H2020-EINFRA-2017

EINFRA-21-2017 - Platform-driven e-infrastructure innovation
DARE [777413] "Delivering Agile Research Excellence on European e-Infrastructures"

D8.3 Dissemination and Outreach Report II

Project Reference No	777413 — DARE — H2020-EINFRA-2017 / EINFRA-21-2017
Deliverable	D8.3 Dissemination and Outreach Report II
Work package	WP8: Innovation Management and Dissemination
Tasks involved	T8.1, T8.2
Type	R: Document, Report
Dissemination Level	PU = Public
Due Date	31/12/2020
Submission Date	31/12/2020
Status	Draft
Editor(s)	Elena Galifianaki, NCSR-D and Xenofon Tsilibaris, GRNET
Contributor(s)	All Partners
Reviewer(s)	Vangelis Karkaletsis, NCSR-D
Document description	To provide insight on the activities and results obtained in the course of the implementation of the related Tasks during M19-M36

Document Revision History

Version	Date	Modifications Introduced	
		Modification Reason	Modified by
v0.1	20/11/2020	Document creation, editing and content input	Elena Galifianaki, NCSR-D Xenofon Tsilibaris, GRNET
v0.2	29/12/2020	Final review and edits	Vangelis Karkaletsis, NCSR-D
v1.0	31/12/2020	Finalisation of document	NCSR-D

Table of Contents

List of Figures

List of Tables

List of Terms and Abbreviations

Abbreviation	Definition
RPOs	Research Performing Organisations
DoA	Description of Action

1   Introduction

The focus of WP8, Innovation Management and Dissemination, is to provide user support, documentation and training activities targeted to the relevant communities that will benefit from using DARE services, infrastructures and tools, such as the DARE Platform.

WP8 supports and provides assistance to answer specific questions and guidance on how to use the available services and tools in order to maximize and improve the usage of and access to the infrastructure.

Training activities (events and material such as demo videos) are dedicated to promote visibility of the DARE project in the community and to maximize the impact of cross-border knowledge transfer. Measurable objectives of the work package comprise:

- The increase of the number of scientists making usage of the infrastructure through focused training and dissemination;
- The provision of external and internal training and dissemination events to the relevant communities;
- The outreach of project tools and services via the operation of a dedicated DARE Front Desk; The setup, management and promotion of a repository of training and dissemination material.

1.1   Purpose and Scope

The Purpose and Scope of D8.3 is reflected in Tasks 8.1 and 8.2, the objectives of which are specified in the DoA as shown below:

T8.1 Preparation of Dissemination Material and Services [M1-M36]

The task develops, maintains and supports:
(a) the project website with a strong visual identity for the project
(b) social media presence
(c) all partners on their dissemination activities by providing the appropriate dissemination material (leaflets, brochures, videos, etc.) for the targeted event or summit.

T8.2 Dissemination Commercialisation and Outreach Activities [M1-M36]

Work on this task aims to:
(a) identify the most suitable dissemination venues for the projects and its outcomes;
(b) propose and organise events hosted by project partners and focused or centred around DARE and the related technologies;
(c) locating and contacting relevant communities and stakeholders for promoting DARE activities and developments.

1.2   Approach and Relationship with Other Work Packages and Deliverables

DARE is a new approach to creating and using data-powered methods at the frontiers of today's research and innovation. The project aims to address the needs of Research Performing Organisations (RPOs) by working towards the design of appropriate e-science platforms with adoption that is consistent across Member States. It should include research reproducibility, the implementation of e-science virtualization services, technical infrastructures and a knowledge network for sharing and reproducing algorithms, workflows, publications, research results and other data from research and science.

Seismology and climate change researchers have collaborated in DARE to shape the initial version of the DARE platform. That platform aims to benefit researchers who are already engaged in reproducible research as they carry out huge data-driven experiments and rapid prototyping. They are the next target audience for DARE to support with meaningful abstractions and tools.

Research managers and administrators, and other staff involved in the research ecosystem, students, policy makers, funders and institutions have been alerted to DARE's pioneered approach.

WP8 leads worked closely with all WP leaders and agile task teams in their capacity so as to shape T8.2.

1.3   Methodology and Structure of the Deliverable

This deliverable is a public report documenting the various dissemination, awareness and outreach activities and results for the respective period of the final 18 months of the project.
To reach the objectives set in the frame of this task, the partnership needed to reach a wide - but also very specific - audience, so as to maximise the impact and successfully exploit DARE's research results. In this respect, a set of communication and dissemination activities have been deployed throughout the course of the project. Included in this dissemination report are activities such as conferences, workshops, webinars, exhibitions and social media that have already provided help in raising awareness about DARE for both communication and dissemination purposes.

The period M19-M36 (July 2019 - December 2020) is successfully marked with several participations in various conferences and targeted workshops to present DARE's results. Additionally, EOSC-hub communities were amongst those communities and stakeholders that the partnership made efforts to collaborate with in the e-infrastructures and e-science arenas for promoting DARE activities and developments. The project's own targeted communities – e-science, e-infrastructure in seismology and climate change specialist audiences, groups, industry, professional organisations and policymakers who also have been contacted through social media and newsletters amongst other activities (see section 4).

2 Dissemination and Communication Strategy

As outlined in the DoA (section 2.2.1), for the dissemination and communication strategy to be effective, the partnership and especially WP8 leads have identified and reached different target audiences by accordingly adapting messages and content. The DARE dissemination and communication target groups have included:

- Scientific Communities
- Research Institutions, Centres and Foundations
- Educational and Academic Institutions
- The general public, end-users
- The Media
- R&D Technology Transfer Companies
- Policy Makers, Governmental (geological) agencies
- European Commission
- International, European & National Regulators
- SMEs

2.1 Dissemination Levels and Phases

For the creation of general awareness and attraction of potential supporters and users of the DARE project results, dissemination and communication activities have been carried out in three main phases:

i. Before the start of the project, the team drafted a dissemination and communication plan with expected impact; establishing how and to whom the outcomes will be disseminated;
ii. During the project the dissemination and communication plan is being consulted so as to ensure progress is on track, adjustments were made in due course;
iii. After the project partners will continue further dissemination activities and developing ideas for future collaborations and contacting relevant stakeholders thus creating a pool of users for the prototypes created and the DARE platform.

2.2 Key Dissemination Channels and Communication Activities

Online Dissemination: The consortium has set up and continues to maintain the DARE Project website for the duration of the DARE project, and for at least two more years after the end of it. The website has a front-facing, public area, through which project-related information is being disseminated (e.g. public deliverables, news, newsletters, videos etc.). To reach the scientific audiences more widely, the DARE Platform has its own stand-alone website (which is also available via the project website). For the exchange of non-public material amongst partners, and for day-to-day management of work, Google Drive is being utilised. The consortium also engages in the utilisation of social media for further communication with the public via LinkedIn and Twitter accounts. To reach out to the research community, a Research Gate account has been created where partners link their publications to the DARE project. These online activities are used in such a way so as to drive traffic to

the DARE website by using the relevant URLs in posts. After careful consideration the consortium decided not to hold accounts on Facebook and YouTube as initially stated in the DoA.

In 2020 as the Covid19 pandemic restricted travel it caused most events to be either rescheduled or cancelled altogether, therefore the partnership reverted to organising webinars and participating in online events and created a wrap-up eNewsletter sent out to relevant audiences.

<u>Non-Electronic Dissemination and Communication:</u> Activities in this group include disseminating project results:

- Communication with the wider public with more traditional means such as press releases, brochures, broadcast media. To multiply the impact of the project, assigned partners contacted local, regional and international media.
- Dissemination to the scientific community and professionals (e.g.: Solid Earth and Climate Sciences, and the IT community) with articles in topic-specific journals, scientific publications, papers and domain-specific magazines. Additionally, partners increased awareness and engagement with the project, with similar initiatives and projects.

<u>Interactive Dissemination:</u> This group of activities offered partners the opportunity for personalised face-to-face interaction in academic, commercial and socio-economic surroundings at conferences, workshops, domain-related exhibitions and EC-organised events. Face-to-face interactivity allows for high impact awareness-raising about DARE and is intended for targeted audiences with high levels of information need. The main activity in this regard is participation in events and presentations which allows partners to widen the network of DARE multipliers.

Increased opportunities for synergies between other, relevant, European funded projects in the climate, seismology and IT domains have been created by organising international clustering events and technical meetings for exchange of know-how. Additional discussions for further collaborations in future research proposals have taken place.

2.3   Dissemination and Communication Key Performance Indicators (KPIs)

2.3.1   Measurable objectives of the work package

As noted in the introduction section of this document, we have set measurable objectives for this work package:

a. The increase of the number of Scientists making usage of the infrastructure through focused training and dissemination;

In the frame of this objective, the DARE partnership has organised training events and webinars to promote platform usage whilst presenting the respective pilots to the EPOS and IS-ENES reference communities (for additional information see D8.5 Training and Consulting Report II, as well as D6.4 and D7.4 for more details of the organisation and the outcomes of these events).

b. The provision of external and internal training and dissemination events to the relevant communities;

On July 24, 2020, a volcanology school was organised at KIT for the EPOS volcanology community, as well as training sessions (webinars) were conducted virtually, one for the EPOS community on 11 November 2020, and one for the IS-ENES climate community on 16 October 2020 (for additional information see D8.5 Training and Consulting Report II).

c. The outreach of project tools and services via the operation of a dedicated DARE Front Desk

During the 2nd Reporting Period, DARE participated in a school in volcanology (WP6) and organised a webinar relating to the seismological use-cases (WP6) as well as a webinar on cyclone tracking (WP7). Webinar participants were provided access to an operational DARE installation for a week after the completion of the webinar. To support these users, they were provided with a Slack channel for real-time communication with the DARE development team. In addition, the DARE mailing list, which has been monitored by the coordinator, has been made available to interested third parties for any queries and information.

d. The setup, management and promotion of a repository of training and dissemination material.

The platform related material produced by the DARE partnership are readily available for training purposes of the community on the DARE platform website which acts as a repository and includes info on the architecture, latest releases, installation guidelines and relevant documentation.

For the wider public, as well as for the community, the main repository is the main DARE project website where all information is readily available about the progress, deliverables, news of the project.

To evaluate the impact of DARE's dissemination and communication strategy, a set of Key Performance Indicators (KPIs) were put in place in the DoA. The table below shows the KPIs and their final status at the end of the project.

Table 1: Project's Dissemination & Communication KPIs

Activity	Key Performance Indicators	Expected Results	M36 STATUS
DARE Dedicated website	No. of accesses	>3000 accesses	**1300**
	No. of downloads	>150 downloads	**156**
	No. of individuals / organisations signed up to receive newsletter via email with project updates	>100 individuals	**210**
DARE in Social Media Channels	No. of Twitter followers	>500 Twitter followers	**185**
	No. of likes on Facebook	>500 likes on Facebook	**N/A**
	No. of members on LinkedIn Group	>200 members on LinkedIn	**96**
	No. of Project videos	>2 project videos	**1**
	No. of views on YouTube	>500 views on YouTube	**N/A**
	No. of social media interactions from across the EU	>10 representative groups	**30**
Journal publications	No. of Journal publications	≥3 in total	**2**
Press mentions	No. of mentions in the Press	10 in total	**4**
Online Mentions	No. of mentions in Online magazines, newspapers, blogs	≥10 in total	**11**
Participation in events	No. participation in seminars, conferences, exhibitions, workshops and other events	≥10 in total	**32**
Organisation of events	No. of events organised (including at least 2 training workshops and 1 Hackathon)	≥3 in total	**10**

DARE facilitators	No. of people as DARE facilitators trained per use case	≥5 individuals	**20**
DARE videos	No. videos produced	2 generating >200 YouTube views in total	**N/A**
Co-operation with other initiatives	No. Co-operation with other initiatives	≥2	**10**
Networking with communities, networks and associations	No. of contacts who show support for the project	>500 people in total	**205**
Adoption of the DARE methodology, platform, tools or components	No. of individuals, projects or RIs	≥4	**4**

3   Preparation of Dissemination Material and Services

During the past 36 months of the DARE project, partners prepared online and offline material, which helped them complement their efforts to raise awareness and make an impact in the community.

3.1 The DARE Logo

A logo has been created for DARE early in the project which accompanied all promotional and dissemination material produced by partners (online and offline).

Figure 1: DARE project logo

3.2 Online Dissemination through the DARE project and the DARE Platform websites

The DARE website was launched in M3 under this URL: **http://project-dare.eu/**.
The website contains updated information about the project, the team members and an updated list of events, news, public deliverables and publications of the partnership (Fig.2). The website is maintained by NCSR Demokritos.
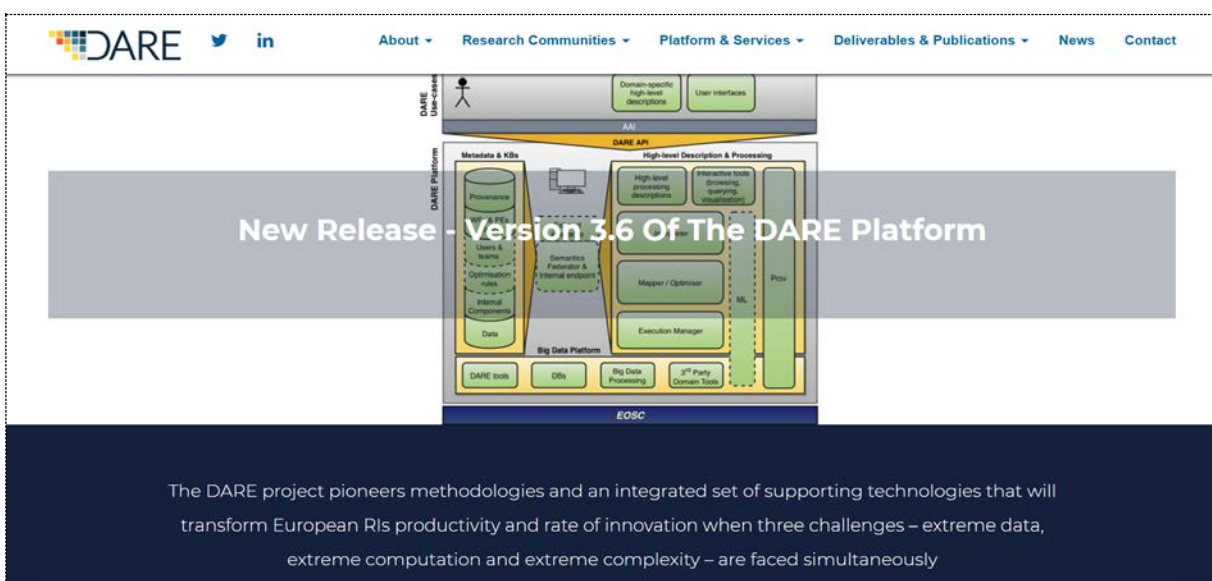
Figure 2: DARE Project website

An additional website about the DARE Platform has been created which includes Platform-related material produced by the DARE partnership, readily available for training purposes of the community and includes info on the architecture, latest releases, installation guidelines and relevant documentation (Fig.3). The website is maintained by NCSR Demokritos.
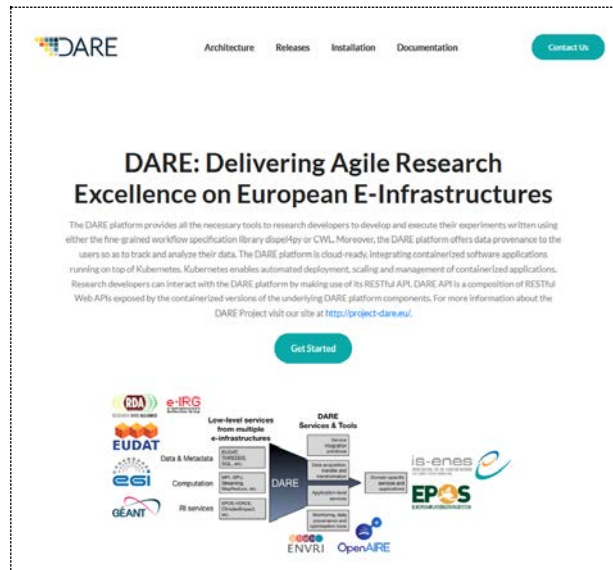
Figure 3: DARE Platform website

3.3 Communication & Dissemination through DARE's Social Media Channels

3.3.1   Twitter

DARE's Twitter account has been set up since the project kicked off and continues to be maintained by NCSR Demokritos and available under this URL: **https://twitter.com/EU_project_DARE** with the corresponding handle: **@EU_project_DARE.** Currently the project has **185 Twitter followers** (Fig.4).

Figure 4: DARE Twitter account

3.3.2 LinkedIn

The DARE partnership has set up two types of communication channels to allow maximum exposure and a platform for discussions with the community on LinkedIn: the **DARE project page** with **34 followers** (Fig.5) **https://www.linkedin.com/company/dare-h2020-project** and a **LinkedIn group** with **62 connections www.linkedin.com/in/dare-project-006617158** (Fig.6).

Figure 5: DARE LinkedIn Page

Figure 6: DARE LinkedIn Group

3.3.3   Research Gate

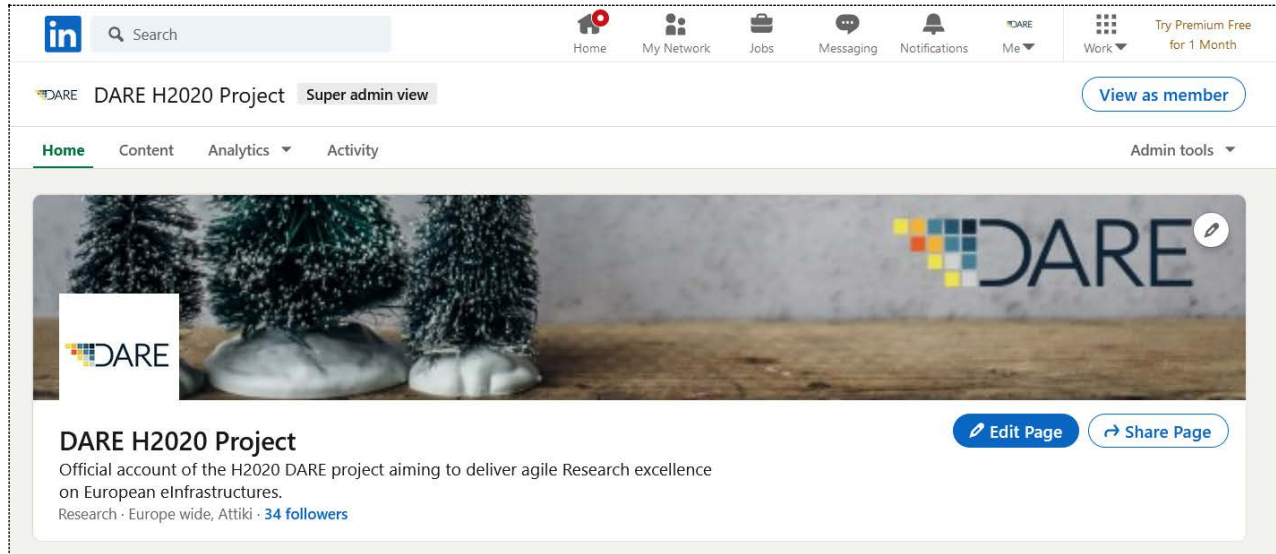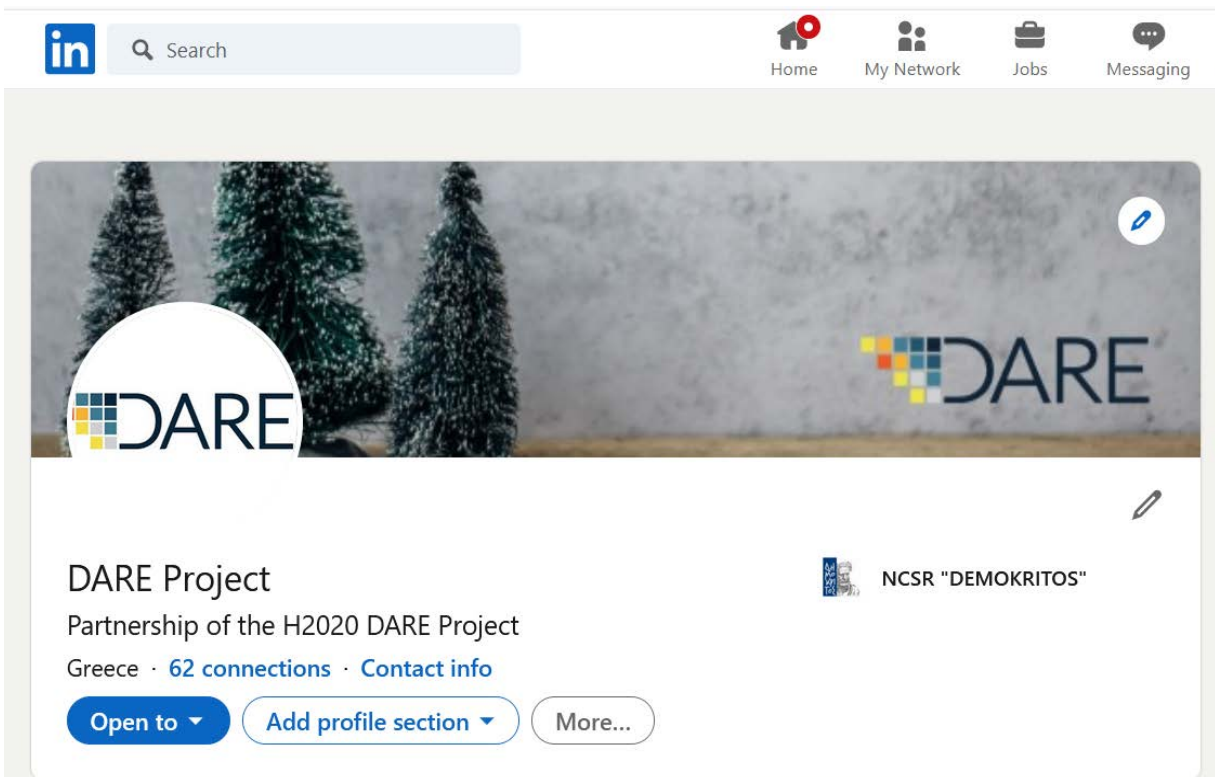DARE maintains a Research Gate account as it is a more research-related channel to help disseminate publications and reports within the research community. The project account (Fig. 7) has **13 followers and 154 reads and is available here:**

https://www.researchgate.net/project/DARE-Delivering-Agile-Research-Excellence-on-European-e-Infrastructures.
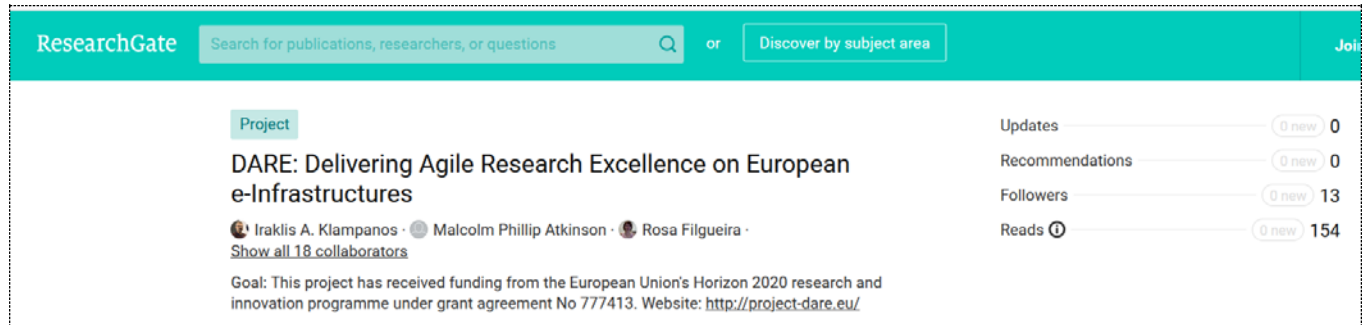
Figure 7: DARE Research Gate account

3.4 Dissemination Material Produced

Aside from material produced in the first 18 months of the project the partnership produced additional electronic dissemination material in the months that followed. Due to the Covid19 restrictions in travel, most events and conferences that were scheduled to take place were either cancelled or converted to online events at later dates. This has led the partnership to alter its dissemination and communication strategy in the remaining months reverting to more electronic material production.

3.4.1   DARE Platform Demonstration Video

To raise awareness and further disseminate the outcomes of the DARE project to potential users, the partners have created a 30-minute demonstration video of the DARE platform, how to set it up and the functionalities it offers (Fig. 8). The video was made available to the public during the EOSC Expo 2020 and is available here to view.

Figure 8: DARE Platform Demonstration Video

3.4.2   Electronic Exhibition Booth at EOSC Expo 2020

In late 2020 (16-19 November) EOSC organised the first virtual conference and exhibition namely **'Realising the European Open Science Cloud Expo 2020'** which totaled 499 document views, 270 video views, and 1646 total booth visits. The partnership applied and was accepted to exhibit the DARE project results during the exhibition with a dedicated virtual booth which was available to virtually visit, hold discussions and respond to visitor queries via a chat functionality. The DARE e-kiosk entailed the creation and setup of the booth (Fig. 9) with project dissemination material as shown below:

The DARE project's eBooth at the EOSC Expo2020 included:
– Video Demonstration of the DARE Platform
– Presentation of the EPOS use case
– Presentation of the IS-ENES use case
– Link to DARE publications
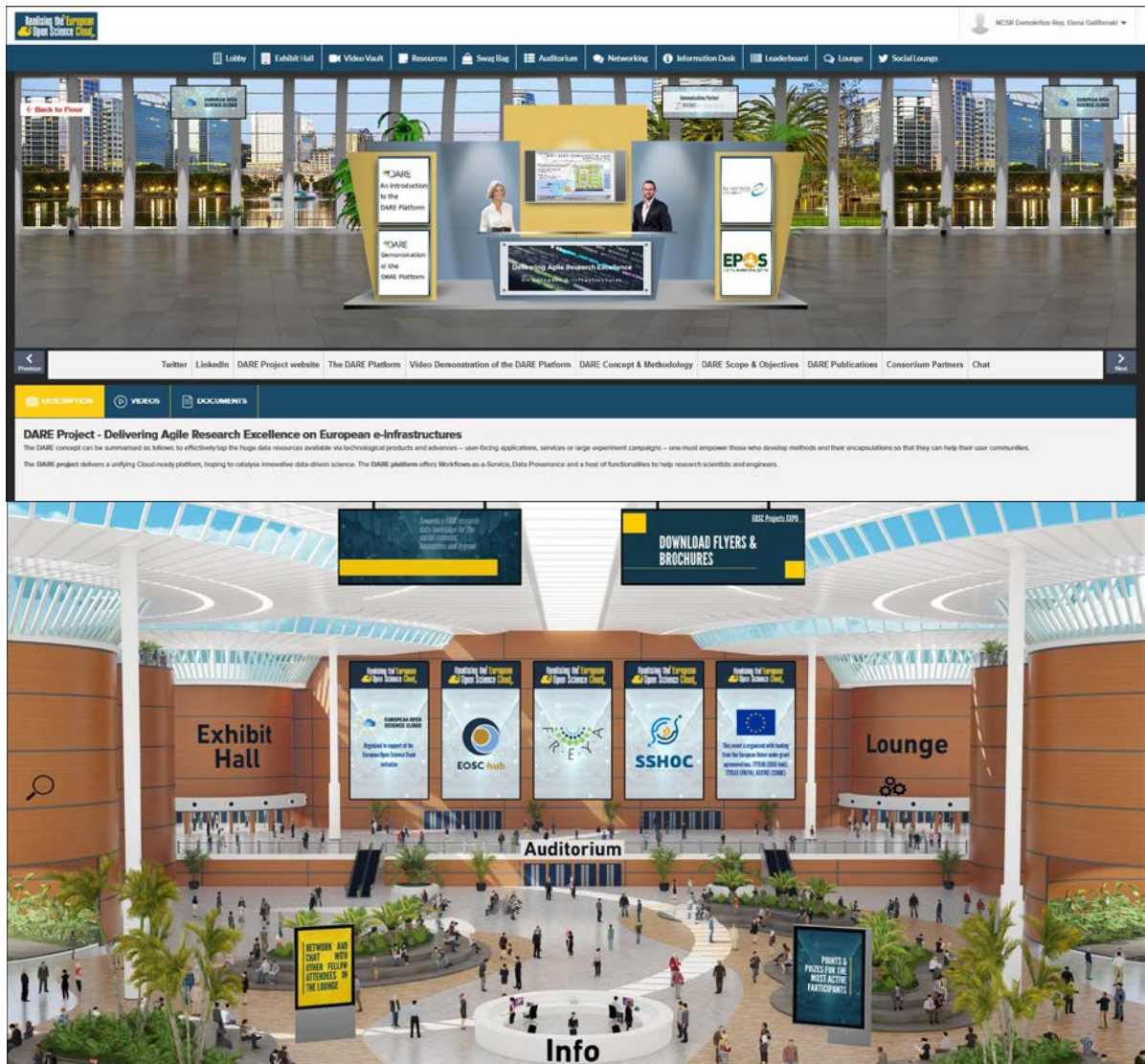– Informative Leaflets and Posters (in electronic form)

Figure 9: DARE kiosk at the EOSC Expo

3.4.3   DARE eNewsletter

The DARE electronic newsletter (eNewsletter) has been created by NCSR Demokritos with input from all partners and has been disseminated to external audiences at the end of the project as a wrap-up of the project's achievements. The eNewsletter included project publications, an introduction to the DARE Platform, which is one of the results of the project, and sections about the consortium and news items. Through a dedicated section on the DARE website (Fig. 10), the partnership built up a mailing list by gathering subscriber email addresses, whilst taking into account all GDPR compliance rules. The subscriber mailing list includes approximately 210 email addresses to which the newsletter has been sent at the end of the project (some of these email addresses are mailing lists which include numerous receivers). Additionally, all partners have emailed the newsletter internally in their organisations with an estimate of over 3,000 persons to have been reached (Fig. 11). The eNewsletter is available on the DARE website under the News section.
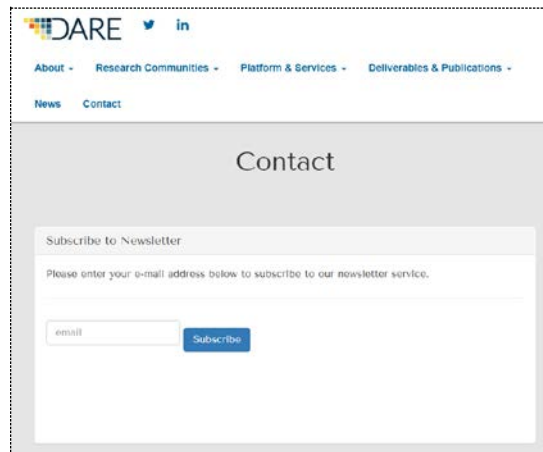
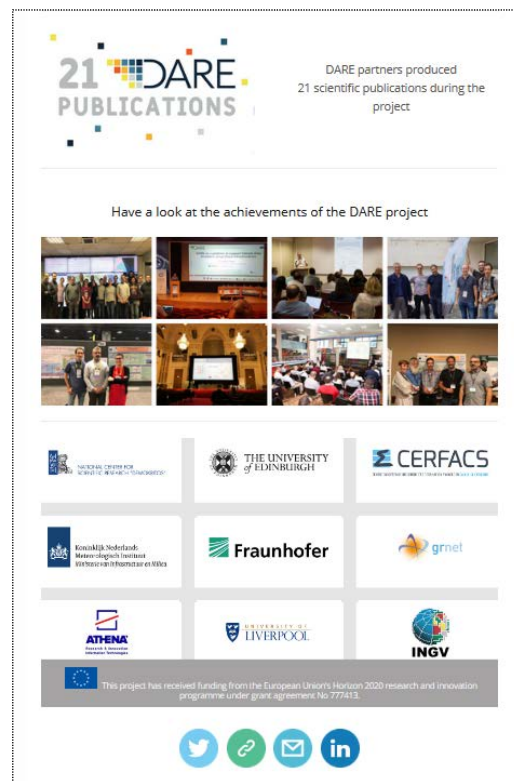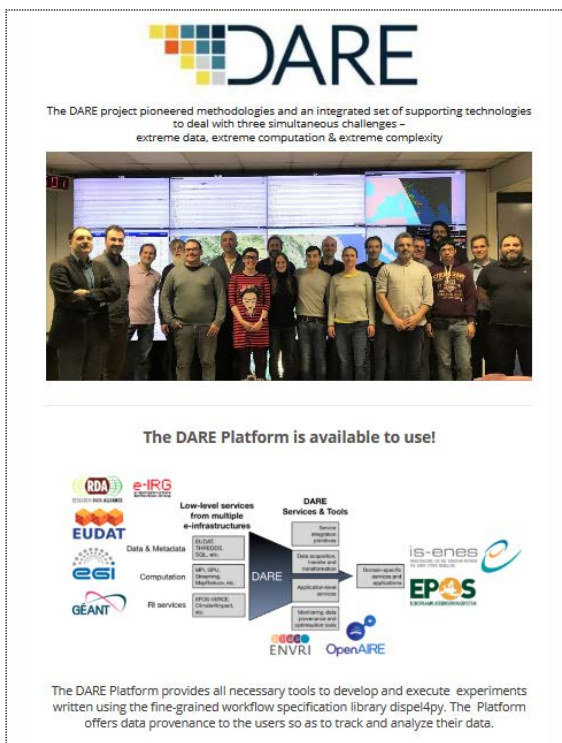**Figure 10: Newsletter subscription segment available on the DARE website**

Figure 11: The DARE eNewsletter

3.5 DARE Publications

In the final 18 months of the project, the DARE partnership produced **14 scientific publications**. The list of the aforementioned timeframe is available in the table below, the full list of publications (21 in total) is available on the DARE website: **http://project-dare.eu/deliverables-publications/**.

<p align="center">Table 2: Publications of the DARE project</p>

	PUBLICATIONS OF THE DARE PROJECT (M19-M36)
1	**DARE Platform: Enabling Easy Data-Intensive Workflow Composition and Deployment.** Rosa Filgueira, Workshop on Research Objects 2019 (RO2019) at IEEE eScience Conference 2019, 1 August 2019
2	**Active Provenance for Data-Intensive Workflows: Engaging Users and Developers** Alessandro Spinuso, Malcolm Atkinson, Federica Magnoni, Bridging from Concepts to Data and Computation for eScience (BC2DC'19) Workshop, 15th International Conference on eScience (eScience 2019), 24-27 September 2019, San Diego, CA, USA
3	**DARE: A Reflective Platform Designed to Enable Agile Data-Driven Research on the Cloud** Iraklis Klampanos, Athanasios Davvetas, André Gemünd, Malcolm Atkinson, Antonios Koukourikos, Rosa Filgueira, Amrey Krause, Alessandro Spinuso, Angelos Charalambidis, Federica Magnoni, Emanuele Casarotti, Christian Pagé, Mike Lindner, Andreas Ikonomopoulos, Vangelis Karkaletsis, Bridging from Concepts to Data and Computation for eScience Workshop, 15th International Conference on eScience (eScience 2019), 24-27 September 2019, San Diego, CA, USA
4	**Ease Access to Climate Simulations for Researchers: IS-ENES Climate4Impact** Christian Pagé, Wim Som de Cerff, Maarten Plieger, Alessandro Spinuso, Xavier Pivan, Bridging from Concepts to Data and Computation for eScience Workshop, 15th International Conference on eScience (eScience 2019), 24-27 September, San Diego, CA, USA
5	**Enabling Transparent Access to Heterogeneous Architectures for IS-ENES Climate4Impact using the DARE Platform** Christian Pagé, Wim Som de Cerff, Maarten Plieger, Alessandro Spinuso, Xavier Pivan, Poster at Bridging from Concepts to Data and Computation for eScience Workshop, 15th International Conference on eScience (eScience 2019), 24-27 September 2019, San Diego, CA, USA
6	**Comprehensible Control for Researchers and Developers Facing Data Challenges** Malcolm Atkinson, Rosa Filgueira, Iraklis Klampanos, Antonis Koukourikos, Amrey Krause, Federica Magnoni, Christian Pagé, Andreas Rietbrock, Alessandro Spinuso, 15th International Conference on eScience (eScience 2019), 24-27 September 2019, San Diego, CA, USA
7	**Climate Data Access: Re-thinking our Data Analysis Workflows** Christian Page, Maarten Plieger, Wim Som De Cerff, Ernst de Vreede, Niels Drost, Iraklis Angelos Klampanos, Vangelis Karkaletsis, Malcolm Atkinson, and Xavier Pivan, Science Gateways 2019, 24 September 2019, San Diego, CA, USA
8	**Towards a computer-interpretable actionable formal model to encode data governance rules** Rui Zhao, Malcolm Atkinson, Workshop BC2DC 2019 (at 15th International Conference on eScience (eScience 2019), 24-27 September 2019, San Diego, CA, USA
9	**DARE to Perform Seismological Workflows** Federica Magnoni, Emanuele Casarotti, Pietro Artale Harris, Mike Lindner, Andreas Rietbrock, Iraklis Angelos Klampanos, Athanasios Davvetas, Alessandro Spinuso, Rosa Filgueira, Amy Krause, Malcolm Atkinson, André Gemund, Vangelis Karkaletsis, AGU Fall Meeting, San Francisco, USA, 9 December 2019
10	**Climate Data Analysis: Enhancing Usage of Research Data with Climate4impact, EUDAT and DARE** Page, C., Som de Cerff, W., Plieger, M., Spinuso, A., de Vreede, E., and Drost, N., "Climate Data Analysis: Enhancing Usage of Research Data with Climate4impact, EUDAT and DARE", vol. 2019,

	2019, AGU Fall Meeting, San Francisco, USA, 9-13 December 2019
11	**Integrating e-infrastructures for remote climate data processing** Christian Page, Wim Som De Cerff, Maarten Plieger, Alessandro Spinuso, Iraklis Angelos Klampanos, Malcolm Atkinson and Vangelis Karkaletsis, EGU General Assembly 2020, EGU2020, Online, 4–8 May 2020
12	**DARE Platform: a Developer-Friendly and Self-Optimising Workflows-as-a-Service Framework for e-Science on the Cloud** Iraklis A. Klampanos, Chrysoula Themeli, Alessandro Spinuso, Rosa Filgueira, Malcolm Atkinson, André Gemünd, and Vangelis Karkaletsis, The Journal of Open Source Software, October 2020
13	**Adaptive Optimizations for Stream-based Workflows** Liang Liang, Rosa Filgueira and Yan Yan, Proceedings of the 15th Workshop on Workflows in Support of Large-Scale Science (WORKS 2020), Online, 11 November 2020
14	**Easy Access to Complex Analysis Tools for Climate Researchers and Climate Data End Users** Christian Page, Wim Som De Cerff, Maarten Plieger, Alessandro Spinuso, Rosa Filgueira, Malcolm Atkinson, Sissy Themeli, Iraklis Angelos Klampanos and Vangelis Karkaletsis, poster presentation, AGU 2020 Fall Meeting, vol. 2020, Online, 9 December 2020

3.5.1   PhD Theses Relating to DARE

The two theses outlined below are a result of a long collaboration and are highly relevant to DARE and draw on DARE work. The Theses have been conducted in the first reporting period of the project.

1. A. Spinuso, Active provenance for data intensive research, PhD Thesis, The University of Edinburgh
2. L. Trani, A methodology to sustain common information spaces for research collaborations, Ph.D. thesis, School of Informatics, The University of Edinburgh

3.5.2   DARE Public Deliverables

In the frame of making submitted project deliverables publicly available, the DARE partnership has dedicated a webpage on the project website where all its public deliverables are available to download freely. The respective page on the DARE website is: http://project-dare.eu/deliverables/.

3.6 DARE Training Demonstrations

Following up on the first release of the DARE platform of the respective pilots (from EPOS and IS-ENES) to a selected target group of users, and the training events organised in the Summer of 2019 (see D8.4 Training and Consulting report I) the partnership set up a second round of trainings and Demos of the mature DARE Platform in the Summer of 2020 (see D8.5 Training and Consulting report II).

4   Dissemination and Outreach Activities [M19-M36]

4.1 Participation in dissemination activities organised by third parties

Even though a concrete list of e-infrastructure-centric events relevant to DARE was compiled, most of them were either postponed or cancelled due to the Covid19 restrictions. The dissemination activities that the DARE partnership has participated in the final 18 months of the project is available on the News webpage of the project website. Highlights of partner participation in events are available below.

- **Convergent Use of EU HPC, Cloud, Data & AI Resources for Earth System Modelling & EU Sustainability Policy Support (November 2019)**

Figure 12: DARE was invited to the EU HPC meeting

On November 27th, 2019, the DARE project attended a workshop organised by DG CONNECT (by invitation only) which took place in Brussels, Belgium at EC premises. The purpose of this workshop was to explore the synergies between cloud, extreme scale data and high-performance computing infrastructure and machine-learning methodologies in order to investigate options to underpin an efficient future EU Earth system modelling capability and a coherent support to EU policy making in the areas of sustainability, environment, climate and security.

The full-day event intended to investigate, with the help of major stakeholders, what would be available and what would be needed in relation to building a future digital infrastructure related to advanced Earth system modelling for EU policy support. DARE was represented by Iraklis Klampanos, of NCSR Demokritos.

- **Persistent Identifiers in Research Disciplines workshop (August 2020)**

A DARE project presentation was made by Malcolm Atkinson (UEDIN) at the invitation-only online workshop organised by the FREYA project on August 5th, 2020, on the uses, opportunities and challenges of persistent identifiers (PIDs) across research disciplines, with a particular focus on projects active in the development of the EOSC and other European initiatives.

- **Ethics in Design CSCW Workshop 2020 (October 2020)**

Work partially financed by DARE was presented in Ethics in Design CSCW Workshop namely *Computer-supported ethical rules for collaboratively sharing data*. The virtual workshop, which took place on 17 - 18 October 2020, convened CSCW (Computer-Supported Cooperative Work) researchers and practitioners working across a wide array of domains to propose and consider new interventions and approaches to ethics in design that go beyond formal checklist- and compliance-oriented approaches. CSCW's rich set of qualitative, quantitative, and design-based methods when investigating values and ethics provides a starting point for thinking about approaches and interventions for ethics and values in design that go beyond compliance- and checklist-oriented approaches. Contributors to this paper were Rui Zhao (UEDIN), Malcolm Atkison (UEDIN) and from Christian Page (CERFACS).

- **15th Workshop on Workflows in Support of Large-Scale Science (November 2020)**

Rosa Filgueira (UEDIN) presented the *Adaptive optimizations for Stream-based workflows*, which is part of her work in DARE, in the on-line event "15th Workshop on Workflows in Support of Large-Scale Science". This workshop, which took place on **November 11th, 2020**, focused on the many facets of scientific workflow management systems, ranging from actual execution to service management and the coordination and optimization of data, service, and job dependencies.

- **Realising the European Open Science Cloud Conference & EOSC Projects EXPO (November 2020)**

From 16 until 19 November 2020 the DARE partnership held an ebooth during the EOSC Projects EXPO 2020 which took place online. The first virtual conference and exhibition of its kind, organised by EOSC, was titled **'Realising the European Open Science Cloud Expo 2020'** encompassed 499 document views, 270 video views, and 1646 total booth visits. The partnership was accepted to exhibit project results during the exhibition with a dedicated virtual booth which was available to virtually visit, hold discussions and respond to visitor queries via a chat functionality (Fig. 11).
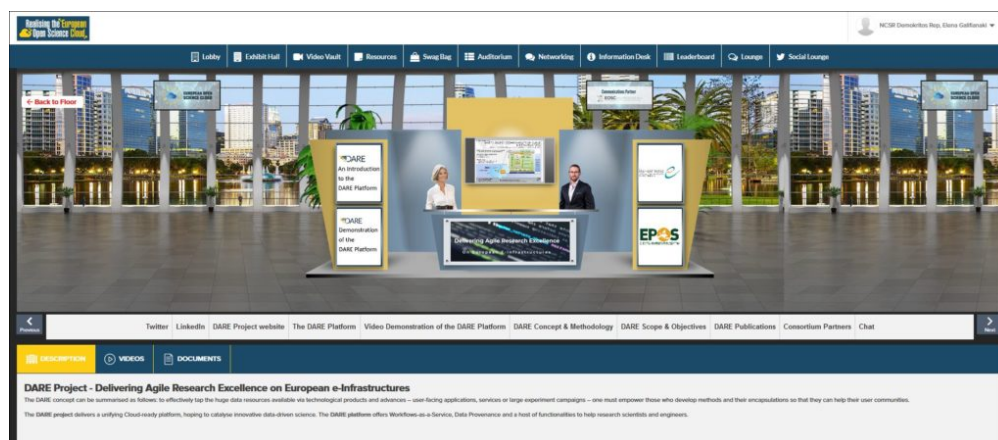

Figure 13: DARE eBooth at EOSC Expo2020

A list of DARE's participation in various events and activities organised by third partis is available in Table 3 below.

Table 3: Participation in events and other activities

EVENT	Dates	Location	Partner involved	Weblink
DARE participation at events and other activities				
Clustering Event & Technical Meeting of EINFRA-21 projects	10 - 11 July 2019	Athens, Greece	NCSR Demokritos All partners	http://project-dare.eu/2019/07/18/dare-deep-xdc-organised-clustering-event-with-great-success/
RSEConUK2019	18 September 2019	Birmingham, UK	Rosa Filgueira, UoE	https://rseconuk2019.sched.com/event/QSRf/4d2-cloud-technologies-and-case-studies-empowering-domain-experts-with-dare-a-new-cloud-based-platform-and-working-environment
Gateways 2019	23-25 September 2019	San Diego, USA	Christian Pagé, CERFACS	https://sciencegateways.org/web/gateways2019/
eScience - Bridging from Concepts to Data and Computation for eScience (BC2DC'19)	24 September 2019	San Diego, USA	Iraklis Klampanos, NCSRD Christian Pagé, CERFACS + All partners	http://project-dare.eu/2019/05/27/dare-bc2dc19-workshop/
15th eScience 2019 Conference	24-27 September 2019	San Diego, California, USA	Christian Pagé, CERFACS	https://escience2019.sdsc.edu/
RDA 14th Plenary - Co-located Events	22 October 2019	Helsinki, Finland	Antonis Koukourikos, NCSRD	https://www.rd-alliance.org/rda-14th-plenary-side-meetings-collocated-events
Convergent Use of EU HPC, Cloud, Data & AI Resources for Earth System Modelling & EU Sustainability Policy Support workshop	27 November 2019	Brussels, Belgium	Iraklis Klampanos, NCSRD	https://ec.europa.eu/digital-single-market/en/news/high-performance-computing-cloud-infrastructures-and-artificial-intelligence-better-protect-our
EOSC Symposium	26-28 November 2019	Budapest, Hungary	Christian Pagé, CERFACS	https://www.eoscsecretariat.eu/eosc-symposium
EOSC Coordination Day	28 November 2019	Budapest, Hungary	Xenophon Tsilibaris, GRNET	https://www.eoscsecretariat.eu/events/eosc-coordination-day
2019 AGU Fall Meeting	9-13 December 2019	San Francisco, USA	Christian Pagé, CERFACS, Emanuele Casarotti, INGV	https://www.agu.org/Fall-Meeting-2019/
EGU General Assembly 2020	4-8 May 2020	Online	Christian Pagé, CERFACS	https://www.egu2020.eu/
ISC High Performance 2020	22-25 June 2020	Online	Christian Pagé, CERFACS	https://2020.isc-program.com
Persistent Identifiers in Research Disciplines	5 August 2020	Online	Malcolm Atkinson (UEDIN)	https://www.project-freya.eu/en/events/freya-and-eosc-persistent-identifiers-in-research-disciplines-workshop
Ethics in Design CSCW Workshop 2020	17-18 October 2020	Online	Malcolm Atkison (UEDIN), Christian Page (CERFACS)	https://ethicsindesignworkshop.wordpress.com/
EGI Conference 2020	2-5 November 2020	Online	Christian Pagé, CERFACS	https://indico.egi.eu/event/5000/overview
15th Workshop on Workflows in Support of Large-Scale Science	11 November 2020	Online	Rosa Filgueira (UEDIN)	https://works-workshop.org/
WMO Data Conference	16-19 November 2020	Online	Christian Pagé, CERFACS	https://public.wmo.int/en/events/WMO-Data-Conference
Realising the European Open Science Cloud Conference & EOSC	16-19 November 2020	Online	Elena Galifianaki, NCSRD	https://realising-eosc.eosc-hub.eu/

Projects EXPO				
CODATA International FAIR Convergence Symposium 2020	27 November - 4 December 2020	Online	Christian Pagé, CERFACS	https://codata.org/events/conferences/international-fair-convergence-symposium-convened-by-codata-and-go-fair-22-23-october-2020-paris-france/
2020 AGU Fall Meeting	1-17 December 2020	Online	Christian Pagé, CERFACS	https://agu.confex.com/agu/fm20/meetingapp.cgi

4.2 Organisation of dissemination activities by DARE

In the following section, highlights of the dissemination and outreach activities that partners organised or co-hosted in the reference period, are outlined.

- **Clustering Event & Technical Meeting of EINFRA-21 projects: Creating platform-driven e-Infrastructure innovation on EOSC AND EINFRA-21 projects Technical Meeting (10 & 11 July 2019)**

On July 10th, 2019 the DARE project, along with projects DEEP and XDC, hosted a very successful project clustering event at the campus of NCSR Demokritos in Athens, Greece in the frame of the 7th Hellenic Forum 2019. The full day event entitled *Creating platform-driven e-Infrastructure innovation on EOSC* brought together all H2020 EINFRA-21 projects. Additional domain related EC-funded projects and initiatives were represented as well as EOSC hub partners, EC officials and other stakeholders.
On a national level, DARE partners Athena Research Centre and NCSR Demokritos, have built strong collaboration towards a national policy for Open Science through the organisation of two important events: the Open Science in the *Greek Research Ecosystem Symposium* (November 2018) and the *Open Science in Greece* workshop (July 2019).

The following day (11 July 2019) at NCSR Demokritos campus, for the first time, all H2020 EINFRA-21 projects engaged in a fruitful technical meeting and exchanged know-how on critical issues of the projects looking for synergies and opportunities for collaboration.

Figure 14: Clustering event in Athens, July 2019

- **Bridging Concepts to Data and Computation (BC2DC '19) at eScience 2019 (September 2019)**

The final week of September 2019 was a busy and fruitful one for DARE project partners. The partnership organised a full day workshop co-located with the **IEEE eScience 2019** conference which was held from 24 to 27 September 2019 in San Diego, California, USA. The workshop titled **Bridging Concepts to Data and Computation (BC2DC '19)** took place on **24 September 2019** and focused on platform-driven and domain-specific developments that contribute towards unifying underlying platforms, clouds, data, computational resources and concepts in order to empower research developers to deliver, maintain and communicate larger, increasingly complex eScience systems. The partners participated with four papers thus maximising opportunities for discussion stimulation about DARE and the potential to develop international collaborations.

Figure 15: DARE project at eScience 2019 (BC2DC'19)

- **EOSC Symposium Coordination day (November 2019)**

DARE was engaged in a constructive dialogue with other openscience stakeholders in the EOSC Symposium which took place in Budapest from **26 to 28 November 2019**. The EOSC Symposium is one of the largest, yearly EOSC events. This event resulted in three intense and stimulating days for all stakeholders to contribute to discussion on the implementation of the EOSC facilities.

- **American Geophysical Union (AGU 2019) (December 2019)**

The project was granted a session at the **AGU Fall Meeting**, held in San Francisco from **9 to 13 December 2019**. The session "IN021: Data-Oriented and Self-Optimizing Architectures and Workflows for Earth, Space and Climate Science Applications" has the goal of discussing innovative approaches and new ideas on data distribution platforms, architectures, and workflows themselves to support research in Earth and Space Sciences. The session was co-organised by the team members Christian Pagé (CERFACS), Iraklis Klampanos (NCSRD), Rosa Filgueira (UEDIN) and Alessandro Spinuso (KNMI).

- **American Geophysical Union (AGU 2020) (December 2020)**

In the path of the success of the AGU 2019 participation, a session has also been organised for the **AGU 2020, 1 – 17 from December 2020**, in collaboration with the H2020-IS-ENES3 Project. This year, because of the COVID-19 pandemia, it is organised as a virtual-only conference. The session is: *IN032. Advancing Tools and Services for Climate Models and Analytics* that took place on December 14th. The session has the following background and objectives. There has been an explosion of observing systems on existing and many new platforms and new climate model approaches such as machine learning to parameterisations. These advances are leading to significant challenges to process, integrate and assimilate multiple model and observational data from different sources – due to huge volumes, vast ranges of spatial and temporal scales, as well as inconsistencies in data formats, structures, and metadata. Increasingly, data organisations are integrating data into the cloud that enables scientists to access, analyse, and share data, and collaborate on research papers in the cloud. Scientists are rethinking how they will leverage this new environment to analyse their model and observational data in the future. Developers need to reach across infrastructure boundaries transparently with scalable solutions, while effectively moving processing and analysis, but not control, away from users and closer to the data. This session seeks to present recent advances and works in progress related to those themes. The session has been organised by Christian Pagé (CERFACS), along with external international collaborators.

4.2.1   Webinar organisation by DARE

The DARE partnership organised **two webinars** focusing on the two use cases of the project. The platform currently supports use cases from the domains of Earth and Atmospheric Sciences.

On **Friday 16 October 2020** the webinar focusing on **Climate & Atmospheric Sciences** took place. This webinar introduced the DARE project and platform to the wider ENES community via a use-case dealing with cyclone tracking. It covered interacting with the platform in order to supplement your user-facing applications. The webinar included deployment instructions and a short hands-on session. A number of test accounts on an operational DARE installation were provided for a limited time and use.

Figure 16: DARE webinar on Climate & Atmospheric Sciences

On **Wednesday 11 November 2020** the webinar focusing on **Seismology and the Earth Sciences** took place. During the session, speakers introduced the DARE platform and the project to both research developers and domain researchers of the seismological community of EPOS, who work on a daily basis with tools and workflows for earthquake analyses in the context of emergency communication. The webinar covered interaction with the DARE platform which can help to supplement user-facing applications. The webinar also included deployment instructions and a short hands-on session.

Figure 17: DARE webinar on Seismology and the Earth Sciences

5   Conclusions

This deliverable includes a comprehensive list of the dissemination, communication and outreach activities that took place in the last 18 months of the project.

The DARE ecosystem consists of e-Infrastructures projects, e-Science organisations, research software entities and R&D professionals in Seismology and Climate change. Partners have focused their efforts to approach various stakeholders and raise awareness in these domains through event participation and organisation, online activities, as well as scientific publications reaching out to relevant communities.

During this reporting period (M19 - M36), all partners have made efforts to achieve the project's dissemination and communication KPIs with the majority of them to have been reached. The unforeseen circumstances caused by the Covid19 pandemic proved to be a setback in reaching these KPIs as many scheduled dissemination activities were cancelled or rescheduled for the best part of 2020.

Partners produced 14 publications in the second half of the project (totaling 21 for the project) in academic publications as well as in key scientific conferences and meetings. DARE partners have continued to invest in building collaborations with key stakeholders and projects to create synergies.

As a general note, in the past three years DARE project partners have focused so much so in producing innovative scientific results as well as making efforts in communicating these results successfully to the scientific community, researchers, the wider public as well as engaging end users.