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EMME-CARE

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EMME-CARE | GRANT NO. 856612

D9.7 Fourth Annual Report contents of the PDER, knowledge and data management, and IPR protection, communication, outreach & public engagement

August 2023

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9.7	Fourth Annual Report contents of the PDER, knowledge and data management, and IPR protection, communication, outreach & public engagement	1 – CYI	Report	Public	48

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V1	14/07/2023	Initial version		CYI
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V3 (Final)	28/08/2023	Revisions/ Refinements throughout document	Final Version based on the suggestions of the CARE-C Director and RISO team	CYI

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1. Introduction

This document refers to Deliverable "**D9.7: Fourth Annual Report contents of the PDER, knowledge and data management, and IPR protection, communication, outreach & public engagement**", as continuation of the D9.6 related to the Third Annual Report and discusses activities that occurred during M37 – M48 (September 2022 – August 2023).

More specifically, this deliverable addresses the above in relation to the contents of the 'PDER – Plan for the Dissemination and Exploitation of Results', which is linked to Task 9.1.c: "Monitoring the different contents of the PDER (led by the Cyprus Institute [CyI])", knowledge and data management, and IPR protection linked to Task 9.2 of the same name (led by CyI), and communication, outreach & public engagement linked to Task 9.3 of the same name (also led by CyI).

2. Contents of the PDER

This section outlines the Fourth Annual Report on the contents of EMME-CARE's PDER as these link to the CyI-led **Task 9.1.c: Monitoring the different contents of the PDER**, which includes:

- Scientific articles and publications, conferences and workshops.
- Brochures, leaflets and e-Newsletter.
- Website: consolidation and upgrading from Teaming-Phase-I into CoE, and annual maintenance.
- Dissemination activities related to national and regional clusters, and R&D and student mobility programmes.

In the context of the above, the Fourth Annual Report also includes mentions of any other relevant activities undertaken during the reporting period of M37 – M48).

2.1 Scientific articles and publications, conferences and workshops.

Scientific Articles and Publications

As already clarified in previous reports, for consistency purposes, the reporting convention followed by the CoE for scientific articles and publications is being conducted on an annual basis, in line with the reporting timelines and requirements set forth by the Cyprus Institute. For the numbers quoted in this section, information quoted for years up to 2022 represent each respective *calendar* year, whilst for the year 2023 represent the period January – June 2023.

Regarding peer-reviewed scientific publications, as already stated in the Grant Agreement (section 2.2.2) and D9.3 Data Management Plan (Open Data Pilot) the CoE continues to prioritize Open Access in line with Open Science principles.

Publications through the years:

In 2022, the CoE has reported **ninety-six (96)** EMME-CARE scientific articles and publications out of which ninety-three (93) were from CARE-C CoE. When examining this overall (2009 – 2022), **over 60% of publications in 2022 have been published in top-25 cited journals** (according to the Scimago Journal & Country Rank). So-far in 2023 (January – June), EMME-CARE counts 37 publications. It should also be noted that all three of EMME-CARE's Advanced Partner PIs, as well as Advanced Partner Prof. Tuukka Petäjä, were recognized amongst the world´s "Highly Cited Researchers" in the 2022 list announced by Clarivate / Web of Science.

For reference, a bar chart visualizing this information for 2009 – 2022 is included below.

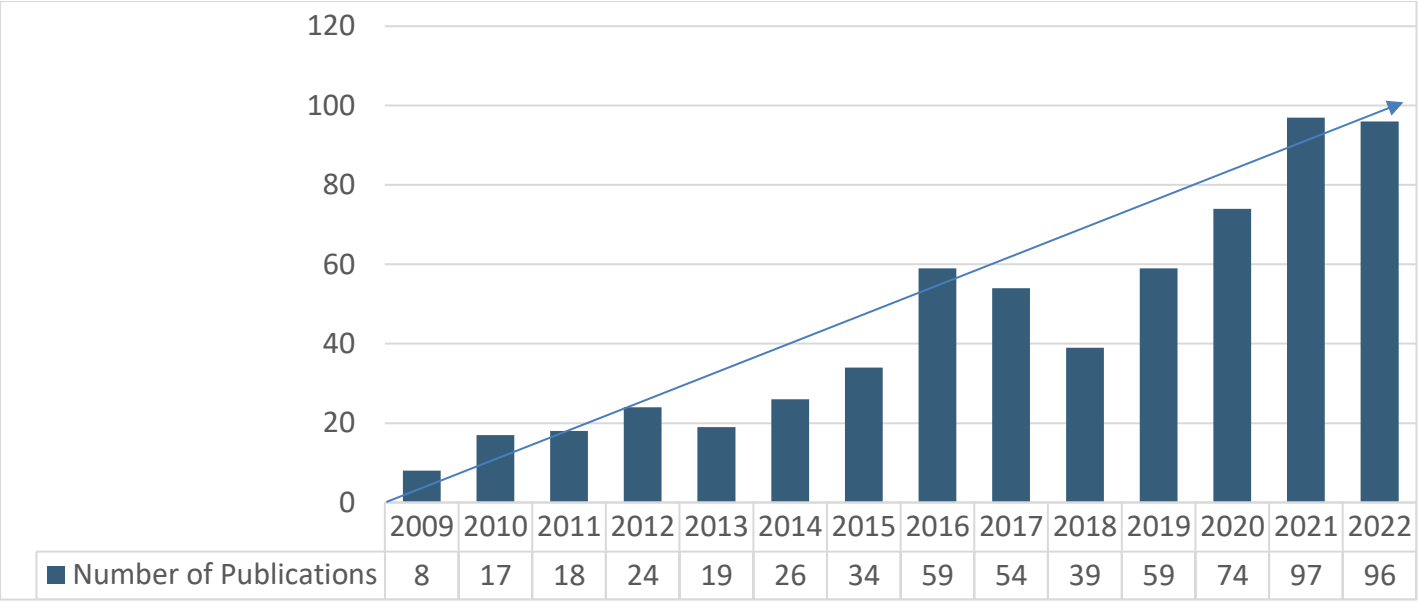


Figure 2.1.1: Publications through the years.

The list of publications for the CoE per full year can be found on the dedicated webpage on the EMME- CARE website (https://emme-care.cyi.ac.cy/publications/). This ensures that the latest information about CoE publications are openly accessible by all interested, and organized by year in a user-friendly way. The website also allows the user the functionality of searching through publications, hence enhancing their findability.

Conferences and Workshops

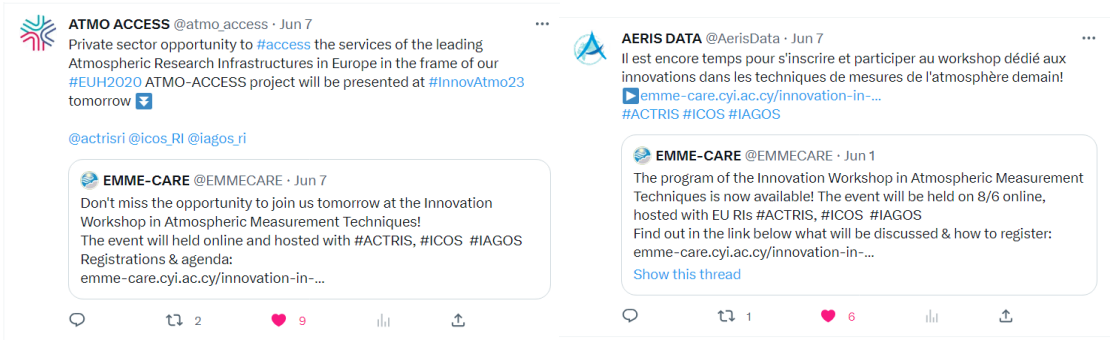
For 2022, the CoE has presented and participated in **thirty (30)** *scientific* conferences, workshops and trainings, and **twenty-three (23)** in 2023, contributing to the dissemination activities of the Center. The CoE has also successfully organized and hosted workshops and trainings aimed at raising the profile of the CoE and enhancing its visibility, network and reach within scientific and other specialist communities. Some highlights are included below.

Virtual Workshop: Innovation in Atmospheric Measurement Techniques, 8 June 2023

On June 8th, 2023 EMME-CARE in collaboration with 3 EU RIs ACTRIS, ICOS and IAGOS co-hosted the 3rd Workshop on Innovation in Atmospheric Measurement Techniques, as a Partner Event of the EU 2023 Green Week. The event was organized by the Climate and Atmosphere Research Center (CARE-C) of the Cyprus Institute with the support of the University of Helsinki, the Max Planck Institute for Chemistry in Mainz (MPIC), the French Alternative Energies and Atomic Energy Commission (CEA).

Through a full day of sessions and talks, this workshop brought together atmospheric science communities to discuss the latest innovations in atmospheric measurement techniques. Participants had the opportunity to discuss and find out about new technologies, products, services, and instrumentation and access visibility of opportunities for R&D collaborations. The Workshop gathered over 300 participants from 44 countries, and created a unique platform for networking and knowledge-exchange between key contacts from academia, private companies, the public sector and NGOs.

Figure 2.1.2: Slide of Innovation Workshop in Atmospheric Measurement Techniques.



Figures 2.1.3, 2.1.4, 2.1.5 & 2.1.6: Screenshots of tweets from participants of Innovation Workshop in Atmospheric Measurement Techniques

2nd Annual Workshop: Climate and Atmosphere Research & Innovation in the Eastern Mediterranean & Middle East, 1 November 2022

Organized by CARE-C and its Advanced Partners, this one-day online event gathered together the international scientific community in order to discuss the latest innovations and exchange knowhow, on

the science of climate change and air pollution, as well as to highlight related challenges, impacts and potential solutions for the EMME region. Also, the workshop provided a great opportunity for networking and enhancing regional collaboration and national capacities for addressing the climate crisis.

Prof Jean Sciare, Director of CARE-C and Coordinator of EMME-CARE gave the introductory speech welcoming all the participants at the workshop. His opening speech was followed by 31 oral and 18 VPICO presentations delivered by representatives of Universities, research Institutions and private companies. The event had more than 300 participants from 41 different countries, including scientists, researchers, students and industry professionals in the area of research & innovation on climate change and air pollution in the EMME region.

Figure 2.1.6: Banner of EMME R&I Workshop.

EMME-CARE Autumn School "Analysis of aerosols, air pollution and their sources in the Eastern Mediterranean" successfully concluded

The 1st EMME-CARE Autumn School "Analysis of aerosols, air pollution and their sources in the Eastern Mediterranean" held from 31 Oct–11 Nov, 2022, was concluded with great success. It took place at The Cyprus Institute's premises in Nicosia, Cyprus and was organized by the EMME-CARE Consortium, with the support of the CyI Graduate School. It was attended by 18 students, from 7 different countries, including 2 students from countries in the Middle East.

Figure 2.1.7: Group photo from the Autumn school participants and organizers. 31/10/2022-11/11/2022

2.2 Brochures, leaflets and e-Newsletter.

As already mentioned in previous reports, the CoE has already produced a variety of print and video material. Updated versions of the leaflets, brochures and videos of the CoE are accessible at all times in digital format through the CoE website (https://emme-care.cyi.ac.cy/news/#br).

e-Newsletter

As reported in D9.4 - D9.6, the EMME-CARE newsletter is prepared and circulated to the EMME-CARE mailing list, and includes articles, news items and updates from the CoE and its Advanced Partners. The latest issue of the e-newsletter was circulated to the mailing list in December 2022 with title: “20 highlights to celebrate 22” and it is available on EMME-CARE website. All issues of the e-newsletter are accessible at any time through the CoE website at https://emme-care.cyi.ac.cy/news/#nl.

To better complement, and minimize duplication with the continuous updating of the News Section of the EMME-CARE website, and mailings to the EMME-CARE mailing to promote sign-up to CoE events, workshops and training, the e-Newsletter has been revamped into a year-in-review update. A mailing list sign-up form remains available on the EMME-CARE website to further encourage sign up.

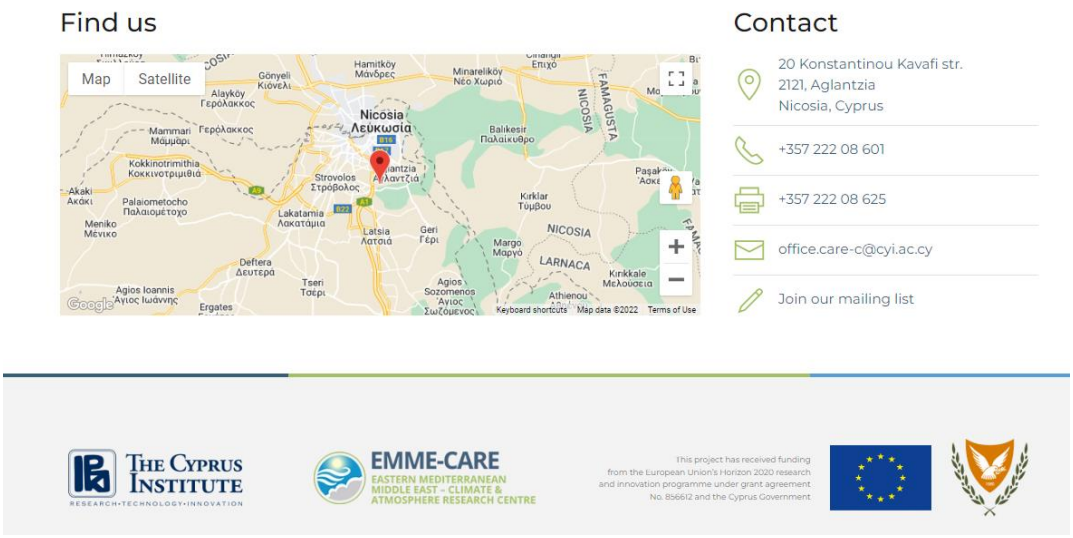


Figure 2.2.1.: Screenshot of the EMME-CARE newsletter sign up link on the website landing page

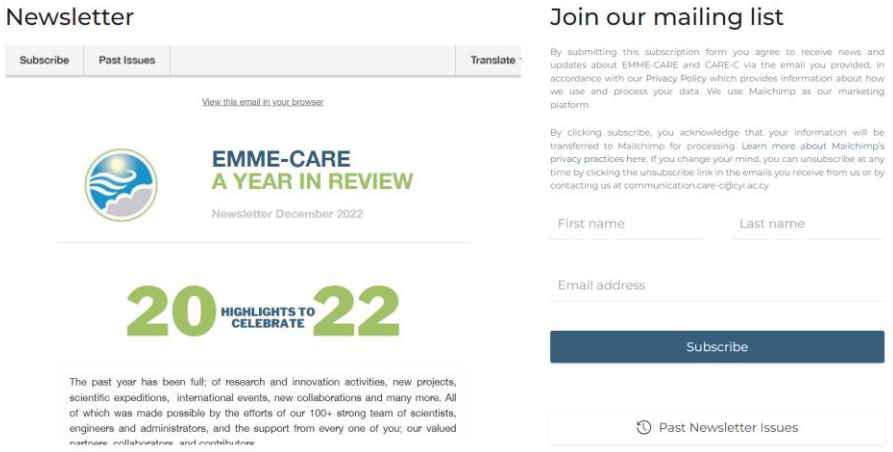


Figure 2.2.2.: Screenshot of the EMME-CARE newsletter and sign up link on the website

2.3 Website

Further to the upgrades and developments mentioned in previous reports, the dedicated website (https://emme-care.cyi.ac.cy/) of the CoE, continues to be updated regularly in technical and content aspect, allowing to increase the impact and visibility of the CoE to the general public as well as to promote its objectives and work to the scientific community and researchers on the field.

This section outlines:
a) Website Performance Metrics
b) Annual maintenance upgrades (M37– M48)

a) Performance metrics of the CoE website

As already outlined in previous reports, the CoE tracks website traffic and related visitor metrics for its site, that are analysed to optimize the CoE's approach to marketing, user experience and server performance. Indicatively, during the reporting period, the analysis shows that the site has been visited by 2000+ new users, allowing the CoE to determine the visits to the website that can be compared with CoE promotional activities, contributing to measuring and assessing their impact, and adjusting them in real time for maximum effect. In line with GDPR the functionality of this tool is covered in the Privacy Policy and Cookie Policy readily available and easily accessible at all times through the footer of the EMME-CARE site.

b) Annual maintenance upgrades (M37 – M48)

During M37 – M48, the website has been updated to include a dedicated "EMME-CARE Open Education Resources" page and a new "Training" section under "Opportunities & Training" page:

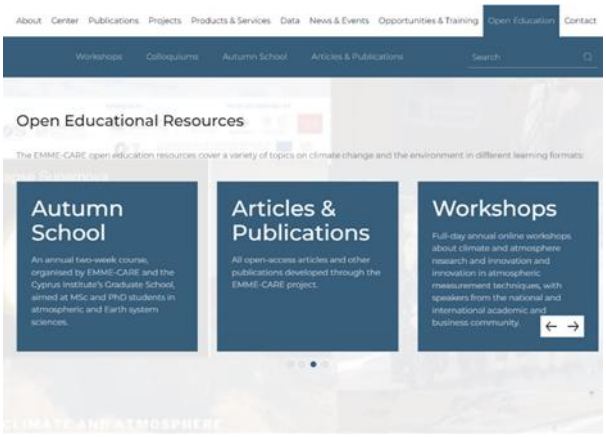


Figure 2.3.1: Screenshot of CoE website – Open Education page

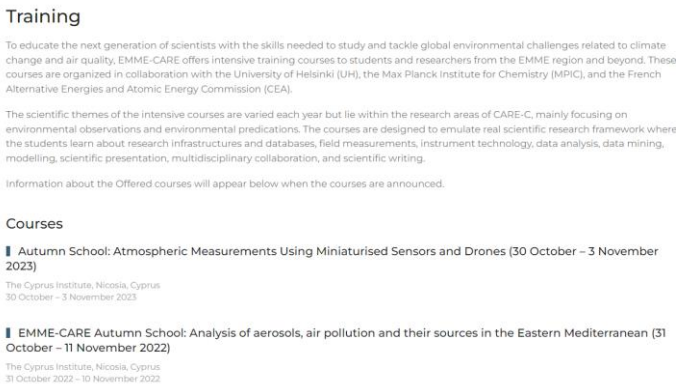


Figure 2.3.2: Screenshot of CoE website – Training Section

2.4 Other dissemination activities related to national and regional clusters, and R&D and student mobility programmes.

During the reporting period for this deliverable, the CoE has further strengthened and expanded its growing network of national, regional and international clusters with a variety of stakeholders from academia, the public and private sectors as well as NGOs and International Organizations, as these were first established and reported in D9.4 (for M1-M12) as well as in D9.5 (for M13-M24). Relevant updates below.

Updates on EMME-CARE National Clusters

Beyond what has already been reported in D9.6, during the reporting period, the CoE has expanded its network of national eco-innovation clusters through innovation activities as these were reported in submitted deliverable D8.1. It has also expanded its support of Cyprus Government Departments, including through an agreement with the Department of Forests within the framework of the implementation of Investment 9, and more specifically the Investment Action C2. 1I9: Protection of forests from wildfires, of the Resilience and Recovery Plan, for the provision of Unmanned Aerial Vehicle (UAV) services for the period 2022-2025, through CARE-C's Unmanned Systems Research Laboratory (USRL).

Updates on Regional and International Clusters

As mentioned in D9.6, EMME-CARE's Regional Professorship Programme aims to strengthen, expand and enhance collaboration networks in the EMME region to tackle air pollution and climate change and their impacts, through the establishment of collaborations with top Universities in the countries of the EMME region. Further, during the referenced period, the CoE has been strengthening its collaboration with:

- The National Kapodistrian University of Athens (Athens, Greece),
- The St Joseph University (Beirut, Lebanon),
- The Egyptian Japanese University of Science and Technology (Alexandria, Egypt)
- The Kuwait Institute for Scientific Research (Kuwait),
- The Qatar University (Doha, Qatar),
- The Qatar Energy & Environment Research Institute (Doha, Qatar).

In addition, the CoE has also engaged in scientific collaboration through a Memorandum of Understanding with:

- The Israeli Meteorological Service (IMS) for High Resolution regional climate change projections (collaboration initiated in the framework of the Climate Change Initiative).
- Cairo University (CU) for the establishment of educational programs (under/post-graduate curriculum on Air Pollution) in collaboration with the World Bank
- The Environment Agency of Abu Dhabi (EAD) for cooperation on a major atmospheric research project named Atmospheric Research Expedition to Abu Dhabi (AREAD), that took place in 2022, and marked the world first offshore atmospheric research expedition between Spain and UAE. As well as a 2023 ship campaign investigating the Transport of Hydrocarbons and Ozone Formation downwind of the Arabian Gulf (THOFA).
- the King Abdullah University of Science and Technology (KAUST), contributing to the modelling component of THOFA.

Please see recently submitted deliverable D5.3 for more details on the scope of the above.

The CoE has also more actively engaged with European Research Infrastructures ICOS and IAGOs, within the framework of organization of the 3rd Innovation Workshop on Innovation in Atmospheric Measurement Techniques. Other networks, in which the CoE remains engaged are featured below.

Figure 2.4.1.: Creating a bridge between top R&I network and the EMME Region

Student Mobility Programmes

With the support of its Advanced Partners, the CoE aims to become a regional hub for student exchanges between EU and the EMME region, as well as promote wider international exchanges. During the reporting period, the following activities (taking place within WP3) contributed towards building new networks and collaborations as well as to promote international mobility.

1. Erasmus+ Outgoing Activities

Staff Mobility for Training at Max Planck Institute for Chemistry, Mainz (18-20/07/2022)
The objectives of the mobility were:

- to explore processes, tools and methods used in the Institute Operation/Administration Departments.
- To gain an enriching international and intercultural learning experience

The programme of the activity included: job shadowing / working with colleagues from the administration, office management and communications sections, learning new practices and processes on administration, project monitoring, budget planning, reporting and timesheet preparation, research support (following procedures, support staff in their daily work), events organization and experiencing networking opportunities.

Student Mobility for Traineeship at University of Helsinki (27/02 – 10/03/2023)
The main objective of this mobility was the student to gain knowledge through the participation at the "Advanced Analysis of Atmosphere-Surface Interactions and Feedbacks" course which included: (a) analysis of long-term datasets of atmospheric and ecosystem measurements (b) working on statistical data analysis in small groups and (c) attend small lectures. By the end of the programme, the student learned how to process large atmospheric data sets in Matlab, learned scientific writing, how to network with colleagues at the receiving institution, got insight into the Finnish atmospheric research infrastructures, learned coding skills that are essential for the student's research, and data from Finnish SMEAR station

2. Erasmus+ Incoming Activities

Also, under the coordination of the CARE-C Senior Project Officer, Mrs. Andri Charalambous, a number of staff members, participated within the framework of BESTPRAC training that took place in March 2023 through the Erasmus+ KA1 activities (incoming staff).

3. Transferable Skill Courses (TSC)

Two students from the ES Master's and four students form the EAS PhD program attended the TSC in "Basic Introduction to Python" that was offered in March-April 2023. One of the instructors was Marco Miani, CARE–C staff. The course's main objective was to provide a basic understanding of the principles and methods to use object-oriented python programming language, as well as building solid foundations for individual growth. The learning outcomes were to set up, install and using python proficiently, as well as creating and cloning virtual environments.

Also, one staff member from CARE-C and one student from the Master's ES program attended the TSC in "Basic Introduction to Intellectual Property" that was offered in May 2023. The course's main objective was to provide essential and basic knowledge in Intellectual Property (IPR) to students that were interested in learning how to identify and protect IP by selecting the appropriate IPR strategy. The learning outcomes were: to understand the importance of IPR, to familiarize with the several types of IPR, to understand what patents are, how patents are used and comprehended and how they are filled, to understand the need to appropriate IP management, such as how to convert their research into IP rights, to manage their IP portfolios and engage in technology transfer to industrial

partners for value creation, to become aware of the consequences of insufficient protection of IP assets, including the risk of reverse engineering, blatant copying and even industrial espionage.

4. International Dual Degree PhD

Finally, during the reporting period eight PhD students engaged in Joint/Dual Degrees with the following Universities: University of Paris-Saclay, IMT Lille, University of Helsinki and the National and Kapodistrian University of Athens

Stakeholder Mapping

As reported in D9.6, the Consortium has created a template format that has allowed it to review and categorize its relations with all actors (beyond the Consortium) that are *directly* engaged with the CoE and the EMME-CARE project. This functions as a "live record" regularly reviewed and updated by the Consortium in line with relevant EMME-CARE reporting periods. As such, it also serves as a tool for ensuring relevance and efficiency of audience segmentation and planning of DEC efforts.

For mapping purposes, stakeholders were organized in the following categories:

- **Consortium Partner**, partners in funded project
- **Partner**, have signed an MoU
- **Collaborator**, purpose-driven collaboration / collaboration agreement
- **Regional Professorship Program**, part of the EMME-CARE RPP
- **Service users**, recipients of CoE services or products
- **Other**, any other type of relationship for stakeholders directly engaged with EMME-CARE

At the time of writing of this deliverable, EMME-CARE's directly engages with stakeholders from **130 organizations (collaborations with 13 new organisations during this reporting period)** across **33 countries**, from academia, international organizations, public sector & government, third sector / NGOs as well as private companies. An updated breakdown per type of organization is included below.

Type of Organization	**Number per Organization type**	**Percentage per Organization type**
Academic	63	48%
Public	36	28%
Private	20	15%
NGO	8	6%
International Organizations	3	2%

*Numbers are not comparable to the year before to an administrative error in previous calculations

The above information is guiding the dissemination, and exploitation activities of the Consortium in planning its activities for the next reporting period, while it will also act as a helpful basis in further developing its exploitation plan within the context of other WP activities.

3. Knowledge and Data Management and IPR Protection

This section outlines relevant updates relating to **Task 9.2 Knowledge and Data Management, and IPR Protection**, led by the Cyprus Institute**.**

3.1 Data Management Plan and FAIR Strategy

D9.3: Data Management Plan (Open Data Pilot)

D9.3: Data Management Plan (Open Data Pilot), is describing the overall approach for producing, collecting and processing research data for EMME-CARE and the Research Departments and Infrastructure Units that have been consolidated in the context of the CoE, including the CoE's FAIR Strategy. The DMP submitted in March 2021 is considered to be up to date.

During the reporting period, the following improvements and additions have been made at the technical aspect of Data Management:

- Three additional instruments have been imported into the database, accompanied by their respective MATLAB and Python scripts
- Procurement of additional servers which were installed in the upgraded CEO server infrastructure. These upgrades cater to instruments that generate substantially larger data sets and involve a secondary VM node and a dedicated large-capacity storage chassis
- Several VMs have been created to efficiently manage server-side data handling and control functions for the new instruments.

3.2 Formulation and revision of IPR strategy, specifically in the context of exploitation activities

Upon recommendations made in the RP2 review, an update on the project's IPR strategy was made and reported in D9.6. No further updates to CoE policies have occurred during the reporting period of this deliverable.

Specific conditions in regards to IP that govern the ownership rights emanating from research of and/or materials produced by the Cyprus Institute's employees and postgraduate students, that apply to the CoE, continue to be governed by the CyI's Intellectual Property Policy .

It is worth mentioning that during the reporting period, the Cyprus Research and Innovation Foundation (RIF) has launched a Central Knowledge Transfer Office (CKTO), whose service also include support in the effective management and protection of IPR to facilitate better exploitation, and the CoE is eligible, and has planned to take advantage of.

4.Communication, Outreach & Public Engagement

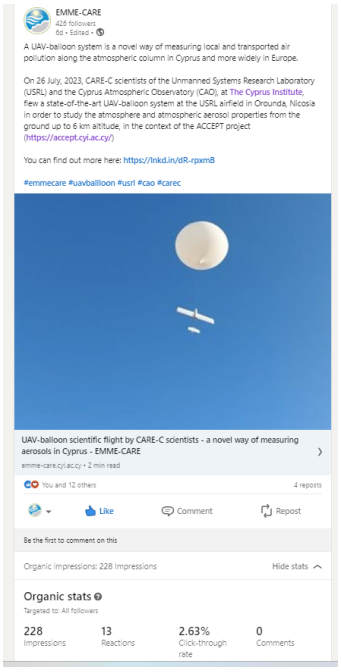
This section outlines the Fourth Annual report on EMME-CARE Communication, Outreach & Public Engagement as these link to **Task 9.3 Communication, Outreach and Public Engagement**, led by the Cyprus Institute.

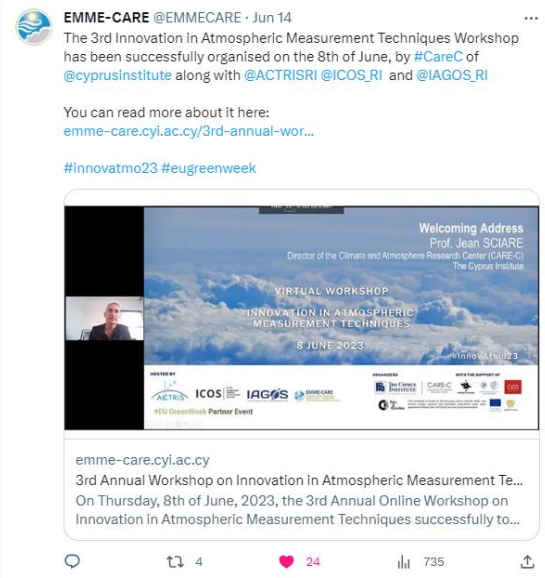
4.1 Creation and updating of social media profiles and public forum

As already reported in D9.4 and in D9.5, CoE social media accounts were created from the first months of the project and continue to be active, aiming to speak to various stakeholders across Facebook, Twitter, LinkedIn and Research Gate.

The CoE's efforts have culminated in a steady expansion of its online community, with 1,922 followers for CoE social media platforms which the CoE aims to continue to grow. Indicatively, at the time of writing (August 2023) the EMME-CARE twitter account has attracted 78 new followers during the

period reported in this deliverable, bringing the total follower count to 728 followers. Similarly, the CoE's Facebook Page has gathered a sizeable support of 764 followers.





Figures 4.1.1 & 4.1.2: Screenshots of CoE social media posts on LinkedIn (UAV Balloon Flight, 02/08/2023) and Twitter (right: Virtual workshop on Innovation in Atmospheric Measurement Techniques, 8/6/2023)

4.2 Giveaways, memorabilia and distribution of promotional material

The CoE continues to make good use of the promotional material created (see D9.4) to continue to develop the impact and visibility of the CoE, including through the creation of "briefing packs" to delegations of formal visits to the CoE as well as distribution in formal meetings with external contacts, and in the context of other events organized and hosted by the CoE as appropriate.

4.3 Organisation of Climate Conference series

The 2nd International Conference on Climate Change in the EMME was successfully organized in 2021, marking also the successful completion of MS38 (October 2021). The CoE has proceeded with an Annual organization of the Workshop on Climate and Atmosphere Research & Innovation in the EMME, creating a virtual forum for networking, knowledge exchange and to further strengthen collaboration with regional actors on an ongoing basis.

4.4 Outreach and Public Engagement Events

Over the period reported in this deliverable, the CoE has organized, actively participated and attended a number of outreach and public engagement events to enhance its visibility and impact. More information and selected highlights from outreach and public engagement events the CoE has organized or participated during the reporting period of this deliverable, are outlined below. The latest information about upcoming CoE events as well as previous participation/organization of events, can be found on the dedicated webpage of the EMME-CARE website (https://emme-care.cyi.ac.cy/news/#ue).

1st Innovation Workshop and Speed Networking event, at the CoE's premises.

On the 9th of June, 2023, the first "Innovation Workshop and Speed Networking event" was successfully organised by the Cyprus Institute (CyI), in collaboration with the Association of Research and Innovation Companies of Cyprus (CARIE), and the Cyprus Chamber of Commerce and Industry (CCCI), with the support of EMME-CARE as well as EU funded projects "EUROCC2", and the European Digital Innovation Hub in Cyprus – "DiGiNN" project.

The aim of the workshop was to start off a collaboration between researchers and Cypriot companies which are actively involved in applied research and innovation, and consequently creating synergies and strong partnerships, exchanging knowledge and expertise, and developing products and services, which can in turn have a significant positive impact on the competitiveness of high-tech and deep-tech companies in Cyprus. The workshop included presentations from CARE-C Director Prof Jean Sciare, as well as presentations of other Centers of The Cyprus Institute, and relevant associated projects. A speed-networking event followed which was hosted at the premises of the CoE, at the CyI Campus, and took conclude delegations had the opportunity to have a guided tour of the Institute's laboratories and research facilities.

Such events- the first of many planned for the future- are of vital importance for digital transformation and transitioning into a knowledge-based economy in Cyprus.

Figure 4.4.1: Photo from the 1st Innovation Workshop and Speed Networking event, 08/06/2023

Colloquium on Links Between Different Ecosystems, Clouds, and Climate

On Thursday, 8th of June, 2023, Assistant Professor Tuija Jokinen of CARE-C at the Cyprus Institute delivered a Colloquium entitled Links Between Different Ecosystems, Clouds, and Climate. The lecture focused on the development of highly selective methods for the detection of acidic and highly oxygenated aerosol precursor molecules and clusters, and also referred to the findings during various field campaigns and laboratory experiments having utilised these instruments to solve the mysteries behind particle formation. Lastly, the future aims in particle formation studies were presented.

Figure 4.4.2: Photo from the Colloquium on Links Between Different Ecosystems, Clouds, and Climate, 08/06/2023

Colloquium on: Effect of a Nearby Supernova on Earth's Atmosphere and Climate

On the 25th of May 2023, The Cyprus Institute hosted at its premises in hybrid form, the colloquium entitled Effect of a Nearby Supernova on Earth's Atmosphere and Climate delivered by the Assoc. Prof. of the Climate and Atmosphere Research Center (CARE-C) Dr. Theodoros Christoudias.

Dr. Christoudias, explained that Supernova within a distance of 300 light years (or 100 parsec) from the Earth are considered "nearby", implicated with catastrophic impacts on life through gamma ray bursts and long-lasting, ionizing galactic radiation. He also made reference to previous studies that were inconclusive, in particular about the consequences on the stratospheric ozone layer through the generation of nitrogen and hydrogen oxides, and on the climate through new particle and cloud formation.

The CLOUD experiment at CERN and comprehensive atmospheric chemistry – climate modelling can be used to investigate if stabilizing feedbacks in the Earth system moderate the impacts, preventing cataclysms such as mass extinctions.

Figure 4.4.3: Photo from the Colloquium: Effect of a Nearby Supernova on Earth's Atmosphere and Climate, 25/5/2023

CARE-C CoE in roundtable discussion on national implementation of EU Missions

The CARE-C Center of Excellence of the Cyprus Institute was invited to a roundtable discussion focused on Cyprus' participation in the Horizon Europe Programme, and the national plan for the implementation of the EU Missions. The meeting was organized on the 5 May 2023, by the Deputy Ministry of Research, Innovation and Digital Policy, with the participation of a dedicated European Commission Delegation, representatives of Cyprus Ministries, Cyprus Research Centers of Excellence and other Cyprus Research & Innovation ecosystem actors.

Figure 4.4.4: Photo from the CARE-C CoE in roundtable discussion on national implementation of EU Missions, 05/05/2023

CARE-C Researchers at European Researchers' Night 2022

On Friday, 30th September 2022, the 17th European Researchers' Night event was held at Eleftherias Square in Nicosia. This annual event aims to promote the importance of research, technology and innovation, and takes place simultaneously in 350 cities across Europe and beyond, with the participation of more 1,500,000 visitors every year. Within the framework of the event entitled "Mission: INSPIRE", scientists, academics, researchers and entrepreneurs presented their activities and achievements to the public.

CARE-C participated at the event with four teams of researchers presenting the following topics: "Instrumentation for Assessing Air Quality", "Role of earth's early atmosphere and electrical discharges in the origin of life", "Untangling Emissions: Examining the National Inventory and the Impact of COVID Lockdown on CO2 Emissions", "Computational modelling to solve real world problems: from the sub-atomic to the macroscopic level".

During the event, visitors of all ages had the opportunity to get in touch with research teams, to participate in experiments and interactive games, to discuss and learn about the new innovations developed by CARE-C.

The European Researchers' Night celebrating research, innovation and science is organized in Cyprus since 2006 by the Research and Innovation Foundation (RIF), as an initiative of the European Commission, which is funded through the Marie Sklodowska Curie Actions (MSCA) of the EU's Framework-Programme for Research and Innovation. The main objective of the Researchers' Night event is to nurture a research and innovation culture and raise awareness with regards to the research activity implemented by universities, research centres and innovative companies.

CARE-C at the 11th International Aerosol Conference in Athens

The Climate and Atmosphere Research Center (CARE-C) of the Cyprus Institute participated at the 11th International Aerosol Conference held in Athens from 5th to 9th September 2022.

The Center of Excellence participated at the Conference as an exhibitor with its own Booth, showcasing the latest technologies and innovation from the Center in the areas of Aerosol Science, as well as its research areas and research infrastructure. Through this approach CARE-C instigated conversations with Conference participants to raise awareness about its work and identify new opportunities for collaboration.

CARE-C scientists also delivered presentations and posters during the five days of the conference.

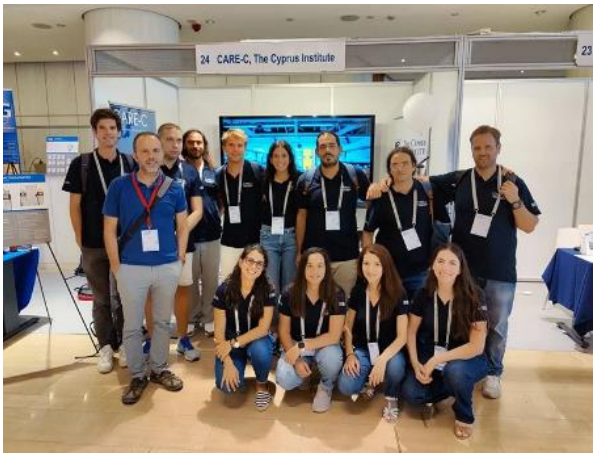


Figure 4.4.5: Group photo from the CARE-C representatives, 05/09/2022-09/09/2022

4.5 CoE Website Upgrade and scoping of web and mobile-app creation

For the M37-M48, while the website itself has undergone minimal changes, primarily consisting of routine updates on news and publications, substantial enhancements have been made to the underlying infrastructure responsible for data collection and warehousing. These improvements have been implemented to support the integration of more intricate instruments and handle heavier workloads effectively.

4.6 CoE Press Coverage

As part of its communication, outreach and public engagement activities, the CoE plans for targeted, and timely press releases, features in articles and news items as well as public appearances leading to coverage by the traditional print and broadcast media (incl. articles in newspapers and magazines, and features on radio or TV) to maximize its visibility and impact.

During the reporting period of this deliverable, EMME-CARE has had **over three hundred (300) press mentions,** including interviews and dedicated features**,** in various digital and print outlets in at least **six (6) different languages.**

Indicatively, below are highlights from the press coverage the CoE has received during the reporting period of this deliverable. A constantly updated comprehensive list of the press mentions of the CoE can be found on the News & Events page of its website (https://emme-care.cyi.ac.cy/news/).

Press Highlights

- 26 July 2023- Climate Change Crisis and Atmospheric Pollution- RIK Interview with Maria Kezoudi

Figure 4.8.1: RIK Interview

- 14 June 2023- The Highest Dust Levels of the Last Five Years for the Month of May Were Recorded in Cyprus

ΒΑΣΕΙ ΜΕΤΡΗΣΕΩΝ Ο ΠΕΡΑΣΜΕΝΟΣ ΜΑΪΟΣ ΣΤΗΝ ΚΥΠΡΟ ΚΑΤΕΓΡΑΨΕ ΑΡΝΗΤΙΚΟ ΡΕΚΟΡ

Τα υψηλότερα επίπεδα σκόνης της πενταετίας

Αρνητικό ρεκόρ, όσον αφορά τα επίπεδα σκόνης στην ατμόσφαιρα κατέγραψε ο περασμένος Μάιος, σε σχέση με αντίστοιχες περιόδους των τελευταίων πέντε χρόνων. Συγκεκριμένα, τα επίπεδα συγκέντρωσης των αιωρούμενων σωματιδίων σκόνης που καταγράφηκαν στην Κύπρο την άνοιξη του 2023 είναι τα υψηλότερα για τον μήνα Μάιο των τελευταίων πέντε ετών, βάσει πρόσφατων μετρήσεων του Κέντρου Αριστείας για την Κλιματική και Ατμοσφαιρική Έρευνα (CARE-C) του Ινστιτούτου Κύπρου.

Τα τελευταία χρόνια παρατηρούνται όλο και πιο συχνά και έντονα επεισόδια σκόνης στην Κύπρο, κυρίως λόγω της ερημοποίησης περιοχών στη Βόρεια Αφρική και τη Μέση Ανατολή, όπως επίσης και των μειωμένων βροχοπτώσεων. Οι σημαντικότερες πηγές σκόνης στη Βόρεια Αφρική είναι οι ερημικές εκτάσεις του Τσαντ, της Αλγερίας, της Λιβύης, και της Αιγύπτου. Αναλόγως της κατεύθυνσης του ανέμου και των μετεωρολογικών συστημάτων που επηρεάζουν την περιοχή της Ανατολικής Μεσογείου, η Κύπρος υπόκειται σε επεισόδια σκόνης τα οποία είναι πιο έντονα τους μήνες της άνοιξης.

Μελέτες ερευνητών του Κέντρου Αριστείας CARE-C του Ινστιτούτου Κύπρου υποδεικνύουν πώς τα επεισόδια σκόνης στην Κύπρο αναμένεται να γίνουν όλο και συχνότερα, αφού συνδέονται άμεσα με την κλιματική αλλαγή. "Όπως τονίζουν σχετικές έρευνες, η περιοχή της Ανατολικής Μεσογείου και της Μέσης Ανατολής έχουν αναγνωριστεί ως παγκόσμιο επίκεντρο της κλιματικής αλλαγής. Ακραία καιρικά φαινόμενα όπως αυτά που μπορεί να επιφέρουν υψηλά επίπεδα σκόνης, αναμένεται να συνεχίσουν να αυξάνονται σε ένταση και συχνότητα τις επόμενες δεκαετίες.

Καθώς η κλιματική αλλαγή επιδεινώνεται, προκαλώντας υψηλότερες θερμοκρασίες και ξηρότερες συνθήκες, ακραία καιρικά φαινόμενα ή συμβάντα σε άλλα μέρη του πλανήτη, πιθανόν να επηρεάσουν και την χώρα μας. Ενδεικτικό είναι το γεγονός, ότι καπνός από τις πρόσφατες πυρκαγιές στον Καναδά έχει ανιχνευθεί και στην Κύπρο.

Οι επιπτώσεις των συχνών φαινόμενων σκόνης είναι πολύπλευρες. Τα φωτομετρικά δεδομένα που καταγράφηκαν την άνοιξη στον σταθμό Λευκωσίας της Ερευνητικής Υποδομής Ατμοσφαιρικής Έρευνας του Ινστιτούτου Κύπρου (Cyprus Atmospheric Observatory- CAO), καταδεικνύουν ότι η ορατότητα μειώνεται από 38χλμ σε 18χλμ, ενώ τα σωματίδια που μειώνουν την ορατότητα αποτελούν και απειλή για την υγεία. Κατά τη διάρκεια των επεισοδίων σκόνης σημειώνονται μεγάλες υπερβάσεις των ορίων ασφαλείας στις συγκεντρώσεις των αιωρούμενων σωματιδίων. Κατά τη διάρκεια των πρόσφατων φαινομένων το Μάϊο 2023, η συγκέντρωση με διάμετρο μικρότερη των 10μm (ΑΣ10) που μετρήθηκε στη Λευκωσία, στο CAO και στο σταθμό του Τμήματος Επιθεώρησης Εργασίας έφτασε τα 260 mg/m3. Αυτές οι τιμές είναι σχεδόν εξαπλάσιες των ορίων ποιότητας αέρα που καθορίζει ο Παγκόσμιος Οργανισμός Υγείας. Τα σωματίδια αυτά αποτελούνται συνήθως από ενώσεις πυριτίου σιδήρου και μαγγανίου, και μέσω αυτών των σωματιδίων μερικές φορές μεταφέρονται μύκητες και βακτήρια. Επιπρόσθετα, τα επεισόδια σκόνης μπορούν να προκαλέσουν και αναπνευστικά προβλήματα. Με την εισπνοή, τα σωματίδια εισέρχονται στους πνεύμονες και αυτό μπορεί να προκαλέσει αναπνευστικές παθήσεις, καρδιαγγειακά προβλήματα και αλλεργικές αντιδράσεις στη μύτη και στα μάτια.

Figure 4.8.2: Cyprus Times

- 28 April 2023 - Atmosphere pollution in Cyprus: Interview with Theodoros Christoudias, Associate Professor at CARE-C of CyI

Πάνω από 700 θάνατοι τον χρόνο λόγω της ατμοσφαιρικής ρύπανσης στην Κύπρο

Κυριακή, 30/4/2023 - 09:48

Figure 4.8.3: Alpha News

- 28 February 2023 - USRL Researchers Employ Drone for Intensive Black Carbon Profiling Campaign at Athalassa Park

Figure 4.8.4: ANT1 TV

- 3 January 2023 - Climate Change Threatens Human Health In The Eastern Mediterranean And Middle East Region

Figure 4.8.5: Cyprus Mail

- 12 December 2022 - EAD Leads World-First Offshore Atmospheric Research Expedition Between Spain and UAE in Partnership with Max Planck Institute for Chemistry and CARE-C of The Cyprus Institute

Figure 4.8.6: Politis newspaper

- 23 October 2022 - CyBC's "Spiti sti Fysi" Dedicated Episode on CARE-C and its Activities

Figure 4.8.7: CyBC's "Spiti sti Fysi"

- 6 September 2022 - Overall Warming of up to 5°C in this Century Projected for the Eastern Mediterranean and Middle East


The Middle East is warming up twice as fast as the rest of the world

By Karina Tsui

September 7, 2022 at 2:53 p.m. EDT

Figure 4.8.8: Washington Post Interview Zittis

Press Coverage Documentation

A list of the CoE's press coverage is publicly accessible at any time on the CoE's website (https://emme-care.cyi.ac.cy/news/#pr- In the Press).

5. Contribution of EMME-CARE Advanced Partners to PDER, Communication, Outreach & Public Engagement Activities

The CoE continues to collaborate closely with its Advanced Partners on PDER, Communication, Outreach & Public Engagement Activities, through its established mechanisms and contact points, reported on in previous deliverables (D9.4-6). An indicative record of some of the activities that have been undertaken by Advanced Partners during the reporting period is outlined below.

University of Helsinki

News items for the EMME-CARE website and social media

University of Helsinki at "Climate and Atmosphere Research & Innovation in the Eastern Mediterranean & Middle East" workshop (1 November, 2022). University of Helsinki researchers under the EMME-CARE project contributed to the virtual workshop with 4 talks.

Under the "From Observations to Models" session Professor Markku Kulmala (male) delivered a talk: On the important of continuous comprehensive observations: From local clustering to regional air pollution.

Under "Atmospheric Dust" there was a talk by Dr. Juan Andrés Casquero-Vera: "Does mineral dust influence new particle formation events?"

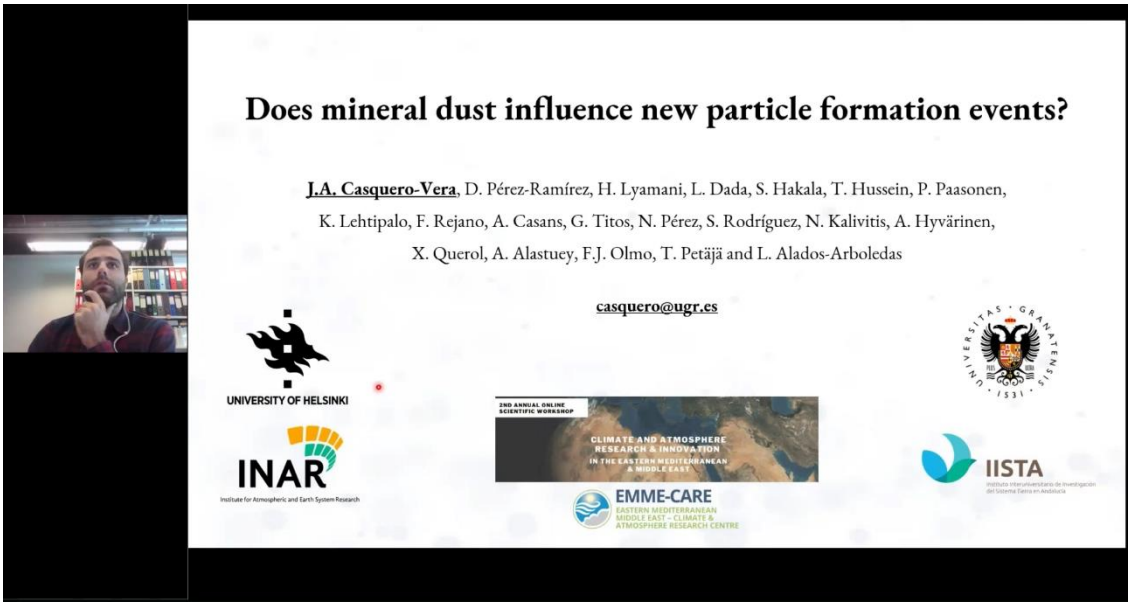


Figure 5.1.1: Dr. Juan Andrés Casquero-Vera presentation

Under the “Air Pollution & Climate Change Impacts” there were two talks:

- “Strong control of aerosol-cloud interactions by emissions from the boreal forests” (Professor Tuukka Petäjä, male)
- “Seasonal inhaled deposited dose of Particulate Matter in the respiratory system of urban individuals living in an Eastern Mediterranean city” (Professor Tareq Hussein, male)

University of Helsinki a co-organiser of the 1st EMME-CARE Autumn School: Analysis of aerosols, air pollution and their sources in the Eastern Mediterranean (31 October – 11 November 2022). The contribution of University of Helsinki was integral to the organization, whilst a team from the Advanced Partner taught on the course, including Advanced Partner PI Prof Markku Kulmala.


Figure 5.1.2 EMME-CARE Autumn School 2022 participants

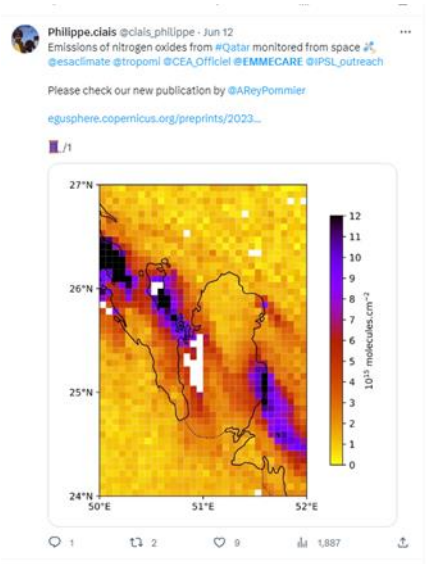
Advertising EMME-CARE activities and news on twitter and other platforms

University of Helsinki is working continuously towards the promotion and advertisement of EMME-CARE related events and news through the INAR (Institute for atmospheric and Earth system research) twitter account. INAR currently has 2,147 followers on Twitter.

A screenshot of INAR tweet advertising the 3rd Innovation in Atmospheric Measurement Techniques workshop

CEA

Promotion of EMME-CARE events through social media and other digital means. Indicative examples included below.



Twitter post – June 2023

News item on Website, July 2023

MPIC

Various contributions through Press releases and Social Media posts.

Joint Press releases with the CoE

December 15, 2022: The Environment Agency - Abu Dhabi Leads World-First Offshore Atmospheric Research Expedition between Spain and UAE in Partnership with Max Planck Institute for Chemistry and The Cyprus Institute.

Screenshot- Press Release- 15 December, 2022

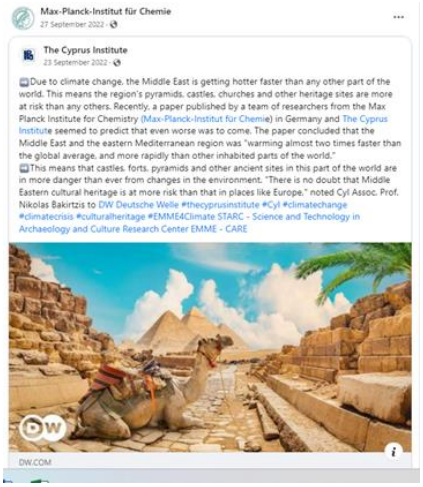
September 06, 2022: Overall warming of up to 5°C in this century projected for the Eastern Mediterranean and Middle East.

Original publication: Zittis, G., Almazroui, M., Alpert, P., Ciais, P., Cramer, W., Dahdal, Y., Fnais, M., Francis, D., Hadjinicolaou, P., Howari, F., Jrrar, A., Kaskaoutis, D.G., Kulmala, M., Lazoglou, G., Mihalopoulos, N., Lin, X., Rudich, Y., Sciare, J., Stenchikov, G., Xoplaki, E., Lelieveld, J., 2022. Climate Change and Weather Extremes in the Eastern Mediterranean and Middle East. Reviews of Geophysics 60. https://doi.org/10.1029/2021rg000762

Screenshot - press release- September 2022

Social media dissemination: Facebook, Twitter, Instagram: September 2022- August 2023

Facebook



Facebook screenshot – September 2022

Twitter

Twitter screenshot August 2023

Twitter screenshot- July 2023

Instagram

Instagram screenshot- September 2022

6. Key Performance Indicators

In order to measure the effectiveness and impact of the CoE's planned communication, dissemination and exploitation activities, Key Performance Indicators (KPIs) are set, monitored and reviewed.

To avoid confusion between reporting periods (EMME-CARE annual evaluations vs the reporting period of this deliverable), 2023 figures will be reported for the entirety of the year (Jan – Dec 2023) in D9.8.

Dimension	Key Performance Indicator	2020	2021	2022	Objective 2026
Effectiveness	Scientific publications (per year)	74	97	96	**150**
	% scientific publications in TOP-25% impact factor journals of the field (per year)	56% [41]	65% [64]	67% [64]	**>75%**
	% scientific publications in TOP-10 journals of the field (per year)	38% [28]	41% [40]	51% [49]	**>60%**
	% scientific publications in TOP-5% impact factor journals of the field (per year)	12% [9]	12% [12]	19% [18]	**[8]**
	Plenary/ Invited talks at international conferences	1	7	**4**	**15**
	International conference presentations and workshops	30	41	**98**	**100**
Outcome	Number of CoE public events (per year)	5	8	**8**	**15**
	Estimated number of CoE press coverage (per year)	111	300	**338**	**325**
Efficiency	Number of following in CoE digital platforms (at end of year)	1238	1586	**1792**	**2500**
	Estimated number of persons reached through events – including digital (per year)	2940	3040	**3868**	**4000**
Network	Number of joint publications with regional partners	16	22	37	**>40**
	Number of joint publications with Advanced partners	40	61	56	**>50**
	Impact factor of joint publications with Advanced Partners	6.53	6.98	14.5	**>4**