



Report on the current user needs as related to the historically offered access ways

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1. Introduction

The ATMO-ACCESS project is the organized response of distributed atmospheric research facilities for developing a pilot for a new model of Integrating Activities. ATMO-ACCESS will deliver a series of recommendations for establishing a comprehensive and sustainable framework for access to distributed atmospheric Research Infrastructures (RI), ensuring integrated access to and optimised use of the services provided.

This document is the first milestone sustaining the project's first strategic pillar (SP1) focused on harmonizing access procedures for users and stakeholders. SP1 addresses the specific challenge of elaborating references and guidelines for access to be adopted by atmospheric RIs, based on an extended analysis of solutions used by different infrastructures also outside the environmental domain. All work in ATMO-ACCESS integrates experiences from past access programs, thus, streamlining the work and avoiding duplication of efforts. This document, delivered right at the beginning of the project activities, enables the assessment of the user expectations merging from the access types offered in the past through the INFRAIA projects (Table 1). Limited TNA opportunities are currently offered in the frame of the ACTRIS IMP project. However, at the time of this survey, the 1st TNA call was still ongoing and very few projects were completed.

This document analyses the results of the survey addressed to the users of former INFRAIA projects. This work considers previous activities, such as the ACTRIS User experience map¹ developed within the ACTRIS IMP project to define the components of an improved TNA user experience and map the different phases with their related pain points and opportunities. The goal of the survey launched within this Milestone is the assessment of both the expectations of the users as related to the access types that were offered in the past as well as the level of user awareness of the actual range of the offered access within the ATMO-ACCESS project. User feedback questionnaires were not distributed after access completion in most of the past projects. This was first introduced in the ENVRI-plus TNA pilot² to collect feedback on the access experience and investigate the user needs for interdisciplinary research.

This report represents the first step towards building a qualitative and quantitative monitoring system based on user feedbacks.

¹ ACTRIS IMP [Milestone6.1.pdf \(actris.eu\)](#)

² ENVRIplus Deliverable-11.4.pdf (envriplus.eu)

Table 1. Historical INFRAIA projects and communities involved in this work.

INFRAIA project name	INFRAIA project details	Atmospheric Research Facilities
ACTRIS-IA	EC FP7 "Support for Research Infrastructures - Integrated Infrastructure Initiative" Duration: 2011-2015	State-of-the-art European ground-based stations for long-term observations of aerosols, clouds and short-lived gases
ACTRIS-2	EC H2020 Research and innovation programme Grant No. 654109 Duration: 2015-2019	
EUROCHAMP-2	EC FP7 "Support for Research Infrastructures - Integrated Infrastructure Initiative" Duration: 2009-2013	Instrumented environmental chambers for atmospheric simulation
EUROCHAMP-2020	EC H2020 Research and innovation programme Grant No. 730997 Duration: 2016-2021	
InGOS	EU FP7 funded Integrating Activity (IA) project Grant No. 284274	Key observation and monitoring infrastructures for non-CO2 gases

2. Survey methodology and timeline

The aim of this survey is to collect the feedback from users benefitting from past experiences of virtual, remote and physical access and assess the user expectations for future experiences. The survey was addressed to the users of TransNational Access (TNA) and Virtual Access (VA) services offered by past INFRAIA projects (ACTRIS-IA, ACTRIS-2, EUROCHAMP-2, -2020, InGOS) as well as similar activities conducted outside the TNA/VA schemes.

The survey timeline for the analysis of the current user needs, as related to the historically offered access ways, is shown in Fig.1.

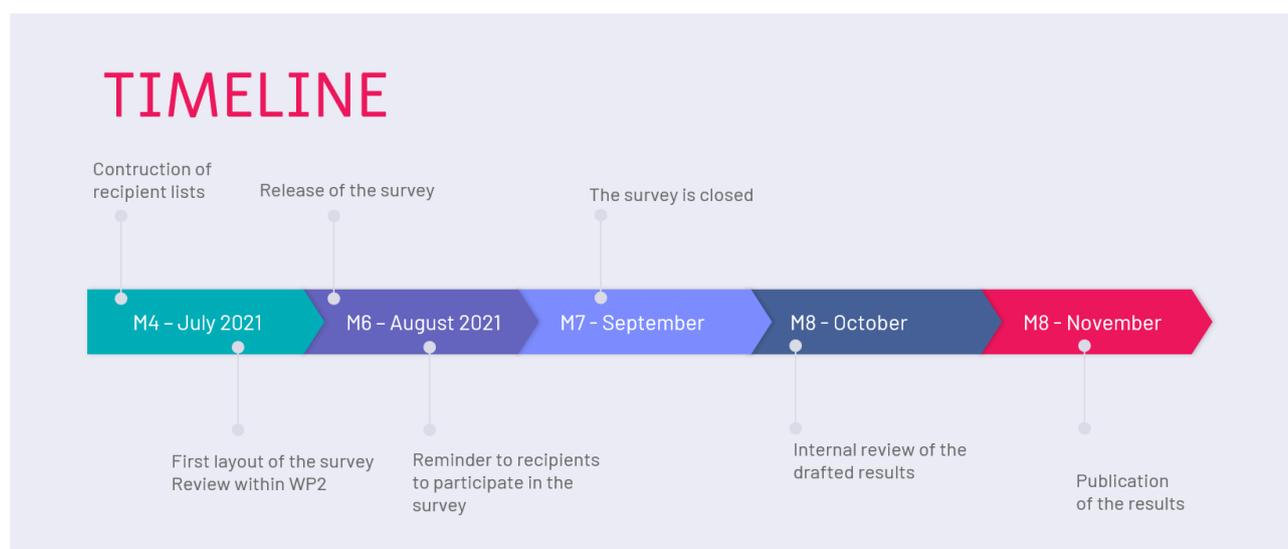


Figure 1. Timeline of the survey

The survey followed the General Data Protection Regulation (GDPR) and no individual data was shared, only aggregated results. All gathered information was compiled solely for purposes related to the ATMO-ACCESS

project and elaborated so that no personal data would be traceable from the product. The individual answers and informed consent forms are stored at Google servers and the Finnish Meteorological Institute until the end of the project. All information and responses to the questionnaire are kept confidential.

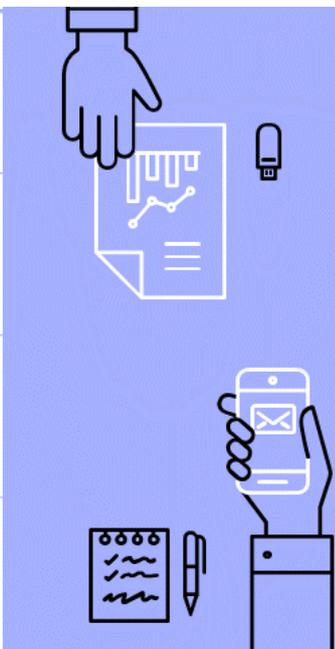
The survey was launched online using the Google form platform instead of an offline questionnaire to gather a maximum of input. The questionnaire was open from 6 August 2021 till 14 September 2021.

The request to participate to the survey was sent to 360 contacts. About 20 contacts were no longer valid (e.g., the contact has moved to another organization or changed workplace), thus excluded from the survey recipient list. Out of 340 recipients, a total of 38 responses had been received.

Despite the large potential audience that could have been considered for the evaluation survey, it was found difficult to include in the survey the contact of older projects due to GDPR limitations. In fact, the survey reached past users provided by ACTRIS-IA, ACTRIS-2, and EUROCHAMP-2, -2020 while past users from older projects couldn't not be included (Table 2).

Table 2. Summary of contacts available for each INFRAIS project considered in the survey

INFRAIA Project	No. contacts	Comment
ACTRIS-IA ACTRIS-2	192	-
EUROCHAMP-2,-2020	191	-
InGOS	-	It was not possible obtaining permission to exchange contact information



As personal information couldn't be legally passed from one project to another without consent, we could not include InGOS nor ENVRiplus in our survey. We address this gap with possible recommendations in Section 4.

The dissemination of the survey was done using targeted emails to the recipient list.

3. Survey analysis

The survey was structured along three blocks to define 1) the user profile, 2) the respondent's experience on access, and 3) current and future expectations. Detailed information on the survey results is presented for each part of the survey.

3.1. Survey's respondent profile

In order to have the best overview of the users' opinions we went through the individual answers and distinguished four user categories: university (60%), research organizations (30%), private sector (8%) and public sector (2%) (Fig. 2). It should be noted that in some cases several users from the same institution, organization or company replied to the survey.

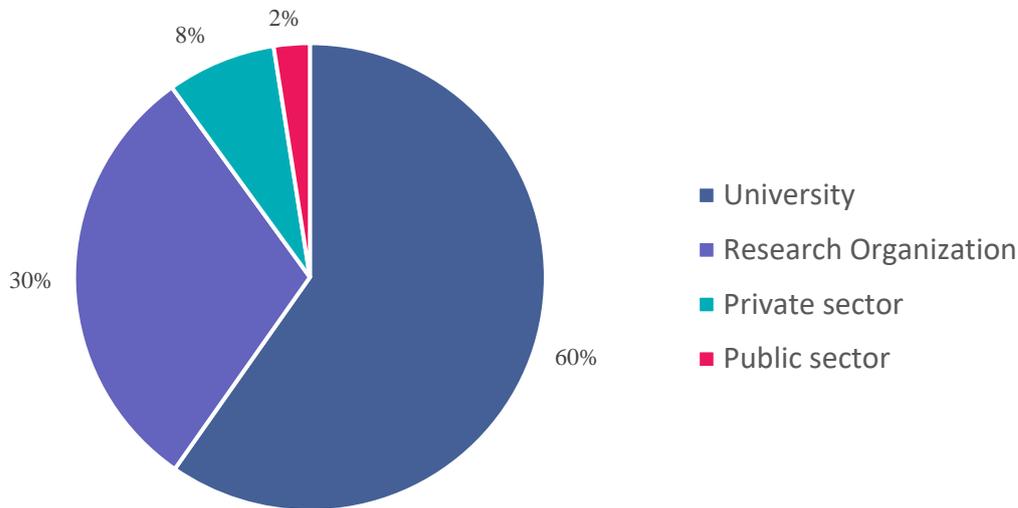


Figure 2. Organization types of the survey respondents.

It appears that the users of past access opportunities came mainly from academia, having a strong background in R&D and scientific and technical expertise (Figure 3). A small number of participants acknowledged expertise in computing or data curation which may indicated an underrepresentation of the modeling community.

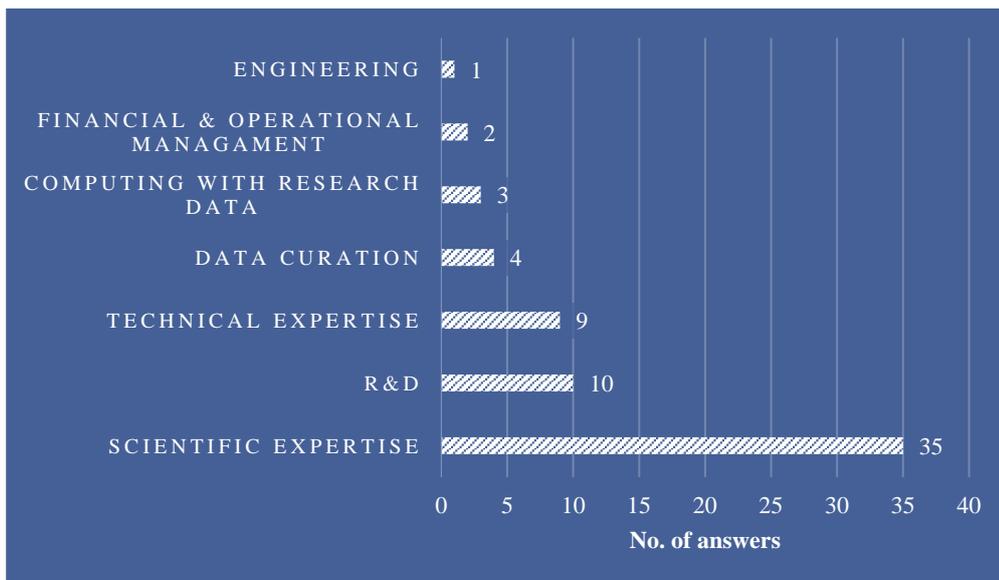


Figure 2. Respondents' field of expertise. The participants could answer with multiple choices.

The survey involved participants from 22 countries. The TNA programs had a global footprint: they attracted users from European countries as well as and international users (USA, Canada, Argentina, Colombia, South Africa, Indonesia) as presented in Figure 3.

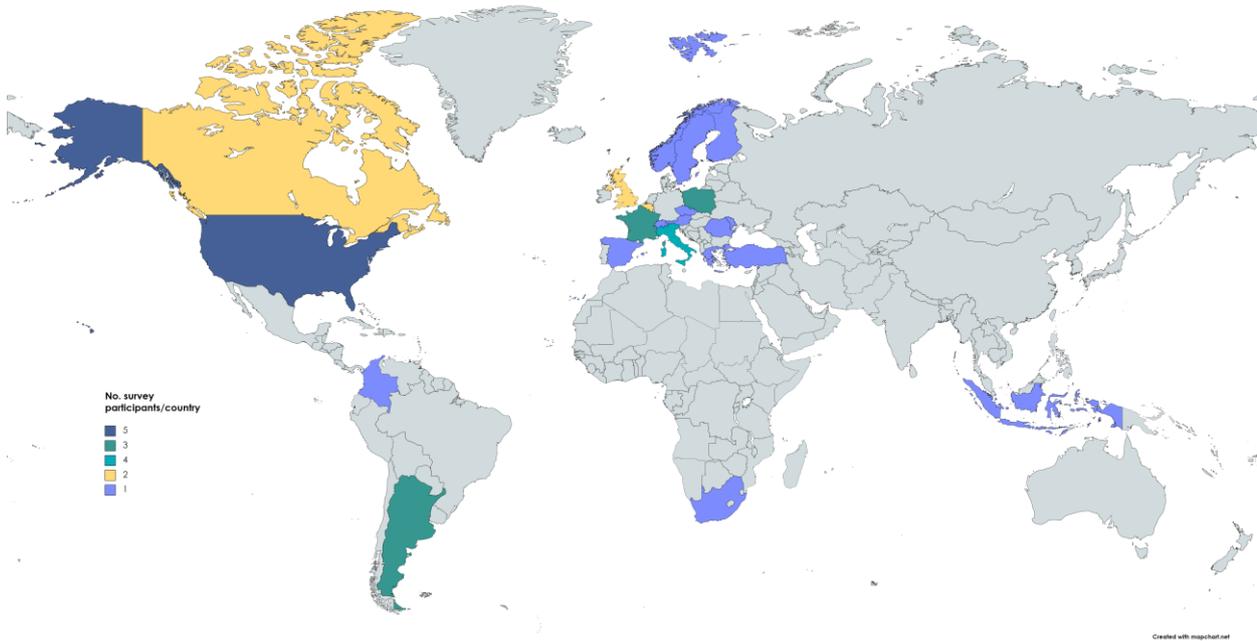


Figure 3. Geographical distribution of the 38 survey participants.

3.2. Past user experience on access

While EUROCHAMP-2020 project was still on-going at the time of the survey (August 2021), ACTRIS-2 had already ended since April 2019. As previously mentioned, one issue encountered during this work was related to getting user contact information from older projects. Thus, there are no participants of activities connected to INGOS as shown in Fig.4. Section 4 addresses possible solution to avoid similar issues in the future.

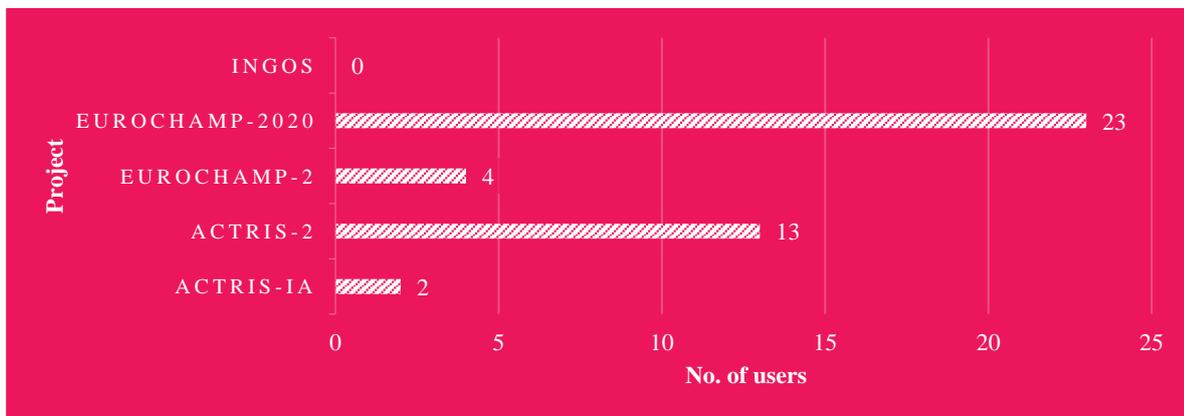


Figure 4. INFRAIA project used for access services. The participants could answer with multiple choices.

As shown in Fig. 5 and Fig.6 most of the users have selected physical access for services linked to access to facilities, instruments, testing and other experimental activities. One single user has experienced virtual

access: this might be biased by a poor sampling of the relevant communities (e.g., modelling community) rather than interpreted as smaller interested towards this access type.

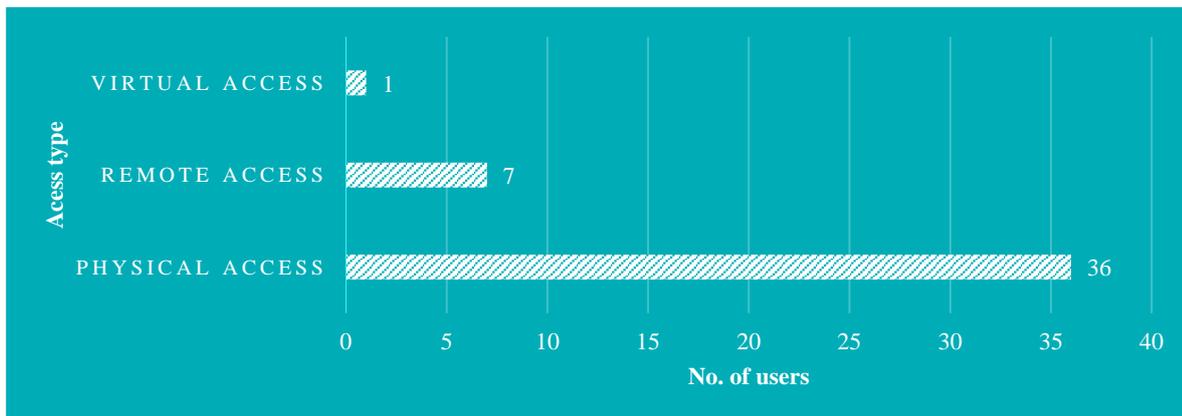


Figure 5. Type of access used in previous experiences. Participants could answer with multiple choices.

The results regarding the type of experience selected by users are presented in Fig.6. The inclination of past users towards the selection of services offering access to facilities, instruments and testing, experimental activities, and data-related services were also confirmed in the analysis of user needs³ conducted within the ACTRIS IMP project to be the most appealing for future TNA opportunities.

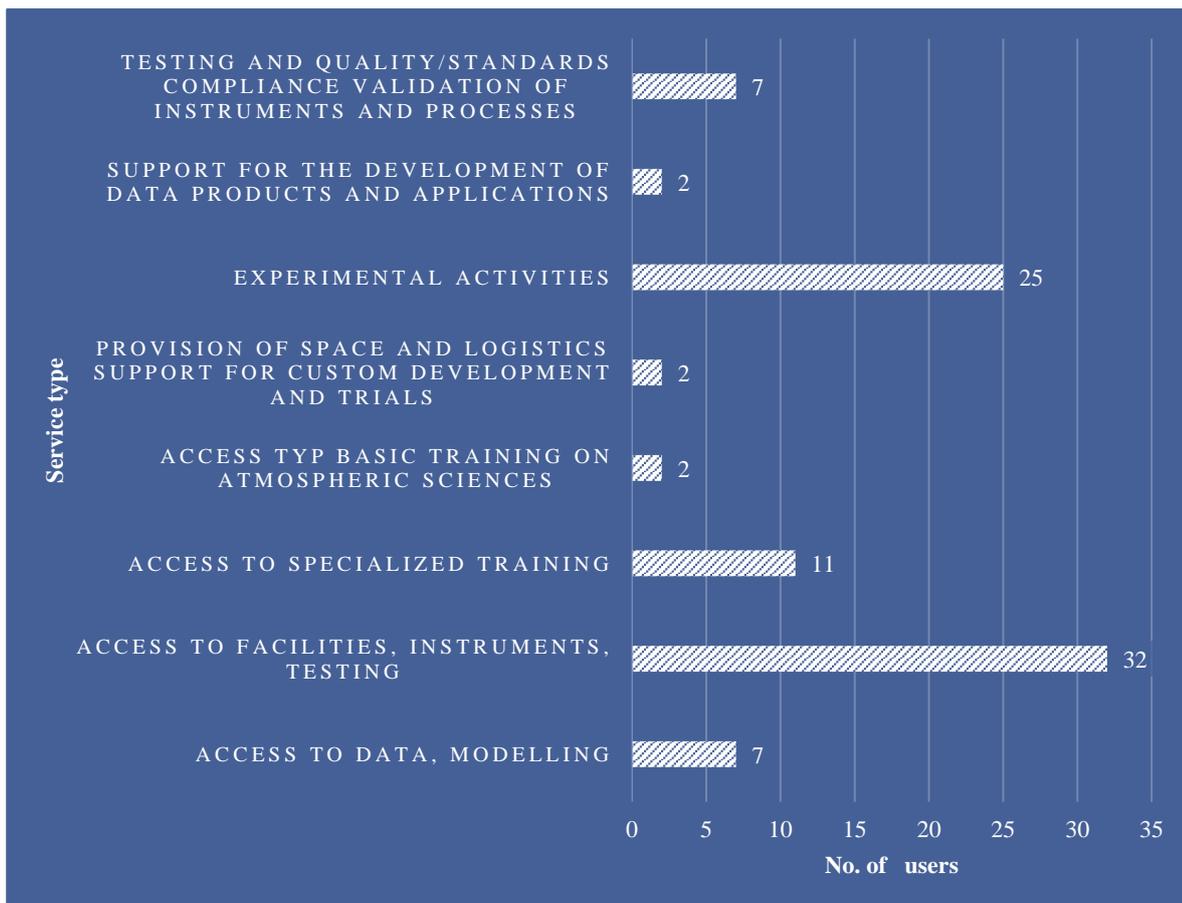


Figure 6. Types of services used in previous TNA and VA experiences. Participants could answer with multiple choices.

³ ACTRIS IMP MS35 [Milestone6.6.pdf \(actris.eu\)](#)

Participants were asked how they were given access to the facilities. It seems that almost 90% of the participants to the survey were informed about TNA opportunities by suggestions from a colleagues/acquaintance or were directly invited by service providers to answer the application calls. The word cloud presented in Fig.7 shows the most frequent replies of the 38 respondents. This result is consistent with the result collected in the ACTRIS User experience map¹ where it was also interesting noted the prevalence of “informal” channels and contacts in arranging access. This approach has taken foot long before the introduction of access programs, and has continued to be relevant in the context of existing collaborations between research groups. At the same time, it confirms the opportunity to continue to strengthen the official channels too, to attract new users and increase the ACTRIS user base.



Figure 7. Word cloud representing the starting point of the TNA experience of users.

The users were granted access via transnational or national access programs or direct arrangement with the local staff. 89% of the TNA services were provided free of charge. In 15% of cases the access was subjected to a fee. In the latter case, the costs were fully reimbursed by programs, e.g., external grants (77%), partly co-financed (23%) or covered as upon agreement according to the TNA proposal.

The survey requested to estimate the level of difficulty of the procedure for access on a scale from 1 (very difficult) to 5 (very simple). Over 80% (32/38) of the respondents described a level of at least 4 (easy) and over 97% of the responded confirms receiving proper assistance throughout application, selection, service fruition phases; more than 80% are overall very satisfied with the access experience. This is consistent with the user need analysis carried out in ACTRIS IMP MS35³ where the users had positive feedback on their experience and on ACTRIS with an average score of 8,7 out of 10.

When prompted to indicate the most problematic dimension of their access experiences the following aspects emerged:

- reimbursement procedures
- travel costs to be paid in advance
- burden of bureaucracy in comparison to the money involved in the process
- paperwork
- pandemic
- travel arrangements
- scheduling
- data analysis
- not enough details on the process for the final user report

3.3. Current and prospective interest in access services

Past users of TNA or VA recognize the value and importance of TNA programs and the most sought-after services are related to the physical access to facilities and instruments as well as testing and validation of quality/standards compliance of instruments and processes (Figures 8 and 9). As shown in Table 5, remote access and virtual access types of services appear to be of secondary importance for users. For this reason, users cannot fully acknowledge the merit of the remote access provision to decrease the ecological footprint of the scientific research comparing to travelling for physical access. Remote access appears to be not suitable for all the services required by users or, when possible, it might be difficult to implement, or its benefits might be questionable. Let's consider, as an example, the situation where a user needs a calibration service. In this case remote access can be considered:

- easy and beneficial if the instrument simply requires testing;
- difficult but still beneficial if the user is required to take part in experimental work.

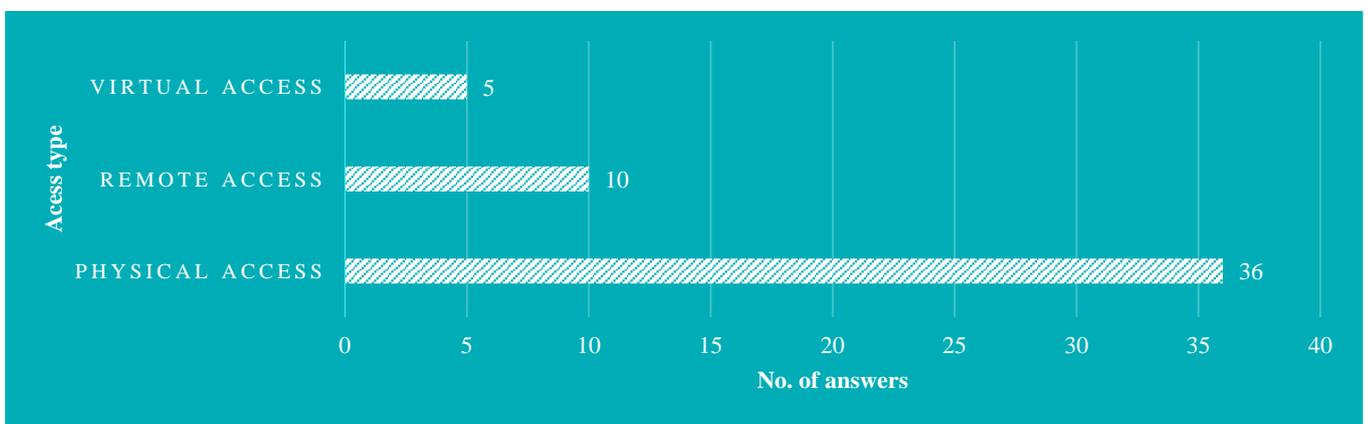


Figure 8. Access type preferences from the 38 respondents. Participants could select multiple choices.

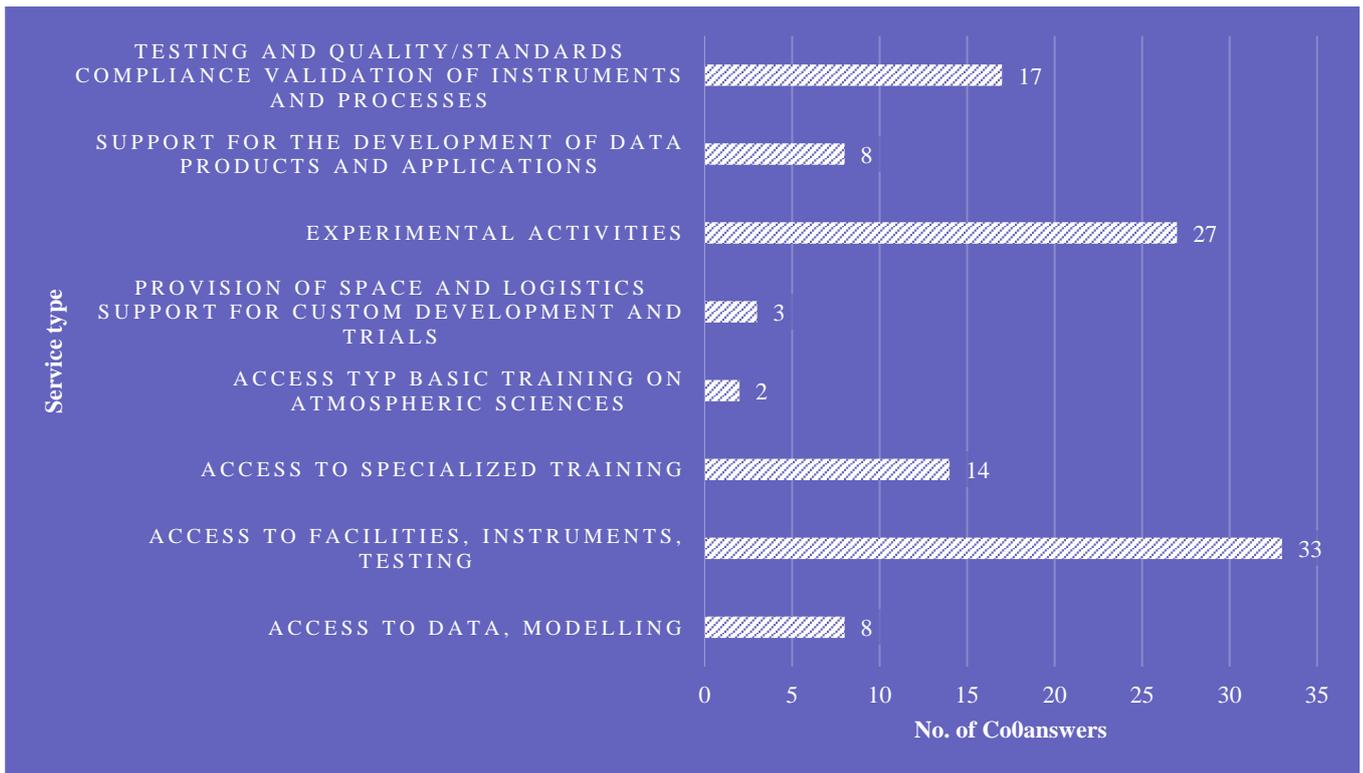


Figure 9. Preferences towards the offered service types. Participants could select multiple choices.

Figure 10 shows that users are nearly equally divided about the effectiveness of the promotion of TNA or VA opportunities among interested communities. Users indicated that they have actively searched for such opportunities making it hard to evaluate whether the advertisement could be considered more than satisfactory, especially outside Europe. According to the survey respondents, the best channels to promote access opportunities are targeted emails, dedicated open call section on websites and a direct contact with the service providers. The full ranking of the dissemination channels is provided in Fig. 11.

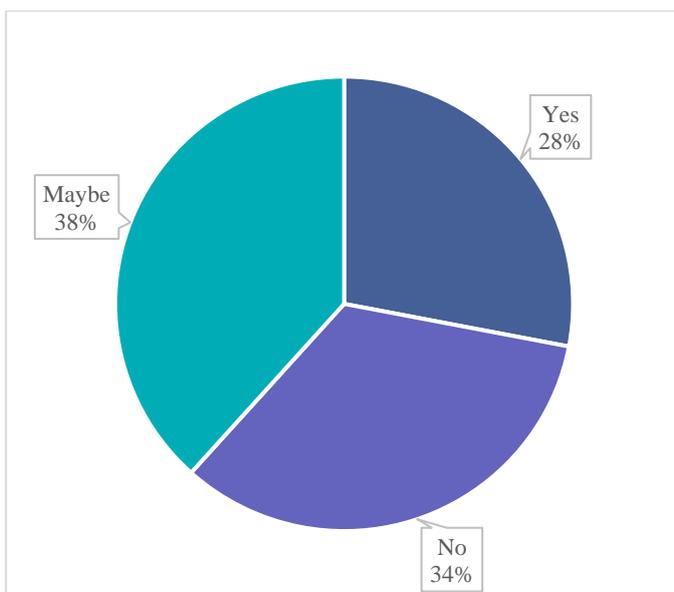


Figure 10. Answers to the survey question "Do you think access opportunities are well promoted and known among the interested communities?"

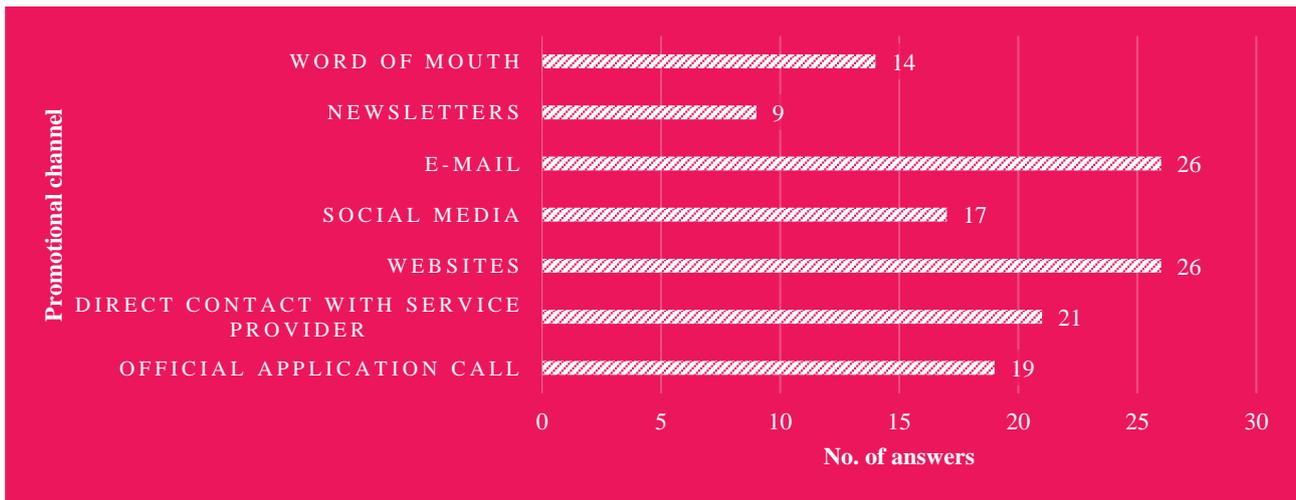


Figure 11. Users' prioritization of promotional channels. Participants could select multiple choices.

4. Recommendations

Based on the collected feedback, the following recommendations can be made for future improvements of access offers:

- ✓ For current and future users, a straightforward questionnaire sent after the access or available for download from the project website would be the most effective way of collecting feedback;
- ✓ The questionnaire should also include a request for consent to be contacted afterwards for experience-sharing purposes in compliance with the GDPR. To reach future or new users, there will be a strong need of building a comprehensive user database. Such a contact database will serve also to advertise the access opportunities outside Europe using the network of users as multipliers of information;
- ✓ Clear and concise guidelines (e.g., in the form of handbooks for access) complemented by the support from the access management staff;
- ✓ Minimize the application process by simplified and automated procedures. This was particularly highlighted for remote access related to calibration of instruments;
- ✓ Fair and clear policies on acknowledgment of user contribution by the TNA provider and/or resulting publications; for example, the work of young TNA users could be recognized in allocations of certain number of ECTS credits for provision of the final report, etc. This could strengthen collaboration with universities;
- ✓ Access should be provided as a mix of physical and remote provision: as long as facilities have funding for sufficient staff, resources and equipment, remote access can be offered. Though, flexibility should be given if, in parts of the activities, direct hands-on user engagement is required.

5. Conclusions

Detailed information on user requirements and expectations is essential for research infrastructures to be able to adjust their services to the potential user demands and ensure optimal service provision. Previous works related to the analysis of user experiences with access and service provision should be considered valuable material. Within this work we have taken into account the activities conducted within the projects of ACTRIS IMP and ENVRIplus. It seems that a common trait is that most answers to the survey highlighted as pain points the TNA rules, requirements and procedures. This underlines the need to better communicate,

using official channels, to the users the value of the opportunities they are offered, also in monetary terms, and that the paperwork burdensome is necessary to cover the costs of their access. On the other hand, TNAs schemes shall be framed in a simple and clear way to facilitate application and reporting.

The prioritization of access is highly dependable of the community sampling. It appears that the survey didn't catch enough participants from the modelling community, who would benefit the most from virtual access. Perhaps this indicates that stronger efforts should be made towards reaching out and involving the modelling community. This point confirms the need to continue to strengthen the official communication channels to attract new users, also outside Europe, and increase the ACTRIS user base.

Even though the results are not fully representative for the entire potential user community, we have collected valuable information and comments from past TNA users of historical INFRAIA projects in a limited amount of time. The survey was well received: it emerged that users see the transnational access as a necessary tool for scientific and technical developments, hence absolutely needed among research infrastructures. Furthermore, these programmes efficiently support scientific careers in developing countries and strengthen academic and scientific collaborations across Europe and outside its borders. In fact, one important point of discussion regarding the physical versus remote access is related to the value of networking among the manifold facets of the worldwide scientific community as a catalyst for fruitful collaborations. The relatively low participation compared to the overall poll, suggests that it would be useful to include in the application process the agreement on participation to feedback surveys.

6. References

1. ACTRIS IMP [Milestone 6.1.pdf \(actris.eu\)](#)
2. ENVRIplus [Deliverable 11.4.pdf \(envriplus.eu\)](#)
3. ACTRIS IMP [Milestone 6.6.pdf \(actris.eu\)](#)

7. Annex: survey

Feedback from users of past INFRAIA Projects

This survey is addressed to the users of Trans National Access (TNA) and Virtual Access (VA) services offered by past INFRAIA projects (ACTRIS-IA, ACTRIS-2, ACTRIS-IMP, InGOS, EUROCHAMP-1,-2,-2020) as well as similar activities conducted outside the TNA/VA schemes. The goal of the survey is the assessment of both the expectations of the users as related to the access types that were offered in the past as well as the level of user awareness of the actual range of the offered access within the ATMO-ACCESS project.

We kindly invite you to share your experience and your views on access to service by participating in this 10 min online survey!

For any questions or technical problems, please contact Giulia Saponaro (giulia.saponaro@fmi.fi).

Please fill in this survey by 10.09.2021.

Thank you very much for your valuable cooperation!

* Required

Informed Consent

Your participation in this survey will consist of a completion of a questionnaire. The questionnaire consists of both multiple choice and open questions about your experience in the exploitation of access services.

Feel free to co-operate with colleagues when answering the questionnaire, if you consider it necessary. Your participation in the survey is entirely voluntary. If you decide to not participate in this study, you may withdraw from your participation or you may pass on any question that makes you feel uncomfortable at any time.

The only personal details we may ask you to provide will be your name, e-mail address, the position in your organization/ company. Your answers will be treated in a strictly confidential manner according to ATMO-ACCES Privacy Policy (<https://www.atmo-access.eu/atmo-access-privacy-policy/>) and will be anonymized for aggregating statistical analysis.

Participants will not be compensated for contributing to this study.

1. I voluntarily agree to participate in this survey. By clicking "yes" below, I acknowledge that I have read and understand the above information. *

Check all that apply.

- Yes
 No

Survey respondent profile

2. Please, type your name and surname:

3. What is your email address?

4. What is your organization type?

Mark only one oval.

Private sector

Research organization

University

Public services

Other: _____

5. What is the name of the institute/organization you are affiliated with?

6. In which country is the institution you are affiliated with located (or where do you work/live)?

7. What is your expertise?

Check all that apply.

- scientific expertise
- R&D expertise
- technical expertise
- data curation
- computing with research data
- financial and operational management

Other: _____

8. Through which project did you receive access to facilities and services?

Check all that apply.

- InGOS
- ACTRIS IA
- ACTRIS-2
- EUROCHAMP-2
- EUROCHAMP-2020

Past user experience on access

9. Which type of access have you used?

Check all that apply.

- Physical access: Physical access is "hands-on" access when users physically visit an infrastructure/facility
- Remote access: Remote access is access to resources and services offered without Users physically visiting the infrastructure/facility
- Virtual access: Virtual access is free access to Users provided through communication networks

10. Which type of service have you accessed?

Check all that apply.

- Access to data, modelling
- Access to facilities, instruments, testing
- Access to specialised training
- Access to basic training on atmospheric sciences / MOOCs
- Provision of space and logistics support for custom development and trials
- Experimental activities
- Support for the development of data products and applications
- Testing and quality/standards compliance validation of instruments and processes
- Don't know, can't answer

Other: _____

11. Please describe how you were given access to facilities (sequence of main steps in the process, e.g. answer to a call, suggestion by acquaintances and/or colleagues, etc.)

12. How often have you accessed? - Please explain it in words and/or numbers (Frequency (X times) and/or duration(number of access days) or quantity (number of access unit e. g. calibration)).

17. What's the most problematic and hard part about your experience of access?
Please explain.

18. Did you receive proper assistance before, during and after your access experience (application, selection, service fruition, ...)?

Mark only one oval.

Yes

No

19. If you answered "No", please explain why:

20. How would you describe your overall access experience?

Mark only one oval.

1 2 3 4 5

extremely poor extremely satisfactory

21. What would you suggest as possible improvements?

Check all that apply.

- More guidelines and support from the access management staff
- Additional funding
- Better communication on access opportunities
- Provision of simplified and automatized procedures

Other: _____

Your current and prospective interest in access services

22. What are your current and prospective services of interest?

Check all that apply.

- Access to data, modelling
- Access to facilities, instruments, testing
- Access to specialised training
- Access to basic training on atmospheric sciences / MOOCs
- Provision of space and logistics support for custom development and trials
- Support for the development of data products and applications
- Testing and quality/standards compliance validation of instruments and processes
- Experimental activities
- Don't know, I can't answer

Other: _____

23. How did you discover the access opportunity?

Check all that apply.

- Via official application/access program/call
- Direct contact with the service provider
- Websites
- Social media
- E-mail
- Newsletter
- Word of mouth

Other: _____

24. Do you think access opportunities are well promoted and known among the interested communities?

Mark only one oval.

- Yes
 No
 Maybe
 Other: _____

25. How would you grade the level of awareness on access opportunities to services?

Mark only one oval.

	1	2	3	4	5	
Extremely poor	<input type="radio"/>	Extremely satisfactory				

26. What are the best channels to promote access opportunities?

Check all that apply.

- Via official application/access programm/call
 Direct contact with the service provides
 Websites
 Social media
 E-mail
 Newsletters
 Word of mouth

Other: _____

27. Which access type are you most interested in?

Check all that apply.

Physical access (Physical access is “hands-on” access when Users physically visit an infrastructure/facility)

Remote access (Remote access is access to resources and services offered without users physically visiting the infrastructure/facility)

Virtual access (Virtual access is free access to Users provided through communication networks)

28. Considering that remote access can reduce the ecological footprint of scientific research and allow even researchers with few funds and in remote regions to access the facilities' services, how would you rate moving services towards more remote provision?

Mark only one oval.

easy and beneficial

difficult but beneficial

impossible for the type of services I need

Other: _____

29. Feel free to leave your comments about the survey and services not included in the answers above

Wrapping up the survey

30. Feel free to leave any additional comments in the space below:

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