledge or information whatever its form or nature, whether it can be protected or not.

Overview of innovation management activities implemented project-month 1- 18

Phase	Description	Status	Lead	Partners involved
Consortium Agreement definition	The consortium agreement (CA) was set up in 2015 for regulating the ownership and access to key knowledge and scientific results. The CA defines the following: • Access rights • Results ownership • Joint Ownership • Transfer of results • Protection of results	**Completed.** The CA was signed by all the partners before the signature of the Grant Agreement with the European Commission.	**DKRZ**	**All**
Consortium Agreement implementation	This is monitored by the legal advisors of the partner institutions in collaboration with the project office.	**Ongoing**	**All**	**All**
Compliance with Open Access requirements	ESiWACE provides open access to peer-reviewed scientific publications through a combination of golden open access and green open access, and it is voluntarily	**Completed**	**DKRZ**	**All**

	taking part in the European Commission Open Access Data Pilot for Research Data (see Section 2.2.2 of the Part B of the Description of the Action.): the Data Management Plan has been delivered in project- month 6 [D5.4] and is fully compliant with the guidelines given on data management in the Horizon 2020 Online Manual.			
OA requirements implementation	This is monitored by the project office and the WP leaders.	**Ongoing**	**All partners**	**All**
Innovation management system **Definition**	It is based on principles explained extensively in Section 2.2. Part B of the Description of the Action, it consists of the phases /responsibilities indicated in table 1.	**Completed**	**DKRZ, CNRS-IPSL**	**All**
Innovation management system **Implementation**	The innovation management starts at the point of capturing the creative works and finishes when a product or service is deployable. The innovation management is well integrated in the management structure of the Project, and rooted in the Consortium Agreement.	**Ongoing**	**All partners**	

Dissemination of results

Dissemination refers to the public disclosure of results by any appropriate means, except those resulting from protecting or exploiting the results. Dissemination stimulates further research and development, the rationale for IPR, and exploitation (use).
Scientific publications, general information on web sites, participation in conferences or trade fairs are some examples of dissemination activities.

Mid-term planning for dissemination activities from month 19 to month 36

The following events have been identified as optimal for dissemination for the period included between month 19 and 36[2].
The mid-term plan shall be reviewed on a monthly basis by the WP leaders and updated accordingly.

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[2] As per grant agreement obligations, the second interim report to the EC is including the period project month 19-36 and will be presented to the EC within 60 days from the end of the month 36.

Year	Type of dissemination activity	Event	Timing	Expected audience
2017	Participation to a conference	Fourth Workshop on Coupling Technologies for Earth System Models, Princeton University, USA	20 March 2017	Industry, Scientific Community (higher education, Research)
2017	Organisation of a workshop	Understanding I/O Performance Behavior (UIOP), Ref: Julian Kunkel (DKRZ), WP5, http://wr.informatik.uni-hamburg.de/events/2017/uiop	22-23 March 2017, Hamburg (DE)	Scientific Community (higher education, Research), Industry
2017	Organisation of a workshop/ Participation to a conference	Research Data Alliance 9th Plenary Meeting, Barcelona	5-7 April 2017	Scientific Community (higher education, Research), Industry
2017	Organisation of a workshop	European Geosciences Union General Assembly 2017, Vienna (AT) EGU 2017 Session: Towards global, cloud resolving weather and climate models on exascale supercomputers (P. Dueben et al.)	23-28 April 2017	Scientific Community (higher education, Research)
2017	Participation to a conference/ Posters & Talks	1. EGU2017-8671: Extreme scaling for global weather forecasts at O(1km) horizontal resolution by Nils Wedi and Peter Düben (explicit mentioning of ESiWACE in the abstract). 2. EGU2017-4970: Reduced numerical precision in data storage for weather and climate simulations by Peter Düben et al. (explicit mentioning of ESiWACE in the abstract). 3. EGU2017-4988: Towards future high performance computing: What will change? How can we be efficient? by Peter Düben 4. EGU2017-4961: An approach to secure weather and climate models against hardware faults by Peter Düben and Andrew Dawson	23-28 April 2017	Scientific Community (higher education, Research)

		5. EGU2017-543: Improving Weather Forecasts Through Reduced Precision Data Assimilation by Samuel Hatfield et al. 6. EGU2017-10729: Mixed Single/Double Precision in OpenIFS: A Detailed Study of Energy Savings, Scaling Effects, Architectural Effects, and Compilation Effects by Mike Fagan et al.		
2017	Participation to a conference	PRACEdays17, Barcelona (ES), Kim Serradell (BSC) and Sergey Kosukhin (MPI-M) will present "Software stack deployment for Earth System Modelling using SPACK" https://www.esiwace.eu/events/pracedays17 and https://events.prace-ri.eu/event/575/	16 to 18 May 2017	Scientific Community (higher education, Research), Industry
2017	Participation to a workshop	ACM Workshop on Big data analytics https://www.zurich.ibm.com/BigDataAnalytics/	15-17 May 2017 Siena, Italy	Scientific Community (higher education, Research)
2017	Participation to a conference	HPC Summit Week, 15-19 May 2017 https://exdci.eu/events/european-hpc-summit-week-2017	15-19 May 2017, Barcelona (ES)	Scientific Community (higher education, Research), Industry
2017	Organisation of a workshop	ESiWACE/ENES workshop at European HPC Summit Week, 16 May 2017https://www.esiwace.eu/events/european-hpc-summit-week	16 May 2017, Barcelona (ES)	Scientific Community (higher education, Research), Industry
2017	Participation to a conference	EC-Earth Meeting 2017, 29-31 May 2017 https://www.ec-earth.org/index.php/community/meetings-menue/ec-earth-meeting-may-2017-helsinki	29-31 May 2017, Helsinki (FI)	Scientific Community (higher education, Research), Industry
2017	Organisation of a training	RDA Spring school: 2-days spring school on "weather, climate and air quality", organised by Barcelona Supercomputing Center (BSC) and Research Data Alliance Europe (RDA-EU)	May, 25-27, 2017, Barcelona (ES)	Scientific Community (higher education, Research)
2017	Organisation of a	OpenIFS user meeting 2017 on Atmospheric	5-9 June 2017, Trieste (IT)	Scientific Community (higher

	workshop/ Participation to a conference	Variability: Seasonal Predictability and Teleconnections, Trieste (IT) https://www.esiwace.eu/events/openifs-user-meeting-2017		education, Research), Industry
2017	Participation to a conference / Exhibition	ISC High Performance 2017, http://isc-hpc.com/isc-2017.html	17-22 June 2017, Frankfurt (DE)	
2017	Organisation of a conference / Participation to a conference/ Exhibition	Platform for Advanced Scientific Computing (PASC) conference 2017, Lugano (CH), http://www.pasc-conference.org/pasc17-conference-to-take-place-june-5-7-2017-in-lugano/ PASC2017 Minisymposia: Climate and Weather (P. Bauer et al.) + Exhibition Stand (P. Neumann/J. Biercamp)	26-28 June 2017	Scientific Community (higher education, Research), Industry
2017	Participation to a conference / Exhibition	Forum Teratec 2017, a booth reserved for ESiWACE and for presenting the work of Bull/Atos, Bruyeres Le Chatel (FR) https://www.esiwace.eu/events/forum-teratec-2017	27-28 June 2017	Industry, Scientific Community (higher education, Research)
2017	Organisation of a training	Class and project on code coupling with OASIS3-MCT coupler for Météo France students (CERFACS)	10-21 July 2017 Toulouse, France	Scientific Community (higher education, Research)
2017	Participation to a conference / Exhibition	Supercomputing conference SC17, Denver (USA), http://sc17.supercomputing.org/	12-17 November 2017	Scientific Community (higher education, Research), Industry
2017	Organisation of a workshop/	Workshop: Exascale I/O for Unstructured Grids (EIUG) Ref: Julian Kunkel (DKRZ), WP4, http://wr.informatik.uni-hamburg.de/events/2017/eiug	End of September 2017, Hamburg (DE)	Scientific Community (higher education, Research), Industry
2017	Organisation of a workshop	Understanding I/O Performance Behavior (UIOP), Ref: Julian Kunkel (DKRZ), WP5, http://wr.informatik.uni-hamburg.de/events/2017/uiop	22-23 March 2017, Hamburg (DE)	Scientific Community (higher education, Research), Industry

2018	Participation to a conference / Exhibition	European HPC Summit Week	May 2018	Scientific Community (higher education, Research), Industry
2018	Participation to a conference / Exhibition	European Geosciences Union General Assembly 2018	April 2018, Vienna (AT)	Scientific Community (higher education, Research), Industry
2018	Participation to a conference / Exhibition	ISC High Performance 2018	June 2018, Frankfurt (DE)	Scientific Community (higher education, Research), Industry
2018	Participation to a conference / Exhibition	Supercomputing conference SC18, (USA)	tbc	Scientific Community (higher education, Research), Industry
2018	Participation to a conference / Exhibition	PASC conference 2018	Early summer 2018	Scientific Community (higher education, Research), Industry
2018	Participation to a conference	EC-Earth Meeting 2018, https://www.ec-earth.org	tbc	Scientific Community (higher education, Research), Industry
2019	Participation to a conference / Exhibition	PASC conference 2019, Early summer 2019	tbc	Scientific Community (higher education, Research), Industry
2019	Participation to a conference / Exhibition	ISC High Performance 2019, June 2019,	Frankfurt (DE)	Scientific Community (higher education, Research), Industry
2019	Participation to a conference / Exhibition	HPC Summit Week, May 2019	tbc	Scientific Community (higher education, Research), Industry
2019	Participation to a conference / Exhibition	European Geosciences Union General Assembly 2019, April 2019	Vienna (AT)	Scientific Community (higher education, Research), Industry
2019	Participation to a conference	EC-Earth Meeting 2018 https://www.ec-earth.org	tbc	Scientific Community (higher education, Research), Industry

Long-term planning of dissemination activities from month 19 to month 51
Regular updates of the Plan for Dissemination and Exploitation
The Plan for Dissemination and Exploitation will be regularly updated during the entire project. Updates will be submitted to the EC as an integral part of the Project Periodic Reports, as stipulated in the Grant Agreement. The next report is due in month 36+2=38

Updates of the Data Management
The Data Management Plan evolves during the lifetime of the project and represents faithfully the status of the project reflections on data management. Updates of the data management plan are thus planned and will be submitted to the EC as an integral part of the Project Periodic Reports. The next report is due in month 36+2=38.

Intellectual Property Exploitation
A Strategy for the Intellectual Property exploitation [D5.6] will be drafted at the end of the project for providing best practices in capturing and assessing the Intellectual Property and providing measures for exploitation after the end of the project. This will allow the European Commission to assess the impact of the project.

Actions after the conclusion of the project
IPR provisions will remain in force, such as the obligations regarding confidentiality, exploitation and dissemination.

Open access to scientific publications
Scientists ensure that electronic copies of peer-reviewed scientific publications become freely available to anyone as soon as possible and in all cases **no later than six months after publication.**

As a general rule, we will privilege Open Access Journals for publishing our articles. A comprehensive list of the journals is provided by the Directory of Open Access Journals http://www.doaj.org. Authors avoid signing any copyright agreements with publishers that do not allow them to fulfil the EC Open Access requirement. If, for any reason, our scientists prefer to publish their articles in journals which are not Open Access Journals, authors pay the extra fee for fulfilling the EC Open Access requirement, opting thus for the so called **Golden OA option**. The publisher can then provide open access to the article and the authors can deposit it immediately in open repositories. The authors can send a copy of the publication to the project office, for its publication on the project website and for dissemination within the consortium. If the Golden OA is considered too expensive for the budget of the partner, or if it is not offered by the chosen publisher, the **Green OA option** will be applied. In this case, authors deposit their final manuscript or the published article in an institutional or subject-based repository. In this case, the publisher's policy allows the author to archive the final manuscript in a repository, before peer review (pre-print version) or after peer-review (post-print version). In order to apply this option, authors first retain their copyright and provide the publisher with a license to publish, instead of signing a simple copyright transfer agreement (CTA).

Articles are made available: 1) in the **institutional repository** of the institutes where the authors work. Scientists will provide communication to the project office with indication of the open repository used; 2) in the **subject repository for the specific topic of the article**, when available; 3) on **OpenAIRE** www.openaire.eu and on **Zenodo** www.zenodo.org; 4) on the ESiWACE website.

Exploitation

In ESiWACE, **exploitation (or use)** will be done through research activities, commercial exploitation activities, skills and educational training, and policy making. It has been agreed that each partner takes measures to ensure 'exploitation' of its results by:

(a) using them in further research activities (outside the action);

(b) developing, creating or marketing a product or process.

This activity will be pursued up to four years after the project's end.

Exploitation of their results can be performed either by single partners directly (e.g. for further research or for commercial or industrial exploitation in its own activities) or by others (other beneficiaries or third parties, e.g. through licensing or by transferring the ownership of results).

Major type of dissemination activities implemented from month 1 to month 18.

Type of dissemination and communication activities	Description	Number	Total funding amount	Type of audience reached In the context of all dissemination & communication activities ('multiple choices' is possible)	Estimated number of persons reached	Link to webpage
Participation in activities organised jointly with other H2020 project(s)	e-Concertation Meeting, organised by DG Connect, Brussels (BE) 9 Nov. 2015	1	See form C[3] of DKRZ	Scientific community, Industry (H2020 e-Infrastructure projects)	60	https://www.esiwace.eu/events/e-concertation-meeting-for-e-infrastructure-projects-brussels-9-10-nov-2015
Participation to a workshop	cPPP for HPC Meeting, Brussels (BE), 10 Nov. 2015 cPPP stands for contractual Public-Private Partnership	1	See form C of DKRZ	Scientific community, Higher education, Industry	60	http://www.etp4hpc.eu/en/news/87-5th-contractual-public-private-partnership-cp.html
Web-site	www.esiwace.eu	1	See form C of DKRZ	Scientific community, Higher education, Industry		www.esiwace.eu
Flyers	Informative flyers on the project	200	See form C of DKRZ	Scientific community, Higher education, Industry	>500	https://www.esiwace.eu/results/misc
Press release	Press release "ESiWACE and ESCAPE: integrating leading edge climate and weather	1	0	Scientific community, Higher education, Industry	>1000	

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[3] The total funding for each activity is not shown in this table, but in the form C (financial reports) of the partners. Form Cs will be available to the European Commission, as per contractual obligations in the grant agreement, within 60 days from the end of the reporting period, i.e. by 30 April 2017.

	simulations into HPC"					
Participation to a conference	Presentation by S. Valcke, Y. Meurdesoif "Convergence of coupling and I/O software tools" at ENES community meeting on Earth System Modelling Infrastructure Strategy (25-27 Oct 2016)	1	Please check the form C of CERFACS	Scientific community	60	https://verc.enes.org/community/announcements/events/enes-infrastructure-strategy-meeting
Other (poster)	Poster "Modeling and Simulation of Tape Libraries for Hierarchical Storage Systems" (J. Lüttgau, J. Kunkel) at Supercomputing 2016, 13-18 Nov 2016 Salt Lake City (USA)	1	See form C of DKRZ	Scientific community, Higher education, Industry	>1000	http://sc16.supercomputing.org/
Organisation of a workshop	ESiWACE and IS-ENES2 Joint final workshop on IS-ENES2 Workflow Solutions in Earth System Modelling and on Meta-Data Generation during Experiments, 27-29 September 2016, Costa da Caparica (PT)	1	See form Cs of partners involved	Scientific community, Higher education	>60	https://www.esiwace.eu/events/joint-final-workshop-on-is-enes2-workflow-solutions-in-earth-system-modelling-and-on-meta-data-generation-during-experiments
Participation to a conference	Talk contributions 17th Workshop on High Performance Computing in Meteorology at workshop on HPC in meteorology 2, at ECMWF, Reading (UK), 24-28 October 2016	4	See form C of DKRZ	Scientific community, Higher education, Industry	>100	http://www.ecmwf.int/en/learning/workshops-and-seminars/17th-workshop-high-performance-computing-meteorology
Participation to a conference	Presentation by J. Biercamp to the ENES Community Meeting on the Earth System	1	See form C of DKRZ	Scientific community, Higher education, Industry	60	https://verc.enes.org/community/announcements/events/enes-infrastructure-strategy-meeting

	Modelling Infrastructure Strategy, Reading (UK), 25-27 October 2016					
Training	Third European Earth System and Climate Modelling School (3rd E2SCMS), held in Helsinki, 9-21 June 2016	1	See form C of DKRZ	Scientific community, Higher education, Industry	30	https://verc.enes.org/community/schools/3rd-e2scms
Participation to a conference	Presentation by J.Biercamp to the ISENES2 Final General Assembly, 16-18 January 2017, Paris (FR)	1	See form C of DKRZ	Scientific community, Higher education, Industry	>100	https://verc.enes.org/community/announcements/events/past-events
Organisation of a workshop	ESiWACE and IS-ENES2 Joint Workshop on High Performance Computing for Climate and Weather,6-7 April 2016, Toulouse (FR)	1	See form C of DKRZ and CERFACS	Scientific community, Higher education, Industry	100	https://www.esiwace.eu/events/4th-hpc-ws
Organisation of a conference	ESiWACE General Assembly, Toulouse (FR), 8 April 2016	1	See form C of DKRZ	Scientific community, Higher education, Industry	100	https://www.esiwace.eu/events/ga1
Organisation of a conference	Kickoff meeting ESiWACE in 30 Nov.-1 December 2015, Hamburg (DE)	1	See form C of DKRZ	Scientific community, Higher education, Industry	>50	https://www.esiwace.eu/events/kickoff-meeting-hamburg-1-dec-2015
Participation in activities organised jointly with other H2020 project(s)	ETP4HPC-EXDCI-Workshop in Rome (IT) in 29-30 Sept 2015	1	See form C of DKRZ	Scientific community, Higher education, Industry	100	https://www.esiwace.eu/events/etp4hpc-exdci-workshop-rome-29-30-sept-2015
Participation to a workshop	European HPC Summit Week, May 9-12 2016, Meeting in Prague (CZ) in May 2016	1	See form C of DKRZ	Scientific community, Higher education, Industry	>1000	https://exdci.eu/events/european-hpc-summit-week-2016
Participation to a conference	International Supercomputing Conference, Contribution to the EXDCI Slideset, Frankfurt	1	See form C of DKRZ	Scientific community, Higher education, Industry	>1000	https://www.isc-events.com/isc16_em/

	(DE), June 19-23, 2016					
Other (poster)	Poster at the International Supercomputing Conference, Frankfurt (DE), June 19-23, 2016	1	See form C of DKRZ	Scientific community, Higher education, Industry	>1000	https://www.isc-events.com/isc16_em/
Organisation of a workshop	Post-review internal project meeting, Reading (UK) 20 July 2016	1	See form C of DKRZ	Scientific community, Higher education, Industry	>1000	https://www.esiwace.eu/events/aggregator/post-review-meeting
Participation to a workshop	6th cPPP for HPC Meeting, November 8, 2016, Brussels (BE)	1	See form C of DKRZ	Scientific community, Higher education, Industry	60	http://www.etp4hpc.eu/en/news/108-6th-cppp-for-hpc-meeting-november016-brussels.html
Participation to a conference	Presentation by Kerstin Fieg at EASC2016, 25-29 April 2016, Stockholm (SE)	1	See form C of DKRZ	Scientific community, Higher education	>100	https://www.pdc.kth.se/news/news-repository/easc2016-in-stockholm
Participation to a conference	HPC at ICT 2015 - Innovate, Connect, Transform, organised by the EC, 20-22 October 2015, Lisbon (PT)	1	Pls check the form C of MPI-M	Scientific community, Higher education, Industry	>1000	https://www.esiwace.eu/events/ict-2015-innovate-connect-transform-20-22-october-2015-lisbon
Participation to a workshop	Research Data Alliance Workshop, 11 February 2016, Barcelona (ES)	1	Pls check the form C of BSC	Scientific community, Higher education, Industry	>100	https://www.esiwace.eu/events/resarch-data-alliance-workshop and https://www.rd-alliance.org/plenaries/rda-ninth-plenary-meeting-barcelona
Non-scientific and non-peer reviewed publications popularised publications	Replies of ESiWACE to the Questions to be addressed by HPC CoE projects	1	Staff time DKRZ	Scientific community, Higher education, Industry	>100	https://www.esiwace.eu/results/misc
Other (Paper)	Paper on Middleware for Earth System Data, for	1	Staff time DKRZ	Scientific community, Higher	>500	http://www.pdsw.org/index.shtml

				education, Industry		
Participation to a workshop	Presentation by Dave Matthews (MetO)on" Scale and breadth of Cylc usage", 27-29 September 2016, Costa da Caparica (PT) ESiWACE and IS-ENES2 Joint final workshop on IS-ENES2 Workflow Solutions in Earth System Modelling and on Meta-Data Generation during Experiments	1	Pls check the form C of Met Office	Scientific community, Higher education, Industry	>80	https://verc.enes.org/ISENES2/ events/final-is-enes2-workshop-on-workflow-solutions/slides/24Matthewscylc-usage.pdf
Participation to a workshop	Presentation by Laurent Lebeau (Allinea) on" Weather and climate models: preparing development workflows for Exascale", 27-29 September 2016, Costa da Caparica (PT) ESiWACE and IS-ENES2 Joint final workshop on IS-ENES2 Workflow Solutions in Earth System Modelling and on Meta-Data Generation during Experiments		Pls check the form C of Allinea	Scientific community, Higher education, Industry	>80	https://verc.enes.org/ISENES2/ events/final-is-enes2-workshop-on-workflow-solutions/slides/24Matthewscylc-usage.pdf
Participation to a workshop	Presentation by Cyril Mazauric (ATOS/BULL) on "NEMO	1	Pls check the form C of ATOS/BULL	Scientific community, Higher	>20	https://redmine.dkrz.de/docum ents/595

the http://www.pdsw.org/index.shtml at the pdsw-DISCS 2016: 1st Joint International Workshop on Parallel Data Storage & Data Intensive Scalable Computing Systems Date and Location: 14 November 2016, Salt Lake City (USA)

	source code optimization" to the NEMO developer community , Atos/Bull meeting with the NEMO developer community , 13 January 2016, Echirolles (France)			education, Industry		
Participation to a workshop	Presentation by Sergey Kosukhin(MPI) on "Software stack deployment for ESM" 27-29 September 2016, Costa da Caparica (PT) ESiWACE and IS-ENES2 Joint final workshop on IS-ENES2 Workflow Solutions in Earth System Modelling and on Meta-Data Generation during Experiments,	1	Pls check the form C of MPI	Scientific community, Higher education, Industry	>80	https://verc.enes.org/ISENES2/ events/final-is-enes2-workshop-on-workflow-solutions/slides/22KosukhinSoftwareStack.pdf
Participation to a workshop	Presentation by Cyril Mazauric (ATOS/BULL) on " Why should we optimize an application : An example NEMO", Atos/Bull meeting with the Senegal HPC community who want to buy a Petaflop cluster, 28 July 2016, Echirolles (France)	1	Pls check the form C of ATOS/BULL	Scientific community, Higher education, Industry	>20	https://www.esiwace.eu/events /aggregator
Participation to a conference	Presentation ESiWACE (J. Biercamp) at IS-ENES 2nd General Assembly, 16-18/02/2016 Hamburg (DE)	1	Pls check form C of DKRZ	Scientific community, Higher education, Industry	>100	https://is.enes.org/events/is-enes2-second-general-assembly
Participation to a conference	Talk by Sylvie Joussaume on Infrastructure Strategy IS-ENES 2nd General Assembly 18/02/2016, Hamburg,	1	IS-ENES funding	Scientific community, Higher education, Industry	>100	https://is.enes.org/events/is-enes2-second-general-assembly

	Germany					
Participation to a conference	Talk by Sylvie Joussaume on Infrastructure Strategy, ENES community meeting on Earth System Modelling Infrastructure Strategy, 25-27 October 2016 Reading	1	IS-ENES funding	Scientific community, Higher education, Industry	60	https://verc.enes.org/community/announcements/events/enes-infrastructure-strategy-meeting
Participation to a conference	Presentation by Uwe Fladrich (SMHI) on the strategy toward openIFS, EC-Earth Meeting 2016, 2-3 Nov 2016, Reading	1	See form C of SMHI	Scientific community, Higher education, Industry	60	https://www.esiwace.eu/results/conference-contributions/openifs-session-ec-earth-meeting/view
Participation to a conference	Presentation by Kim Serradell (BSC) presented the work done with CERFACS to optimize coupling , EC-Earth Meeting 2016, 2-3 Nov 2016, Reading	1	See form C of BSC	Scientific community, Higher education, Industry	60	https://www.esiwace.eu/results/conference-contributions/openifs-session-ec-earth-meeting/view
Participation to a workshop	Resarch Data Alliance Workshop, 11 February 2016, Barcelona	1	See form C BSC	Scientific community, Higher education, Industry	30	https://www.esiwace.eu/events/resarch-data-alliance-workshop
Participation to other event	Talk by Silvia Mocavero "NEMO Computational Performance Optimization: ongoing work within the NEMO HPC working group" at 2016 NEMO Users Meeting, Lecce, 22-23 Jun 2016	1	See form C CMCC	Scientific community	66	https://forge.ipsl.jussieu.fr/nemo/wiki/Users/2016NEMO_Users Meeting
Organization of a workshop	Talk by Alessandro D'Anca at the "International Workshop on High Performance	1	See form C CMCC	Scientific community	66	http://hpcs2016.cisedu.info/2-conference/workshops---hpcs2016/workshop14-wces

	Computing for Weather, Climate, and solid Earth Sciences" HPC-WCES, Innsbruck, Austria (18-22 July 2016)					
Participation to a conference	AGU 2015 (S. Francisco, 14-18 December) – Poster on "The Ophidia Stack: Toward Large Scale, Big Data Analytics Experiments for Climate Change"	1	See form C CMCC	Scientific community, Higher education, Industry	50-100	http://fallmeeting.agu.org/2015/
Participation to a conference	EGU2016 (poster session, ESSI Division). Poster presented by Giovanni Aloisio and Sandro Fiore "Toward server-side, high performance climate change data analytics in the Earth System Grid Federation (ESGF) eco-system"	1	See form C CMCC	Scientific community, Higher education,	50-80	http://egu2016.eu/
Participation to a conference/ Paper	Paper "Donatello Elia, Sandro Fiore, Alessandro D'Anca, Cosimo Palazzo, Ian T. Foster, Dean N. Williams,Giovanni Aloisio: An in-memory based framework for scientific data analytics. Conf. Computing Frontiers 2016:424-42 " presented at the ACM International Conference on Computing Frontiers 2016, Como (IT), 16-18 May 2016	1	See form C CMCC	Scientific community, Higher education	25	http://www.computingfrontiers.org/2016/

Participation to a workshop	Presentation by Peter Dueben (ECMWF) talk on "To reduce numerical precision to achieve higher accuracy in weather and climate modelling" at the SFB Colloquium (3/11/2016), FU Berlin (DE)	1	See form C of ECMWF	Scientific community, Higher education	30	https://sfb1114.imp.fu-berlin.de/13-sfb-colloquium-talk-abstracts/82-sfb-colloquium-talk-abstract-2016-2017-dueben
Participation to a workshop	Presentation by Peter Dueben (ECMWF) titled "Link with ESIWACE: The use of inexact hardware to improve weather and climate predictions" at the 1st ESCAPE Dissemination and Training Workshop in Elsinore, Denmark, 18-20 October 2016	1	See form C of ECMWF	Scientific community, Higher education	50	http://www.hpc-escape.eu//media-hub/escape-events/1st-dissemination-workshop
Participation to a workshop	Representation of ESiWACE in ECMWF member state annual review committees as part of the ECMWF Scalability programme, 12-14.10.2015, Reading, UK	1	See form C of ECMWF	Scientific community	20	http://www.ecmwf.int/en/about/who-we-are/governance/sac/44-0
Participation to a conference	Presentation by Peter Bauer (ECMWF) at the HPC and Big Data conference, London "ECMWF: Using HPC to Predict Weather Related Natural Disasters", 4.2.2016, London, UK	1	See form C of ECMWF	Scientific community, Higher education. Industry	250	http://www.ukhpc.co.uk/
Participation to a workshop	Presentation by Peter Bauer (ECMWF) at the 22-25/03/2016: The Twentieth Anniversary Meeting of the SOS Workshop, Asheville,	1	See form C of ECMWF	Scientific community, Higher education.	50	http://www.csm.ornl.gov/SOS20/agenda.html

	North Carolina, "The ECMWF weather model and its preparation for the future"					
Participation to a workshop	Presentation by Peter Bauer (ECMWF) at the 06-07/04/2016: 4th ENES Workshop on High Performance Computing for Climate and Weather, Toulouse, France	1	See form C of ECMWF	Scientific community, Higher education.	100	https://www.esiwace.eu/events/4th-enes-hpc-workshop/final-agenda-with-abstracts-and-slides
Participation to a workshop	Presentation of ESiWACE by Peter Bauer (ECMWF) at the 15/03/2016: ETP4HPC General Assembly	1	See form C of ECMWF	Scientific community, Higher education. Industry	50	http://www.etp4hpc.eu/en/events/etp4hpc-general-assembly-march5016-in-barcelo_308.html
Participation to a conference/ organisation of a workshop	Presentation by Peter Bauer (ECMWF) at the 08-10/06/2016: PASC'16, Lausanne Switzerland; Co-chair for weather & climate theme, sessions on "Kilometer-Scale Weather and Climate Modeling on Future Supercomputing Platforms", "Computer Science & Mathematics and Weather & Climate", " Efficient Data Assimilation for Weather Forecasting on Future Supercomputer Architectures"	1	See form C of ECMWF	Scientific community, Higher education. Industry	100	http://www.pasc16.org/
Participation to a conference	Presentation by Peter Bauer (ECMWF) at the 19-21/06/2016: ISC'16, Frankfurt, Germany; Climate and Weather session, "Using HPC	1	See form C of ECMWF	Scientific community, Higher education. Industry	100	http://isc-hpc.com/id-2016.html

	to Predict Extreme Weather"					
Participation to a workshop	Representation of ESiWACE by Peter Bauer (ECMWF) in ECMWF member state annual review committees as part of the ECMWF Scalability programme, 10-14/10/2015, Reading, UK	1	See form C of ECMWF	Scientific community	20	http://www.ecmwf.int/en/about/who-we-are/governance/sac/45
Participation to a workshop	Presentation by Peter Bauer (ECMWF) at the 24-28/10/2016: 17th Workshop on High Performance Computing in Meteorology, ECMWF Reading, UK; "Two years into ECMWF's Scalability Programme: What have we achieved?"	1	See form C of ECMWF	Scientific community	150	http://www.ecmwf.int/en/learning/workshops-and-seminars/17th-workshop-high-performance-computing-meteorology
Participation to a Workshop	Presentation by George Mozdzynski (ECMWF) at the 12-13/09/2016 Advancing Cross-cutting Ideas for Computational Climate Science, Rockville, USA; "Addressing Future Scalability and Power Challenges at the European Centre for Medium-Range Weather Forecasts (ECMWF)"	1	See form C of ECMWF	Scientific community	60	http://www.csm.ornl.gov/workshops/AXICCS/index.html

5. References *(Bibliography)*

Not applicable.

6. Dissemination and uptake

6.1 Dissemination

- In the section Results > Conferences contributions, we track down our past activity. Resources are available to everyone visiting the website. Major conferences and workshops we took part/contributed to/organised are listed also under https://www.esiwace.eu/events/aggregator
- The plan of the activities for the next 18 months is published on the website under Events. https://www.esiwace.eu/events

6.2 Uptake by the targeted audience

As indicated in the Description of the Action, the audience for this deliverable is*:*

X	The general public (PU)

This is how we are going to ensure the uptake of the deliverables by the targeted audience

7. The delivery is delayed: ☐ Yes   ☒ No

8. Changes made and/or difficulties encountered, if any

None.

9. Efforts for this deliverable

Estimated person-months spent on this deliverable:

Beneficiary	Person-months	Period covered	Names of scientists involved, including third parties (if appropriate) and their gender (f/m)
DKRZ	1	1.9.2015-28.2.2017	Joachim Biercamp (m), Philipp Neumann (m), Julian Kunkel (m), Jakob Luettgau (m), Nabeeh Jumaah (m), Kerstin Fieg (f), Thomas Ludwig (m)
ECMWF	0,2	1.9.2015-28.2.2017	Peter Bauer (m), Peter Dueben (m), Daniel Thiemert (m)
CNRS-IPSL	0,1	1.9.2015-28.2.2017	Slyvie Joussaume (f), Francesca Guglielmo (f), Yann Meurdesoif (m)
MPG	0,1	1.9.2015-28.2.2017	Reinhard Budich (m), Sergey оsukhin (m)
CERFACS	0,1	1.9.2015-28.2.2017	Sophie Valcke (f)
BSC	0,1	1.9.2015-28.2.2017	Kim Serradell (m)
STFC	0,1	1.9.2015-	Bryan Lawrence (m)

		28.2.2017	
MET O	0,1	1.9.2015-28.2.2017	Mick Carter (m), David Matthews (m)
UREAD	0,1	1.9.2015-28.2.2017	Grenville Lister (m), Pier Luigi Vidale (m)
SMHI	0,1	1.9.2015-28.2.2017	Uwe Fladrich (m)
ICHEC	0	1.9.2015-28.2.2017	Alastair McKinstry (m)
CMCC	0,1	1.9.2015-28.2.2017	Sandro Fiore (m), Giovanni Aloisio (m), Silvia Mocavero (f)
DWD	0,1	1.9.2015-28.2.2017	Florian Prill (m)
SEAGATE	0,1	1.9.2015-28.2.2017	Malcom Muggeridge (m), John Forgan (m), Sai Narasimhamurthy (m), Giuseppe Congiu (m)
BULL	0,1	1.9.2015-28.2.2017	Erwan Raffin (m), Xavier Vigouroux (m), Cyril Mazauric (m)
ALLINEA	0,1	1.9.2015-28.2.2017	Olly Perks (m) , Patrick Wohlschlegel (m), Martin Hall (m), Laurent Lebeau (m)
Total	**2,5**		

10. Sustainability

10.1. Lessons learnt: both positive and negative that can be drawn from the experiences of the work to date

Tracking past dissemination activities can be challenging. We now use the monthly telcos with the work packages to remind PI to communicate both plans for dissemination and past activities. Further inputs is collected through periodic financial reports (interim) to check travel expenses against dissemination activities.

10.2 Links built with other deliverables, WPs, and synergies created with other projects
A number of visible synergies have been created with other initiatives such as the RDA, EC-Earth, and other projects funded through the same call, or complementary calls (FET, eInfra), ETP4HPC, EXDCI.