



D2.4

Report on science community sessions promoting ENVRI-FAIR

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Deliverable abstract

This report shortly describes science community sessions promoting ENVRI-FAIR undertaken by the ENVRI-FAIR communications work package in each conference, the target audience aimed to reach, impact and take-home messages for future actions in similar events.



DELIVERY SLIP

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DOCUMENT AMENDMENT PROCEDURE

Amendments, comments and suggestions should be sent to the Project Manager at manager@envri-fair.eu.

GLOSSARY

A relevant project glossary is included in Appendix A. The latest version of the master list of the glossary is available at <http://doi.org/10.5281/zenodo.4471374>.

PROJECT SUMMARY

ENVRI-FAIR is the connection of the ESFRI Cluster of Environmental Research Infrastructures (ENVRI) to the European Open Science Cloud (EOSC). Participating research infrastructures (RI) of the environmental domain cover the subdomains Atmosphere, Marine, Solid Earth and Biodiversity / Ecosystems and thus the Earth system in its full complexity.

The overarching goal is that at the end of the proposed project, all participating RIs have built a set of FAIR data services which enhances the efficiency and productivity of researchers, supports innovation, enables data- and knowledge-based decisions and connects the ENVRI Cluster to the EOSC.

This goal is reached by: (1) well defined community policies and standards on all steps of the data life cycle, aligned with the wider European policies, as well as with international developments; (2) each participating RI will have sustainable, transparent and auditable data services, for each step of data life cycle, compliant to the FAIR principles. (3) the focus of the proposed work is put on the implementation of prototypes for testing pre-production services at each RI; the catalogue of prepared services is defined for each RI independently, depending on the maturity of the involved RIs; (4) the complete set of thematic data services and tools provided by the ENVRI cluster is exposed under the EOSC catalogue of services.

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D2.4 - Report on science community sessions promoting ENVRI-FAIR

1 Introduction and aim of task 2.4

The official description of Task 2.4 in the Description of the Action was: *"This task will organize 8 sessions in international scientific and environmental (science) policy related conferences to reach out to the scientific user community of ENVRI-FAIR services. The goal of these sessions is to establish a dialogue between the project and the scientific community, disseminating results from the project and its applications in the various scientific domains, but also to collect opinions, needs and suggestions on these provided services in ENVRI- FAIR. The main conferences considered are: EGU (European Geoscience Union General Assembly), AGU (American Geophysical Union meeting), the GEO plenaries, RDA plenaries (Research Data Alliance) as well as domain specific major scientific conferences."*

This report shortly describes the activities that were undertaken in each conference, the target audience we aimed to reach and impact and take-home messages for future actions in similar events.

ENVRI-FAIR targeted the mentioned conferences as follows:

Table 1: Conferences targeted in ENVRI-FAIR

Conference	Year(s)	Activities
European Geosciences Union (EGU)	2019, 2020, 2021, 2022, 2023	Scientific sessions, Townhall meetings, booth, online events
American Geophysical Union (AGU)	2021, 2022	Scientific sessions, Townhall meetings, networking
GEO Week	2019	Side event
Research Data Alliance (RDA)	2021, 2023	Co-located events
International Conference on Ecological Sciences	2022	Special session

2 Scientific community sessions organised by the project

2.1 EGU

The European Geosciences Union annual conference is for ENVRI the most important event to reach out to the scientific community. In regular (i.e., non-covid) years the conference draws an audience of around 15,000 people¹, mostly early career researchers. Although it's a global conference, the vast majority of participants are European, which is another reason why this audience is of special interest for ENVRI.

ENVRI exhibition booth

ENVRI tries to reach out directly to this audience mainly through a dedicated booth in the exhibition area of the conference presenting the network of Environmental RIs and the opportunities they offer for research.

The booth usually offers printed material from ENVRI as community and individual RIs, screens with demonstration videos as well as short talks during lunch time promoting an individual RI or an outcome of the ENVRI-FAIR project. The booth is organised by communications specialists and populated by staff from the participating RIs as well as ENVRI-FAIR project partners, to explain and discuss with the visiting scientists.

ENVRI had a booth in the conferences of 2019, 2022 and 2023. During the online only events of EGU (2020, 2021) online booths were offered, however the virtual conference platform did not attract a large number of online visitors to the exhibitor pages, therefore the opportunities to convey our messages were limited. The booth in 2022 was on location once more, but due to covid-restrictions still in place at the

¹ source: <https://www.egu.eu/meetings/general-assembly/meetings/>

time not in the same building as the rest of the conference programme, therefore the number of visitors was lower. Nevertheless, close to 300 visitors attended the booth over the duration of the conference and the overall feedback from the conference attendees was positive.

In 2023, the booth regained its regular place in the exhibition area and the visibility and interactivity was again as effective as before the Pandemic. Almost 400 visitors attended the booth and lunch talks were attended by at least 18 people each day.

Following the instructions by EGU to contribute to sustainability, no new material was produced, but with special laptops, visitors could experiment with the ENVRI-hub demonstrator, finding data and services for their research.

Scientific sessions

To gain visibility and to promote the outcomes of the ENVRI-FAIR project, ENVRI organised and participated in the setup of several scientific sessions, where among presentations related to ENVRI other similar developments were presented, from across the globe. The following sessions were hosted by ENVRI in EGU during the period 2019-2023

Table 2: Session hosted by ENVRI-FAIR at the EGU 2019-2023

Year	Session title	Link
2019	Communities, tools and policies for integrated Earth and Space Science (e)infrastructures	https://meetingorganizer.copernicus.org/EGU2019/session/30946
2019	Establishing a comprehensive Open and FAIR ecosystem for Solid Earth and Environmental researchers, repositories, publishers, policy makers and funders	https://meetingorganizer.copernicus.org/EGU2019/orals/30947
2020	The evolving Open and FAIR ecosystem for Solid Earth and Environmental sciences: challenges, opportunities, and other adventures	https://meetingorganizer.copernicus.org/EGU2020/session/37040
2020	Breaking down the silos: enabling Open and convergent research and e-infrastructures to answer global challenges	https://meetingorganizer.copernicus.org/EGU2020/session/36041
2021	Find, access, share and use data across the globe: Infrastructure solutions for Earth System Sciences	https://meetingorganizer.copernicus.org/EGU21/session/40314
2021	The evolving Open and FAIR ecosystem for Solid Earth and Environmental sciences: challenges, opportunities, and other adventures	https://meetingorganizer.copernicus.org/EGU21/session/40309
2022	Established and Establishing Disciplinary International Frameworks that will Ultimately Enable Real-Time Interdisciplinary Sharing of Data	https://meetingorganizer.copernicus.org/EGU22/session/42424
2022	Best Practices and Realities of Research Data Repositories: Balancing the needs of Repositories, Researchers and Publishers	https://meetingorganizer.copernicus.org/EGU22/session/42031

Year	Session title	Link
2023	Open Interoperability Frameworks Built by Scientists for Scientists to Meet Global Societal Challenges	https://meetingorganizer.copernicus.org/EGU23/session/45572

During the earlier years the focus of the ENVRI(-FAIR) talks was more on the objectives of the project and to gain visibility in general to the concept of collaborating RIs. In the later years (mainly 2022 and 2023) focus shifted to the products coming out of ENVRI-FAIR, most notably the ENVRI-hub but also virtual research environment tools to build virtual laboratories.

Townhall Meetings

As a means to collaborate with similar initiatives as ENVRI in other parts of the world, ENVRI organised together with these initiatives Townhall meetings in the fringe of the conference in 2019 and 2023.

The meetings were on the topic of worldwide collaboration of Research Infrastructures and related datasets/repositories/initiatives.

The session had an esteemed set of panellists giving short statements on a number of topics that were predefined and a lively discussion in the room created lots of enthusiasm.

Participating initiatives besides ENVRI were [AUSCOPE](#) (Australia's provider of research infrastructure to the national geoscience community), [ESIP](#) (Earth Science Information Partners, USA), [AGU](#) (American Geophysical Union), [EARTHcube](#) (NSF funded project related to ENVRI-FAIR), [EGI](#) (European e-infrastructure), ICOS and EPOS, two of the Research Infrastructures in ENVRI.

The session themselves focused on open science and open data and the role of global cooperation among infrastructures offering this data.

Both sessions were hugely successful and future follow-ups in the AGU conference and EGU2024 are considered. This will stimulate the continuous collaboration and contact between these infrastructure initiatives and project across the globe.

The same type of Townhall meeting was also scheduled in 2020, but obviously cancelled when the full event went online. Instead, ENVRI developed three interviews that were launched during the EGU conference week on YouTube and twitter, hoping for a spontaneous discussion in those social media channels. The videos were good, but sparking an online debate appeared too challenging so the actual impact was low. However, the videos are still online and can be found here:

- Data Marketplace: <https://youtu.be/B-X12YTGMPi>
- Open Access Business Model: <https://youtu.be/7Ru-hReQnEM>
- Technological Challenges of Open Science: <https://youtu.be/FzMtHNR2kpA>

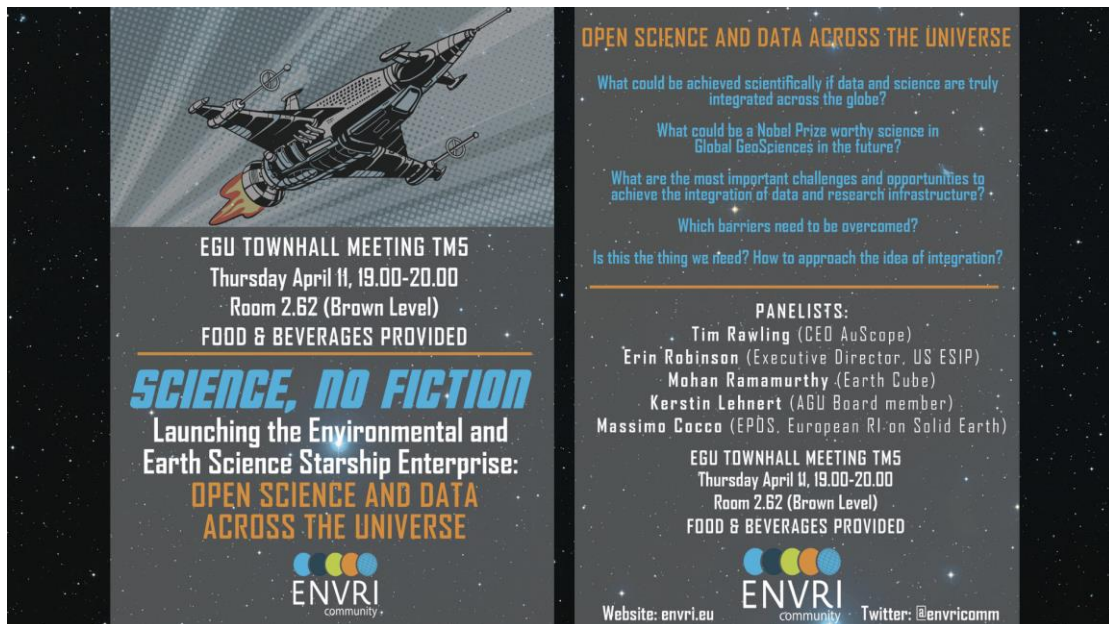


Figure 1: Leaflet for the Townhall meeting 2019, with agenda and speakers



Figure 2 Logo to promote the 2023 Townhall meeting

2.2 AGU

ENVRI anticipated to participate actively in the AGU conferences in 2021-2022. Due to the pandemic the participation in 2021 was limited to online presence and co-hosting of sessions and Townhall meetings. This appeared to be challenging due to the limited interest of European researchers and project participants to attend these online events from both a network and a time-difference point of view. However, in both online instances of the conference, ENVRI was present and actively contributed to session organisation.

Sessions that ENVRI contributed to:

Scientific session (oral, poster and e-lightning)

[Connecting Disciplines and Data in Earth and Environmental Synthesis Research: Enabling International and Interdisciplinary Data Discovery, Integration, and Reuse](#)

Townhall meeting

[Why Should I Share My Data? The Open-Science Starship Battling the Challenges of Sharing Open Data Across the Universe](#)

During AGU 2022, ENVRI participated in relevant sessions and worked on networks that could contribute to successful EGU meetings.

2.3 Group on Earth Observations (GEO) week 2019 Canberra, Australia

ENVRI-FAIR organised a side event during the GEO week 2019 in collaboration with several other stakeholders in the area of data for environmental science and policy.

Hosting organisations were:

- International Science Council - ISC
- CODATA – Committee on Data of the ISC
- ESIP - Earth Science Information Partners (US)
- ARDC - Australian Research Data Commons
- The National Committee for Data in Science (NCDiS) of the AAS - Australian Academy of science
- AuScope (Australia's provider of research infrastructure to the national geoscience community);
- NCI - National Computational Infrastructure (Australia);
- CSIRO (Research council Australia),
- The European Environmental Research Infrastructure Community (ENVRI)

Attendance of the morning session (open to all conference participants) was around 60 people. The afternoon session was limited to 25 people, due to room size. The full program can be found in appendix 1.

Main outcomes of the joint sessions:

- Duplication of effort especially at a global level
- Need for better ways to discuss, share common challenges and develop solutions
- Need for formal collaboration at a global level, not just informal - allow for and formally recognized
- Data from one discipline is able to be used in other disciplines.
- Data challenges - volume, dynamic nature of data, technological, provenance and ownership of data, ethics and sensitive data, intersection between data, people, society and policy, need for trust (in data, in infrastructure), lack of common ways of talking about things (lack of standards, common classifications etc)
- Adding humans into the equation - how do we get collectively value and action human centric concerns of the known grand challenges that residents of our planet face today and those of the future
- Adding machine actionability into the equation - data needs to be increasingly processable by "machines"
- A lot of volunteer time and work is currently needed to even keep some of these collaborations going - is valuable but is not valued. This is a critical risk for GEO.
- The need for co-design: working with people, designing with people, consulting with people rather than developing solutions and then giving it to them
- Difficult to get collaboration going with global south; no representation at this meeting
- Training and capacity building - data professionals, researchers and Policy analysts can all communicate with each other and do with in a co-creation mode; Citizen science not just data professionals

Although the sessions were successful and ENVRI was able to promote itself, the impact of ENVRI remained limited in the GEO community. Attendance of key decision makers in both 2018 (under ENVRIplus) and 2019 was very limited and the focus of GEO is heavily towards remote sensing data (as opposed to *in situ* data for ENVRI RIs).

ENVRI is represented though in the Data Working Group of GEO and the role of ENVRI for providing *in situ* data and data products was presented in the GEO Open Data and Open Knowledge workshop on 15/16 June 2023 in Geneva.

2.4 Research Data Alliance plenary

The ENVRI-hub as major outcome of the ENVRI-FAIR project is a very relevant product for the audience in the Research Data Alliance conferences that are held as ‘working conference’ every 6 months, in Europe and other parts of the world. In the fringe of these conferences, ENVRI-FAIR hosted a side event twice, once in 2021 (fully online) and the other one in 2023 (hybrid).

The RDA audience is considered as a primary target for the outcomes of ENVRI-FAIR. The focus was on the European RDA events to reach the main target audience: e-infrastructures across Europe, EOSC staff, or European RIs, (European) funders, international related networks, scientific users and RDA data professionals.

April 2021: The ENVRI-Hub for EOSC and Planet Earth

The event was hosted as an online presentation through Zoom.

ENVRI and the ENVRI-hub were presented through talks, each focusing on a Task Force related to the development of the hub. The main target audience in RDA is data related (and not especially environmental science related) so the presentations were focused on this type of audience. It was followed by 45 minutes of discussion and very well received. Apart from the funders, most target audiences were represented and a total of 52 persons attended this online session.

Program:

1. Brief introduction of the ENVRI Community, ENVRI-FAIR and our approach - Anca Hienola
2. The ENVRI-hub, design, and architecture - Andreas Petzold
3. The Pieces of the ENVRI-hub Puzzle:
 - a. The ENVRI catalogue of Services - Keith Jeffery
 - b. The ENVRI AAI implementation - Keith Jeffery
 - c. Use of persistent identifiers by ENVRI - Maggie Hellström
 - d. Triple stores and data storage certification - Markus Stocker
 - e. Licenses citation and usage tracking - Markus Fiebig
4. Q&A and discussion - moderated by Jacco Konijn and Anca Hienola

All presentations are online on YouTube and can be found as a full set [here](#).

The full announcement by RDA can be found [here](#)

March 2023: FAIR environmental data for EOSC and the World: Engineering the ENVRI-Hub

This event took place live in Göteborg preceding the 20th RDA plenary conference. This was a follow-up to the event of April 2021, reporting about the end result of the ENVRI-hub development.

Program:

- **Presentation of the components of the ENVRIhub by ENVRI experts:**
 - ENVRIhub concept and architecture (Anca Hienola)
 - Catalogue of services and AAI (Keith Jeffery)
 - Knowledge base and search engine (Zhiming Zhao)
 - Key data management aspects and choices (Maggie Hellström)
 - Science Demonstrators (Damien Boulanger)
- **Q&A and discussion on the technology, ICT aspects and data**
- **Break for coffee and tea**
- **Panel discussion with ENVRI experts, invited stakeholders and the audience:**
 - Improving FAIRness of data and service to attempt convergence at the ENVRI level
 - Future needs of the hub for ENVRI, Europe and the World
 - Integration into EOSC, consequences, opportunities, needs for collaboration and co-development
 - Relevance for science, consequences for data FAIRness
 - Interoperability of variable descriptions
 - Sustainability of the hub from the technical point of view

Panel members: ENVRI-FAIR presenters, Barbara Magagna (GO FAIR), Mark van de Sanden (SURF, EOSC Future), Ville Tenhunen (EGI)

The event was organised both in person in Göteborg and online. The (edited) recording will be added as explanatory tutorial in the ENVRI training portal and the very successful panel discussion is scheduled to be converted to an article or publication on the ENVRI community website. This is all work-in-progress at the time of writing.

2.5 International Conference on Ecological Sciences, Metz, France

ENVRI presented itself to the European Ecological research community during the [International Conference on Ecological Sciences](#) in Metz from 21-25 November 2022. Reaching out to this specific community was important as they are less well represented in EGU etc. due to the typical topic of their research, which is traditionally not a key topic in Earth Science.

During this conference, LifeWatch ERIC hosted the **Symposium: “Advanced facilities for the ecological research: the European Research Infrastructures”**.

The full program and explanation can be found [here](#). Cross- and interdisciplinarity among research infrastructures in the Environmental domain was the central topic in the symposium.

3 Recommendations for RIs

Where ENVRI and its project ENVRI-FAIR is mainly governed, organised and populated by Research Infrastructures, of course its aim is to reach end users of the data and services it produces. This is done both through the individual RIs and also -increasingly- through multidisciplinary applications developed in ENVRI. Task 2.4 specifically was looking for that connection with (scientific) end users.

The described events clearly show a wide audience that has been reached during the lifetime of the project. Experiences were mixed but mainly positive in a number of ways:

- Strictly spoken, (young) scientists don't care much about ENVRI or its community. they care about working services of (data)products and if ENVRI can offer it to them, they're happy (conclusions from a little questionnaire during an earlier EGU conference). This should be kept in mind;
- GEO weeks used to work, but it was decided to limit our efforts towards GEO after 2019. Of course, the pandemic complicated promotion in the GEO week severely, but the mentioned limited effect of our side events in both 2018 and 2019 made us decide to use our limited resources elsewhere. Involvement in relevant working groups remained, but more from a strategic policy point of view rather than communication/dissemination;
- EGU proved to be a very powerful tool to demonstrate what ENVRI as community and collection of technological developments (in projects) can contribute to science and researchers. The booth is very instrumental, where the ENVRI-hub was demonstrated, lunch talks held on specific data related topics and individual meetings either can point (early career) researchers to relevant data to use, but also deliver new contacts and can extend the ENVRI network, as besides our own community efforts, many national, European and Global initiatives are going on to organise data, facilities and services to scientific research. The sessions hosted in EGU give a platform to these initiatives to present themselves and meet others, both from a strict service providing point of view and in a more ‘philosophical’ way by discussing global Open Science and Open Data in our highly successful Townhall meetings.
- It is recommended to also attend specific conferences aimed at related communities. It’s either a way to reach an audience that doesn’t attend EGU/AGU, or a way to present a more in-depth program targeted towards this audience. RDA and the Ecological Conference are examples of this.
- RDA remains anyway an important platform to demonstrate the ENVRI products and services. RDA is an important force in guidance about how to handle research data and also relates to the European e-infra community, including the European Open Science Cloud.