



Events dissemination and communication

Water-ForCE

Project Identification

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1 Introduction

1.1 Project and work package introduction

The Water-ForCE (Water scenarios for Copernicus Exploitation) project is a Horizon 2020 project whose aim is to develop a Roadmap to better integrate the entire water cycle within the Copernicus Services, by specifically addressing current disconnects between remote sensing/in-situ observation, modelling and user community. The Roadmap will provide clarity in terms of the needs and expectations of both public and private sectors from the core Copernicus Program, as well as business innovation opportunities, it will advise on a strategy to ensure effective uptake of water-related services by end-users and further support the implementation of relevant directives and policies.

The project is divided into eight work packages (WP), each focusing on a specific problem and/or target of the Copernicus Service, as can be seen in Figure 1. The project started on January 1st, 2021, with a three-year duration.

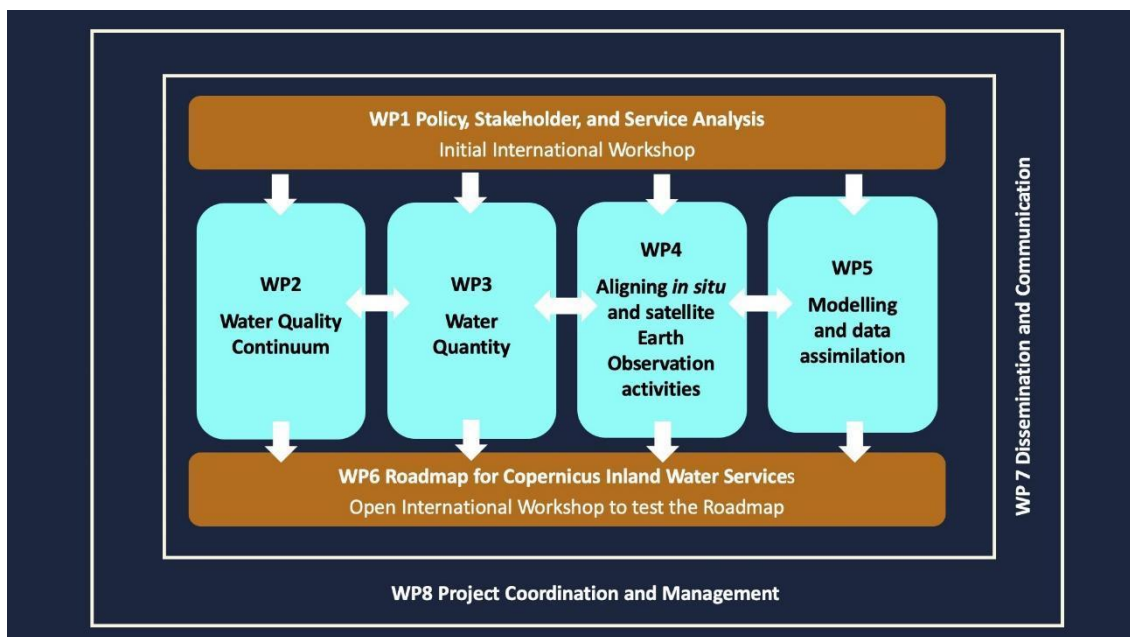


Figure 1-1: Organizational structure of the different WPs in the Water-ForCE project



Water-ForCE is a Coordination and Support Action (CSA) that has received funding from European Union's Horizon 2020-research and innovation programme under grant agreement number: 101004186.

As it can be seen in Figure 1, WP7 (entitled Dissemination and communication) is one of the three overarching WPs. WP7 started from the beginning of the project, since its role is to bring all relevant parties to an initial workshop and promote the importance of the Roadmap to policy makers, managers, industry and research community.

1.2 WP7 overall aim

WP7 Dissemination and communication coordinates the overall stakeholder engagement, outreach activities and dissemination of the results. WP7 aims to raise awareness, extend the impact, engage stakeholders and target groups, share solutions and know-how, influence policy and practice, and develop new partnerships. This will be done via the following four tasks:

- develop a dissemination and communication plan
- develop a webpage and an effective communication toolkit
- organize project workshops
- disseminate project results in relevant networks and influencing places and to the scientific community

1.3 Scope of this deliverable

This document presents the reach of the project results dissemination and communication to the scientific community during the first twenty-four months of the project. The elements that are analyzed are the attendance to workshops and webinars organised by Water-ForCE, the conferences where the objectives of the project were explained and the feedback from the community was sought, and the publications to the grey literature and reviews in peer-reviewed international journals.

This deliverable is organised as follows: Section 1 provides an overview of the Water-ForCE project, the scope of this deliverable and brief description of the deliverable's structure. Section 2 addresses the attendance and the



public engagement received by the workshops and webinars organised by the Water-ForCE team. Section 3 describes the international conferences where the Water-ForCE project was presented. Section 4 gathers the Water-ForCE-related publications to scientific journals.



2 Attendance to Water-ForCE webinars and workshops

Water-ForCE has organised 7 workshops and 8 webinars, which the dissemination team has advertised on the dedicated webpage: <https://waterforce.eu/#workshops>. Concerning the participation and the public engagement to those events, the number of registrations is available on hubspot, and metrics of the number of attendees and the participation to the polls are provided by on Zoom. Additionally, hubspot shows information of the Country and the Industry of the participants.

2.1 Workshop metrics

A total of 7 workshops have been organised between March-October 2021, and September-October 2022. The data concerning the number of attendees and the participants to the polls has been unable to collect. Hence, the following table (see Figure 2) shows the submissions from the registration forms.

Workshop number	Date	Workshop topic	Number of Registrations
1	March 2021 15th	Use of EO data for monitoring and modelling the water cycle	Not available
2	April 2021 20th	Stakeholder Input on the Evolution of Copernicus Water Services	40
3	May 2021 (17th, 18th, 19th)	In-situ cal/val of satellite products of water quality and hydrology	82





4	October 2021 (20th, 21th)	Clean Water and Sanitation	40
5	September 2022 (20th, 21th)	Shallow water and floating matter remote sensing	72
6	October 2022 11th	Citizen Science for the CAL/VAL of satellite aquatic products	63
7	October 2022 20th	Water Quality Continuum Atmospheric Correction Workshop	109

Table 1: Breakdown of the registration to the workshops

Additionally, to the registration form, the “In-situ cal/val of satellite products of water quality and hydrology” workshop included a form to create a new expert group. Such form had 11 registrations.

2.2 Webinar metrics

A total of 8 webinars ran on the last Wednesday of every month from January-April, June, and October-November 2022. The following table (see Figure 3) shows the registration metrics (provided by HubSpot) and the attendance and participation to the polls (provided by Zoom).

Since some of the webinars had more than one poll, and not all the participants voted to all of them, the visible number refers to the poll that received most answers in each webinar. In some cases, there were no polls during the webinar, or the data is not available.



Webinar number	Date	Webinar topic	Number of Registrations	Number of attendees	Number of participants to the poll(s)
1	26/01/22	Water and Agriculture	56	31 (55% of the registrations)	20 (65% of the attendees)
2	23/02/22	Clean Water and Sanitation	92	44 (48% of the registrations)	-
3	30/03/22	Copernicus for Africa	81	39 (48% of the registrations)	20 (51% of the attendees)
4	27/04/22	Public-Private Partnerships	81	39 (48% of the registrations)	-
5	1/06/22	EU Funding 4 Copernicus Water Service	95	21 (22% of the registrations)	4 (19% of the attendees)
6	29/06/22	Copernicus 4 Recreational Inland Waters	72	41 (57% of the registrations)	15 (36% of the attendees)
7	26/10/22	Technical Needs for Copernicus Inland Water Monitoring	70	37 (53% of the registrations)	-



8	30/11/22	Copernicus for Inland Water Biodiversity Monitoring	73	39 (53% of the registrations)	23 (59% of the attendees)
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Table 2: Breakdown of the registration and participation to the webinars

Registrant's information

The registrant's country and industry are measured by HubSpot from the registration forms (Industry categories are defined by HubSpot itself). Data is only available for Webinars 2-8 as 1st webinar invitations were sent through a general mailing list.

Fast facts

- Total number of unique registrants: **286**
- **55 countries** reached (28 of which have only a single registration)
- Top 10 countries with the most participants represent more than **60%** of all registrations (fig. 2-1)
- Excluding those that were left blank, top industries represented were Research, Higher Education, Government Administration, Defense & Space, and Education Management.

Registrant distribution by country

The 10 countries that represent the greatest part of registrations to the webinars are the following:



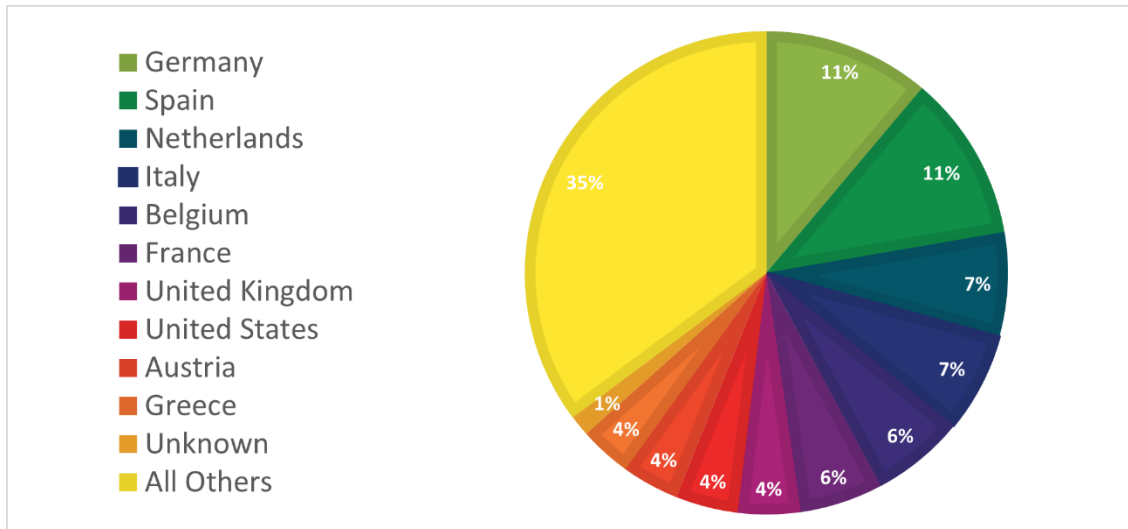


Figure 2-1: Top 10 countries by registration number

The registrants from the 55 countries involved are distributed in the following way:

Germany	32	Spain	32
Italy	19	Netherlands	20
Belgium	18	United Kingdom	12
France	16	United States	12
Austria	11	Romania	7
Greece	10	South Africa	7
Estonia	8	Switzerland	5
Ireland	6	Sweden	4
Australia	4	Unknown	4
Indonesia	4	Mexico	2
Kenya	4	Ukraine	2
Ghana	3	Libya	1
India	3	Lithuania	1
Algeria	2	Malaysia	1
Brazil	2	Mongolia	1
Burkina Faso	2	Morocco	1
Cameroon	2	Nepal	1





Canada	2	Nigeria	1
China	2	Panama	1
Argentina	1	Paraguay	1
Benin	1	Philippines	1
Bulgaria	1	Russia	1
Chile	1	Senegal	1
Colombia	1	Sierra Leone	1
Cyprus	1	Turkey	1
Denmark	1	Vietnam	1
Djibouti	1	Zambia	1
Japan	1	Zimbabwe	1

Table 3: Number of registrants to the webinars by country

Registrant distribution by Industry

When classified by the Industry categories defined by HubSpot, the results are the following:

Undefined/Left Blank	148
Research	35
Higher Education	31
Government Administration	13
Defense & Space	12
Education Management	12
Aviation & Aerospace	5
Computer Software	4
Environmental Services	4
Utilities	4
Information Technology and Services	3
Museums and Institutions	3
Public Policy	3
Publishing	3
Architecture & Planning	1





Civil Engineering	1
Events Services	1
International Affairs	1
Marketing and Advertising	1
Non-Profit Organization Management	1

Table 4: Number of registrants to the webinars classified by Industry



3 Attendance to Conferences

Throughout the course of the first two years, Water-ForCE has participated in a total of 29 conferences (13 in 2021, and 16 in 2022). The conferences are the following:

3.1 Hyperspectral Remote Sensing Workshop 2021: PRISMA Mission and beyond (ASI)

The Hyperspectral Remote Sensing Workshop (that took place between **March 13th and 14th 2021**) aimed to consolidate and promote the use of hyperspectral data in various scientific and application domains and to increase the visibility of operational and next-to-come satellite missions, starting from the ASI's PRISMA.

Event Website: <https://www.asi.it/2021/04/hyperspectral-remote-sensing-workshop-2021-prisma-mission-and-beyond-al-via-la-prima-giornata/?aiEnableCheckShortcode=true>

3.2 4th SENTINEL-2 validation team meeting

The S2VT meeting was a forum for the Copernicus Sentinel-2 scientific and user community to present and share results of on-going activities related to validation of Sentinel-2A and Sentinel-2B products and to foster cooperation and synergies among Cal/Val teams. The 4th S2VT meeting took place on **15-17 March 2021** as a virtual meeting.

Event Website: <https://sentinels.copernicus.eu/web/sentinel/-/4th-sentinel-2-validation-team-meeting/1.8?redirect=%2Fweb%2Fsentinel%2Fmissions%2Fsentinel-2>



3.3 Hydrospace GEOGloWS 2021

June 7th-11th 2021, hosted as a Virtual Event from ESA- ESRIN, Frascati, Italy, <https://hydrospace2021.org/>

3.4 WaterEurope ICT WG

Under the theme of 'EU Water-Smart Society for Global Leadership', the Water Innovation Europe meeting, celebrated during **June 2021**, included 5 plenary sessions, 17 Working Group meetings, 8 Workshops, 2 Side events, 8 digital booths and the Water Europe Annual General Meeting. During the conference, the Water-ForCE project exhibited its virtual booth and we were invited to an oral presentation into the Water&ICT Working Group meeting, on 28th June 2021.

Water For-CE Virtual Booth: <https://watereurope.eu/water-force-exhibitor-page/>

3.5 Symposium for European Freshwater Sciences (SEFS)

The twelfth Symposium for European Freshwater Sciences was run as a virtual conference that took place between **25-30 July 2021**. SEFS is Europe's largest forum for freshwater science, which brings together scientists from numerous aquatic disciplines. Symposia are held every two years, in a different European city on each occasion.

WP4 members gave a dedicated Workshop entitled "Water-ForCE: Aquatic Remote Sensing" with the following content: Basics of Aquatic Remote Sensing, description and downloading Copernicus products and visualization and basic processing using SNAP Toolboxes. This action aligns with the work for improving the interactions with non-EO communities on the inland water domain through the WP4 work.



SEFS website:

<https://www.freshwatersciences.eu/effs/index.asp?page=SEFS&Id=4>

3.6 X International Conference AIT

The 10th AIT (Italian Association of Remote Sensing) International Conference, with the name “Planet Care from Space”, was a virtual event that took place on **September 13-15, 2021**. The “Planet Care from Space” title is mainly addressed to Geo-Envi-Hazards and Climate Change investigations, recognizing and reinforcing the important role of Remote Sensing technologies for both global environmental protection and mitigation of the climate changes effects in our society. The conference provided opportunities for both creating a scientific-operational “networking” and giving presentations on a wide range of theoretical and applied topics.

Event website: <https://sites.unica.it/ait2020/>

3.7 GEO AquaWatch webinar

The GEO Aqua Watch webinar took place on **October 3rd, 2021**.

3.8 Global Lake Ecological Observatory Network

The Global Lake Ecological Network All Hands’ Meeting (GLEON) was an online event. that took place on **October 4-8, 2021**. Water-ForCE members (WP4) held a dedicated workshop that registered a participation of 50 people. The GLEON Network gathers and organizes the *in situ* lake monitoring community at a global scale. The connection with this Network was shown in the GA as a valuable resource to meet the expected impacts of the project improving the interactions with non-EO communities on the inland water domain through the WP4 work.

Event promotion post on Facebook:

<https://www.facebook.com/GLEONNetwork/photos/a.617915438266364/4348357038555500/>

Materials of the Workshop are public in the Water-ForCE Zenodo Community:



Water-ForCE is a Coordination and Support Action (CSA) that has received funding from European Union's Horizon 2020-research and innovation programme under grant agreement number: 101004186.

<https://zenodo.org/record/6517601#.Y6qtpHbMIXY>

3.9 11th Congress of the Balkan Geophysical Society

The online edition of the 11th Congress of the Balkan Geophysical Society - BGS2021 offered a wide range of topics and invites contributions in various research areas, with the clear intention of providing the geoscientific community with the opportunity to share scientific knowledge and expertise, as well as to discuss the newest trends in the field of applied or theoretical geophysics. It was a virtual event that took place on **October 10-14, 2021**.

Event Website: <https://www.epos-eu.org/communication/event/11th-congress-balkan-geophysical-society-virtual-edition-10-14-october-2021>

3.10 CEMS week 2021

The Copernicus Emergency Management Services (CEMS) week 2021 featured experts, users and policy makers in a discussion about the future of our service and user community during **October 25-29, 2021**. The week included panel discussions, interviews and presentations from each of our service components, including the launch of the Global Flood Monitoring product and the adoption of the Global Human Settlement Layer as new service component.

CEMS week website: <https://emergency.copernicus.eu/mapping/ems/cems-week-2021>

3.11 GEO Week

GEO (Group on Earth Observation) is a partnership of more than 100 national governments and in excess of 100 Participating Organizations that envisions a future where decisions and actions for the benefit of humankind are informed by coordinated, comprehensive and sustained Earth observations. Together, the GEO community is creating a Global Earth Observation System of Systems (GEOSS) to better integrate observing systems and share data by connecting existing infrastructures using common standards.



The Group on Earth Observations (GEO) is an intergovernmental partnership that improves the availability, access and use of Earth observations for a sustainable planet.

GEO promotes open, coordinated and sustained data sharing and infrastructure for better research, policymaking, decisions and action across many disciplines. The GEO community focuses on three global priority engagement areas: the United Nations 2030 Agenda for Sustainable Development, the Paris Agreement, and the Sendai Framework for Disaster Risk Reduction.

Water-ForCE participated in a side event inside of the GEO Week (**November 26th, 2021**) together with the H2020 Project WQeMS entitled "A water quality emergency monitoring service evolution and the generation of a roadmap for future Copernicus water services: WQeMS meets Water-ForCE." The general presentation of the project was used as a dissemination material, and the Coordinator and Project Manager of Water-ForCE were presenting the project and moderating a dedicated discussion.

Event website: <https://earthobservations.org/geoweek2021.php?t=wag>

3.12 Black Sea International Day 2021

On the occasion of the International Black Sea Day, NIMRD and GEOECOMAR organised the event 'Blue growth initiative for research and innovation in the Black Sea' on **October 28th, 2021**. The main discussion was dedicated to the importance of the Blue Growth in the region and the support science can bring to achieve the vision of a Healthy and Productive Black Sea.

Event website: <https://webgate.ec.europa.eu/maritimeforum/en/node/6648>

3.13 BELSPO Stereo III TIMBERS Steering Committee

The Water-ForCE project was presented by VITO to the TIMBERS project partners, TIMBERS steering committee members and the Belgian Science Policy



on 21 April 2021. TIMBERS is a STEREO III (Support To Exploitation and Research in Earth Observation) project funded by the Belgian Science Policy, and is dealing with acoustics and optics for 3D Turbidity assessment.

TIMBERS team website: <https://eo.belspo.be/en/news/timbers-where-optics-and-acoustics-meet>.

3.14 United Nations/Ghana/PSIPW - 5th International conference on the use of space technology for water resources management

The United Nations Office for Outer Space Affairs (UNOOSA), the Government of Ghana, and the Prince Sultan Bin Abdulaziz International Prize for Water (PSIPW) jointly organized a conference to promote the use of space technology in water management to the benefit of developing countries.

The Conference was held in Accra, Ghana, from 10- 13 May 2022, hosted by the University of Energy and Natural Resources on behalf of the Government of Ghana.

The Conference was the fifth international event focusing on applications of space technology for water in the series of conferences organised with financial assistance of the PSIPW and the Inter-Islamic Network on Space Sciences and Technology (ISNET).

The Water-ForCE project was represented by the Coordinator and the Project Manager who gave a talk inside of the section dedicated to presentations and panel discussion on user needs assessment. The talk was entitled “Water-ForCE: Defining the future of water related services inside of Copernicus, the Earth Observation component of the EU Space Programme” and it is available here:

<https://www.unoosa.org/documents/pdf/psa/activities/2022/UN-Ghana/PUser/Cillero.pdf>

Also, a lightning talk was recorded entitled Water-ForCE: Water Scenarios for Copernicus Exploitation, and can be accessed here:



Water-ForCE is a Coordination and Support Action (CSA) that has received funding from European Union's Horizon 2020-research and innovation programme under grant agreement number: 101004186.

<https://www.youtube.com/watch?v=C5Ub7tQUKC8>

3.15 Cross-sectoral ISIMIP and PROCLIAS Workshop

The cross-sectoral ISIMIP and PROCLIAS Workshop, that took place on **16-19 May 2022** aimed to develop common protocols, harmonized datasets and a joint understanding of how to conduct cross-sectoral, multi-model climate impact studies at regional and global scales allowing for attribution of impacts of recent climatic changes and robust projections of future climate impacts.

Event website: <https://proclias.eu/>

3.16 Living Planet Symposium 2022 (LPS2022)

The Living Planet Symposium 2022 focused on how Earth observation contributes to science and society, and how disruptive technologies and actors are changing the traditional Earth observation landscape, which is also creating new opportunities for public and private sector interactions. The event took place on **23-27 May 2022** in Bonn, Germany and was organised with the support of the German Aerospace Center (DLR).

Water-ForCE project and GEO Aquawatch co-convened the sessions A7.06 EO for monitoring water quality and ecological status in inland waters, which registered an attendance of 150 participants.

Event website: <https://lps22.eu/>

3.17 EARSeL SIG IS 2022

The 12th EARSEL Workshop on Imaging Spectroscopy (IS) took place from 22-24 June 2022 in Potsdam. On 22 June 2022 two special sessions on water (including atmospheric correction for water) were organized and chaired by Water-ForCE partner CNR with 8 oral presentations and about 30-40 participants.

Event website: <http://is.earsel.org/workshop/12-IS-Potsdam2022/>



3.18 European Geosciences Union General Assembly 2022

The EGU2022 event took place in Vienna, Austria and online 23-27 May 2022 with 12332 presentations in 791 sessions. 7315 attendees from 89 countries participated on site in Vienna, and 7002 virtual attendees from 116 countries. WaterForCE convened the session “HS6.8 Innovative technologies using remote sensing data for water management applications” (<https://meetingorganizer.copernicus.org/EGU22/session/43031>) with 16 oral presentations.

European Geosciences Union website: <https://www.egu.eu/>

3.19 EARSC SeBS user workshop on water quality management

The virtual EARSC SeBS user workshop on water quality management has the objective to understand how Sentinel data is being used in products and services to support the management of lakes and rivers across Europe. One SeBS case has looked at this sector in Germany and a second case is under development in Finland which shows significant benefits for environmental agencies to provide a better service for their citizens as well as improving reporting for regulatory needs.

As part of the workshop, IIs Reusen (VITO) presented on behalf of the Flanders Environment Agency the status on the use of satellite images for water quality in Flanders. A total amount of 16 participants attended this workshop, on **9th June 2022**.

Event website: <https://earsc.org/sebs/sector-workshop-3-water-quality-management/>



3.20 Nationales Forum für Fernerkundung und Copernicus

The German National Forum for Copernicus- 2022 held in Berlin from 21 -23 June 2022 had the guiding idea of Copernicus - digital -sustainable. It picked up on themes of the coalition agreement of the current German Federal Government and illustrated how relevant remote remote sensing and Copernicus are both for the digital society as well as for the future monitoring of monitoring of the climate and sustainability.

Water-ForCE was represented by Igor Ogashawara (IGB) and Carmen Cillero (3edata. Project Manager) who gave a talk remotely entitled 'Future ideas for - water related - developments of Copernicus Horizon 2020 Project Water-ForCE'.

The programme of the event can be accessed here:

https://www.d-copernicus.de/fileadmin/Content/pdf/Forum_2022/020622Programmheft_DLR_Copernicus_A4_finish3.pdf

3.21 Flood Knowledge Summit

The Flood Knowledge Summit 2022 (FKS 2022), on **7-8 July 2022**, in Maastricht (NL) connected different actors, including affected citizens, first responders, authorities, researchers, and civil society, from the region, the European Union, and the Global South to share experiences, engage into dialogue, and facilitate learning concerning floods hazards.

By looking back and looking forward, it compiled lessons learnt and best practices and developed actionable recommendations for research, policy, and practice towards climate resilient development. As part of the Water-ForCE project, Lisa Landuyt (VITO) gave an oral presentation entitled 'Terraflood: SAR-based flood monitoring for Belgium'.

Event website: <https://cri.merit.unu.edu/fks2022/>



3.22 36th Congress of the International Society of Limnology

The International Society of Limnology (SIL), established the science of inland waters, encompassing lakes and ponds, streams and rivers, surface and ground water, and wetlands. It was held on **7-10 August 2022** in Berlin, Germany.

Water-ForCE convened a special session entitled “The next 100 years of inland water sensing - combining remote sensing, in situ data and modelling” in which two talks were given by Water-ForCE representatives:

- Developing future Copernicus inland water services. (Tiit Kutser, Carmen Cillero, Linda van Duivenbode, IIs Reusen, Ann van Griensven, Alo Laas, Ioana Popescu, Evangelos Spyrakos, Andrew Tyler & Maria Jose Escorihuela)
- Emerging technologies to address current gaps in satellite remote sensing (Carmen Cillero Castro, Igor Ogashawara, Stefan Simis, Nicola Horsburgh, Peter Walker, Alo Laas - WP4 - Task 4.4)

Event website: <https://www.sil2022.org/>

3.23 73rd International Astronautical Congress

The 73rd edition of the International Astronautical Congress (IAC 2022), that took place in Paris **from the 18th to the 22nd of September of 2022**, brought together space communities, start-ups, entrepreneurs, laboratories and other agents involved in space activities.

Concerning the Water-ForCE project, Dr. Miraslava Kazlouskaya presented the paper ‘European and International Policy Drivers in Water Scenarios for Copernicus Exploitation’. This study was presented during the Session 5: ‘Earth Observation Applications, Societal Challenges and Economic Benefits’, that took place on the 21st of September

Website of Session 5: <https://iafastro.directory/iac/browse/IAC-22/B1/5/> .



IAC website: <https://iac2022.org/>

3.24 Ocean Optics XXV

The Ocean Optics Conference attracts a diverse audience of active practitioners in this field, including oceanographers, marine ecologists, limnologists, optical engineers, marine resource managers, and policy professionals from around the world. This edition took place in Quy Nhon, Binh Dinh, Vietnam, on **October 2-7, 2022**.

As part of the Water-ForCE project, Liesbeth De Keukelaere (VITO) presented a poster entitled 'Drones image processing for water quality in the cloud'.

Event website: <https://oceanopticsconference.org/>

3.25 44th Meeting of Water Framework Directive Common Implementation Strategy Working Group on Ecological Status (ECOSTAT)

The 44th Meeting of Water Framework Directive Common Implementation Strategy Working Group on Ecological Status (ECOSTAT) was held in Brussels, Belgium, on **October 12th, 2022**. In the meeting, which registered an attendance of 70 participants, the Water-ForCE members VITO and PML gave the presentation: 'Satellite-assisted water quality monitoring: where next?'

3.26 MSCA InventWater training course

The third InventWater training week 'Modelling water quality under global change' offered a great overview of the different kinds of models that can be used to answer complex and interdisciplinary research questions about water (both quantity and quality). As part of the Water-ForCE project, Ils Reusen (VITO) gave a presentation entitled 'Monitoring water quality with satellites and drones'.



This conference was held in Brussels on **October 13th, 2022**, with the attendance of up to 30 participants.

Event website: <https://inventwater.eu/brussels-training-week-modelling-water-quality-under-global-change/>

3.27 UNESCO IHP Open Science Day

The UNESCO IHP Open Science Day is dedicated to exchange knowledge on Open Science for water management, more specifically innovations using Internet of Things, cloud computing and remote sensing. It aims to find out what expertise exist in Flanders and how it can be used within UNESCO-IHP related projects, activities and programmes.

The event, held on **October 21st, 2022**, also aims to exchange knowledge related to the IHP-IX: Strategic Plan of the Intergovernmental Hydrological Programme: Science for a Water Secure World in a Changing Environment, more specifically outcome 1.10 'Conducting and sharing of research on integrating citizen science in the hydrological discipline by the scientific community and other stakeholders supported, to improve understanding of the water cycle enabling science-based decision making'. From the Water-ForCE project, Lisa Landuyt (VITO) gave an oral presentation entitled 'Remote sensing in support of hydrological research: the Terrascope platform'.

Event website: <https://www.unesco-ihp.be/activities/details/2>

3.28 2nd Workshop on International Cooperation in Spaceborne Imaging Spectroscopy

The 2nd Workshop on International Cooperation in Spaceborne Imaging Spectroscopy main objective of this Workshop is to strengthen international coordination, synergies among current and future missions and to establish priority areas for future projects (e.g., the ESA Sentinel User Preparation



initiative). It took place in Frascati, Italy, on **October 19-21, 2022**, and registered 150 participants.

As part of the Water-ForCE project, Claudia Giardino (CNR) gave a presentation entitled 'Exploitation of new hyperspectral sensors in the remote sensing of aquatic ecosystems'. Additionally, Sindy Sterckx (VITO) gave a presentation entitled 'Harmonisation of data across different missions with CalibrEO and iCOR atmospheric correction'.

Event website: <https://hyperspectral2022.esa.int/>

3.29 Ocean from Space V

The 5th 'Oceans from Space' Symposium took place in Venice, Italy, at the *Scuola Grande di San Marco*, on **24-28 October 2022**. The Symposium focused on the major scientific and technological achievements, innovations and challenges of Ocean Observations from space. The themes presented within the Symposium invited to look ahead, beyond traditional approaches, and define novel uses, activities and services to advance the exploration of oceans on Earth, as well as on other planets.

Event website: <https://www.oceansfromspacevenice2020.org/>

3.30 1st stakeholder meeting of Space4Water, of UNWater

At this first stakeholder meeting, held on **October 27-28, 2022**, the Space4Water stakeholder community has an opportunity to get to meet and know each other in person. The workshop's objectives include the identification of shared community objectives for the Space4Water community; of approaches to assessing user needs within the community and water related sectors towards the space sector; and the identification of approaches to facilitate matchmaking between users with needs and existing gaps and stakeholders who have solutions to (partial) problems.

The Water-ForCE team presented the session entitled 'The Water-ForCE project, A roadmap approach for Future Copernicus Explorations for Water'.



Event website: <https://www.unoosa.org/oosa/en/ourwork/psa/schedule/2022/1st-space4water-stakeholder-meeting.html>

3.31 GLEON 2022, Global Lake Ecological Observatory Network

The Global Lake Ecological Observatory Network (GLEON) is a professional society and a network of people, lakes, and data. GLEON conducts innovative science by collaborating and sharing high resolution sensor data to understand how lakes are responding to climate and anthropogenic changes. GLEON meetings include a lively and interactive poster session, network activities, ice breakers, Diversity, Equity and Inclusion discussions, and science discussions that often lead to student-led research projects with collaborators located all around the world. This year's meeting was held in Silver Bay, Lake George, New York State (USA) on **October 30th - November 4th 2022**.

The Water-ForCE representatives promoted Water-ForCE in the GLEON network as part of the duties assigned in the GA to WP4 (Aligning in situ and satellite Earth observation activities) and Copernicus Programme through the Remote Sensing Working Group convening and moderation and a plenary talk promoting the collaboration between COINS (Copernicus in situ project) and Water-ForCE. Engagement activities with the in situ networks as data providers for CAL/VAL activities.

Event website: <https://blog.gleon.org/gleon-2022-all-hands-meeting-preview-silver-bay-ny/#more-2215>

3.32 XIV Annual Assembly of LTER-Italy

The XIV Annual Assembly of LTER-Italy took place in Rome, Italy, **the 16th and 17th of November of 2022**.

LTER-Italy webpage: <http://www.lteritalia.it/en>



4 Networking activities

4.1 Horizon Europe Resilience-centric Smart, Green, Networked EU Inland Waterways (ReNEW)

The ReNEW project represents a multidisciplinary group composed of 24 participants from 11 countries of the European Union capable of playing a key role in supporting the transition of IWT to smart, green, sustainable and climate-resilient sector.

Water-ForCE team members' participation to the project was to feed recommendations to the approaches that will be applied to ReNEW project with respect to EO and in-situ water level and water quality monitoring. Water-ForCE project activities were presented and discussed with ReNEW consortium partners in the initial project meetings.

ReNEW website: <https://www.inlandwaterwaytransport.eu/renew-project/>

4.2 AquaLedger project

AquaLedger will harness earth observation (EO) and advanced analytical techniques in order to collect valuable information about the marine environment and activities in relation to fisheries and aquaculture management while enabling its integration with a Blockchain/Distributed Ledger Technology based platform towards improved and sustainable supply chain management in the fisheries and aquaculture sector.

AquaLedger website: <https://www.aqualedger.eu/>



5 Publications

The following publications have been made in peer-reviewed journals:

1. Cesana, I., et al. Preliminary Investigation on Phytoplankton Dynamics and Primary Production Models in an Oligotrophic Lake from Remote Sensing Measurements. *Sensors* 21.15 (2021): 5072, <https://www.mdpi.com/1424-8220/21/15/5072>
2. Amadori, M., et al. Multi-scale evaluation of a 3D lake model forced by an atmospheric model against standard monitoring data. *Environmental Modelling & Software* 139 (2021): 105017, <https://www.sciencedirect.com/science/article/pii/S1364815221000608>
3. Amadori, M., et al. Monitoring Lakes Surface Water Velocity with SAR: A Feasibility Study on Lake Garda, Italy. *Remote Sensing* 13.12 (2021): 2293, <https://www.mdpi.com/2072-4292/13/12/2293>
4. Pinardi, M., et al. Exploiting high frequency monitoring and satellite imagery for assessing chlorophyll-a dynamics in a shallow eutrophic lake. *Journal of Limnology* 80.3 (2021), <https://jlimnol.it/index.php/jlimnol/article/view/2033>
5. Free, G., et al. Shorter blooms expected with longer warm periods under climate change: an example from a shallow meso-eutrophic Mediterranean lake. *Hydrobiologia* (2022), <https://link.springer.com/article/10.1007/s10750-021-04773-w>

One publication has been made in popular press:

Constantinescu, A. H2020 WaterForCE - un nou proiect pentru îmbunătățirea instrumentelor folosite în studiul și managementul apei,

<https://www.edupedu.ro/h2020-waterforce-un-nou-proiect-pentru-imbunatatirea-instrumentelor-folosite-in-studiul-si-managementul->





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