

HARMONIA CA21119

Virtual Mobility Grant

Extended final report

Harmonia grant overview 2022-2026

(15/07/2026 - 31/08/2026)

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1. Introduction

Harmonia COST Action's grants support the main objective of the HARMONIA Action, which is to build a sustainable, collaborative network aimed at improving and harmonizing aerosol retrieval methodologies. Comprehensive atmospheric observations build on the use of solar, sky, lunar, and stellar photometers. Harmonia grants help to harmonize the fragmentation in data acquisition and processing via fostering cooperation among researchers, institutions, and existing aerosol monitoring networks, focusing on students and early career researchers. It has been shown that past grants successfully started to contribute to the development of standardized protocols and calibration strategies with more accurate, consistent, and interoperable aerosol data across Europe and beyond. High participation of grantees from the Inclusiveness Target Countries at international conferences significantly increased the visibility of the Action via communication and outreach.

HARMONIA COST grant management was based on transparent and well-defined selection system of the grant applicants carried by the Core Group. HARMONIA grant coordinator Pavla Dagsson-Waldhauserova from the Agricultural University of Iceland and grant co-coordinator Maria João Costa from the University of Evora in Portugal work together evaluating carefully each application and preparing the material for the evaluation of the Core Group and Action's director.

This Virtual Mobility (VM) report is linked to the deliverables D5.3: Annual review of progress/achievements towards deliverables during MC meetings and D5.4: Report on the dissemination of HARMONIA results to major stakeholder conferences.

NOTE: There is a deviation in numbers reported in this final VM report and the presentation from early September 2026. Submission of this report had to be postponed because the additional final grants were submitted later and final reports available after this VM. This grant report provides the FINAL numbers for all the Actions grants.

2. Description of the work carried out during the VM

All Harmonia grants for the grant period 2022-2026 were analyzed for basic statistics and compared to the grant statistics from the previous Harmonia years to see the annual variability and development during the execution of the Harmonia COST Action. Outreach of the conference grants is also investigated including the main geographical areas of dissemination, and the audience and stakeholders involved. Contributions of conducted grants to Harmonia's deliverables and generally to working groups (WG) was quantified.

The main outcomes are:

- Report with statistics on the grant utilization according to Harmonia objectives and working groups for the grant period 2022-2026, including applicants gender and career stage statistics
- Strategic document with statistical information for the HARMONIA Working Group 5 deliverable D5.3: Annual review of progress/achievements towards deliverables during MC meetings, D5.4: Report on the dissemination of HARMONIA results to major stakeholder conferences and the final report
- Presentation entitled 'Overview of the COST Action Harmonia grants in 2022-2026' presented by this VM applicant at the final Management Committee meeting in Helsinki in Finland on 3-4 September 2026

This VM was executed in cooperation of Pavla Dagsson-Waldhauserova from the Agricultural University of Iceland and grant co-coordinator Maria João Costa from the University of Evora in Portugal. The major task carried out was to provide a final summary on overall grant management, utilization and outreach of the Harmonia COST Action during the 2022–2026 period.

3. HARMONIA COST grants in 2022-2026

There were five main grants available to apply for in Harmonia COST Action: Short-Term Scientific Mission (STSM), conference grant for individuals from the Inclusiveness Target Countries (ITC), Virtual Mobility grant (VM), Young Researcher and Innovator (YRI), and Dissemination Conference grant (DCG). Additionally, Virtual Networking Support grant (VNS), were allocated. Five grant calls have been opened since Harmonia's start in November 2022, showing gradual increase in grant applications as well as grantees over the five calls and significant increase in the last call 2025-2026 (Figure 1). Gradually, there was a grantee increase of 425% between the 1st and 2nd grant calls and over 150% increase in grantees between 2nd and 3rd call. After a small decline in applications of the 4th call, the number of grants doubled during the 5th call with 48 applications. Grant application frequency was approximately 2-3 applicants per month during the first three calls and up to 4 applicants per month during the final year. The success rate of grant applications was 97%.

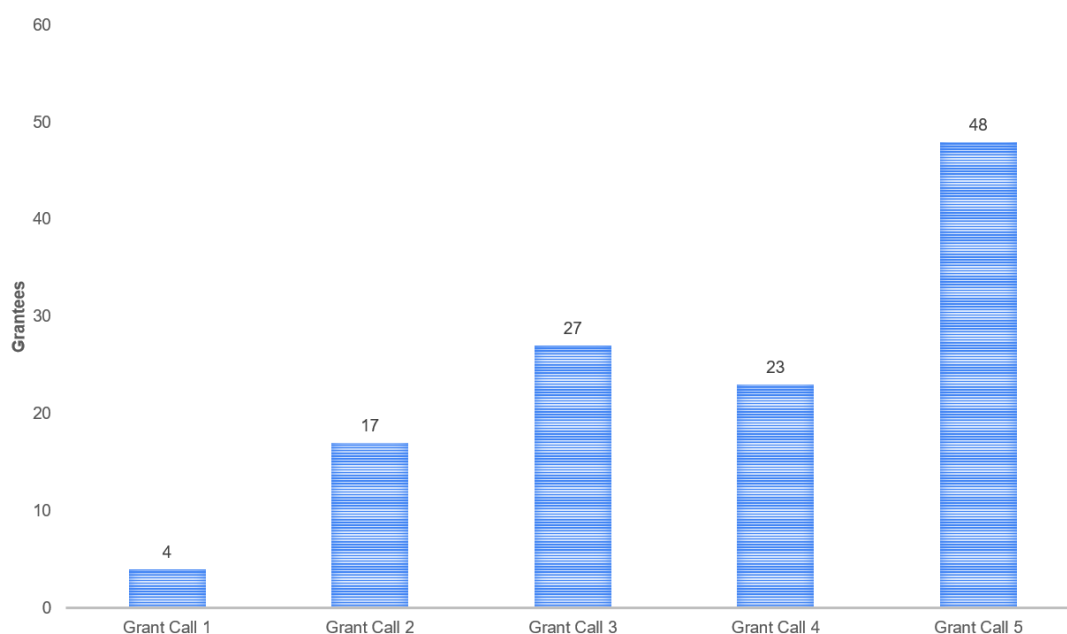


Figure 1. Number of grantees during five grant calls of Harmonia in 2022-2026.

Harmonia's 1st call resulted with four applicants and four grantees. The 2nd call was largely advertised through HARMONIA Action's media including the first video on HARMONIA, during meetings and at international conferences, via HARMONIA's Newsletter, resulting with 18 applicants and 17 grantees. That means that HARMONIA awarded 21 grantees during its 1st year, which can be considered as great success. In total, we granted 4 STSMs, 4 ITCs, 1 DCG, and 12 VMs. We would like to emphasize that almost 60 % of the grants were utilized by female researchers and majority was early career investigators. HARMONIA was introduced and presented by five grantees at three international conferences. The list of grantees including links to their work is available at the website <https://harmonia-cost.eu/grantees/>.

The 3rd call from November 2023 – November 2024 was gradually increasing in number of applications, resulting with 27 applicants and 27 grantees. In total, 5 STSMs, 6 ITCs, 1 DCG, 14 VMs, and 1 VNS, were granted. HARMONIA was introduced and presented by seven grantees at six international conferences in Europe and United States of America. The list of grantees including links to their work is available at the website <https://harmonia-cost.eu/grantees/>.

The 4th call from November 2024 – October 2025 continued with high number of applications, resulting with 25 applicants and 23 grantees. In total, 6 STSMs, 1 ITCs, 5 YRIs, 0 DCG, 10 VMs, and 1 VNS, were granted. There was slight increase in STSMs from the previous year and significant decrease in ITC grants. The decrease in ITC grants was substituted by the new YRI grants, showing high interest of young researchers to use the opportunity to present their works, linked to Harmonia's objectives and deliverables, at international conferences. One grant was rejected based on poor final report and one grant application was cancelled by the applicant. Almost a half of the grants were virtual mobilities (44%) and 26% short term scientific missions, while 26% were ITC and YRI conference grants combined, and 4% VNS grants. Similarly to previous calls, about 61% of the grants were utilized by female researchers and about 52 % were early career investigators. HARMONIA was introduced and presented by six grantees at three international conferences in Europe. The list of grantees including links to their work is available at the website <https://harmonia-cost.eu/grantees/>.

Adding the statistics from the 5th call with additional 48 applications, here we are providing the overall statistics of all the Harmonia COST Action grants in 2022-2026 (updated in October 2026). The Core Group has evaluated 119 grant applications, and 118 applicants were granted during the first three years of the Action. However, a total of 115 applicants concluded successfully the grant. The success rate to receive the funded grant was 97%. In total, we granted 19 STSMs, 16 ITCs, 19 YRIs, 2 DCGs, 61 VMs, and 2 VNS. It means that 51%, were virtual mobilities and 21% short term scientific missions, while 22% were ITC and YRI conference grants, and 3% DC and VNS grants (Figure 2). About half of the grants (51 %) were Virtual Mobilities and 31% were conference grants. Figure 3 depicts that over 59 % of the grants were utilized by female researchers while 69 % of all grantees were early career investigators or young researchers. Both contributions have been steadily increasing during the Action's life time showing the Harmonia's overall emphasis on engaging and encouraging early carrier- and female researchers into Harmonia's objectives and deliverables, and their implementation into existing research of these researchers , as well as their dissemination at the conferences.

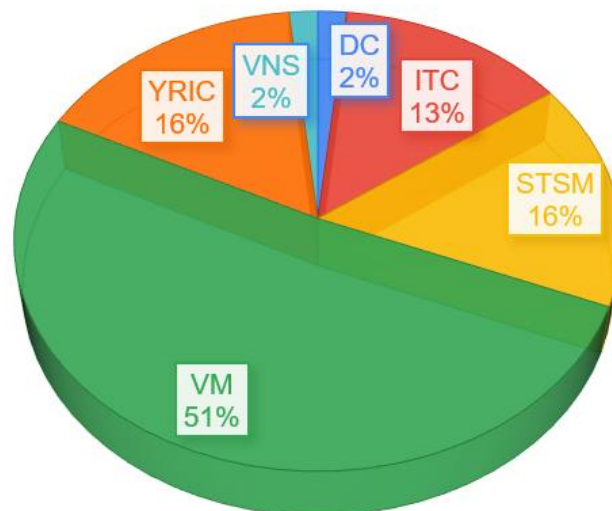


Figure 2. Type of grants allocated during the Harmonia COST Action.

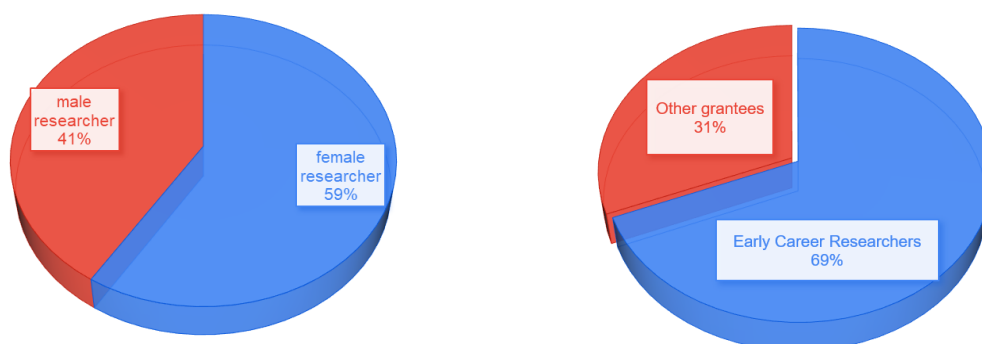


Figure 3. Left: Grants allocation according to the gender. Right: Proportion of Early Career Scientists or Young Researchers in grants.

In total, HARMONIA has been presented by 37 grantees at 15 international conferences in Europe, Japan and United States of America. Table 1 shows the conferences and countries where Harmonia's grantees contributed the most. Summarizing the average number of attendees of the conferences, the audience and stakeholders exceeded 118000.

Conferences of Harmonia's grantees in 2023-2026	
European Geosciences Union (EGU) GA 2023-2026/Austria	17
International Laser Radar Conference (ILRC) 2024-2026, Germany, Japan	6
European Meteorological Society Annual Meeting, Slovakia	3
ACTRIS Science Conference 2024-2026, France, Norway	3
European Aerosol Conference, Italy	2
DUST Conference, Italy	2
The 2024 Quadrennial Ozone Symposium, Boulder, CO, USA	1
AERONET Science and Application Exchange, USA	1
20th Electromagnetic and Light Scattering Conference, Spain	1
EarthCARE Science and Validation Workshop 2025	1

Table 1. Conferences with contributions on Harmonia COST Action or contributions by Harmonia ITC and YRI grantees.

The majority of allocated grants was conducted in relation to specific deliverables of the Harmonia COST Action. A total of 17 deliverables was targeted by the grants as described in table 2. The contribution to different deliverables has been changing during the Action ' ' s period according to which deliverables were due at what which part of the Action. It is important to emphasize that some of the grants contributed to more than one deliverable. Three deliverables are highlighted in the table 2 to show the highest contribution of grants during their execution. Figure 4 highlights the highest number of grants contributed to the deliverables D3.2, D3.3 and D2.1, with about 39% of the grants. The highest contribution went to the deliverable 3.2: Report on the requirements of different user communities on the accuracy, uncertainty and spatiotemporal resolution of aerosol measurements needed for their activities.

ID	Description
D1.1	List of existing and foreseen campaigns or experiments and report on the data collection and analysis of the data/measurements.
D1.2	Report on the differences and uncertainties related to standard products provided from already existing analysis algorithms.
D1.3	Report on the cross validation experiments of synergies with co-located solar, lunar and stellar photometers on white and review papers.
D2.1	Report on synergistic approaches towards better quality products.
D2.2	List of possible improvements on the quality of solar lunar and stellar photometry instrumentation.
D2.3	Collaborate and report on the links of metrology/MAPP project results and measurement accuracy and uncertainty improvements and ML and CC use for data harmonization.
D2.4	Report on uncertainties for optimized and homogenized products and suggestions for improving already existing products.
D3.1	Share the recordings and the presentations of two Workshops, with potential users from different interested communities, dealing with climate effects of aerosols, etc.
D3.2	Report on the requirements of different user communities on the accuracy, uncertainty and spatiotemporal resolution of aerosol measurements needed for their activities.
D3.3	Publish a white paper on sun-photometric aerosol accuracy and uncertainty for different applications.
D4.1	Share the recordings and the presentations of two Workshops that will be organized, with industrial users related with technological needs and innovation actions.
D4.2	Report on hardware and software evolution needs according to WG3 results.
D5.1	Share the recordings and the presentations of the training School on solar, lunar, stellar radiation-based techniques.
D5.2	Share the recordings and the presentations of the training School to aerosol measurement scientists and operators.
D5.3	Annual review of progress and achievements towards deliverables during Management Committee meetings.
D5.4	Report on the dissemination of HARMONIA results to major stakeholder conferences.
D5.5	Communication, Dissemination and Valorisation strategy.

Table 2: List of deliverables with Harmonia ' s grants contribution. Deliverables in *italics* were newly added in 2024-2025.

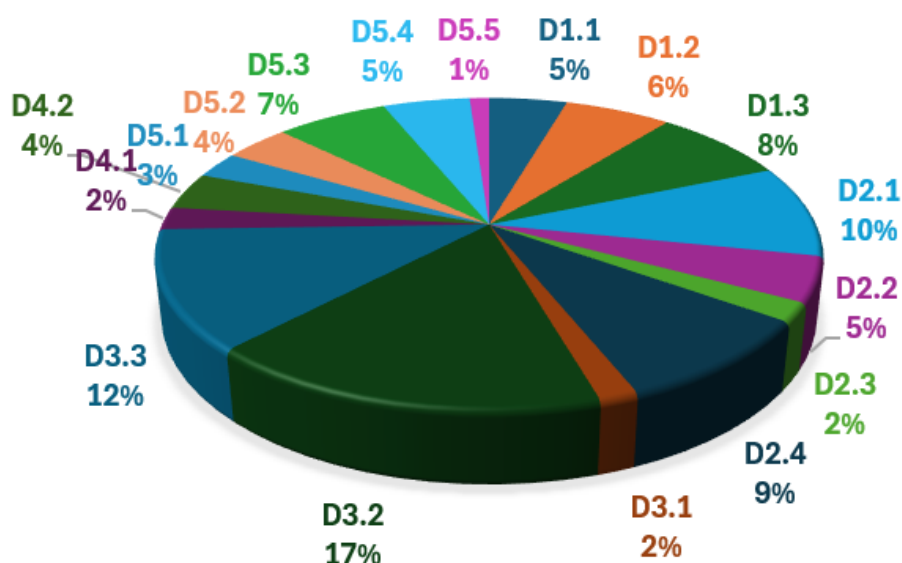


Figure 4. Contribution of grants to specific deliverables of Harmonia in 2022-2026.

To summarize the contribution of the grants to specific working groups, the deliverables were separated according to their working group scope. It is again important to emphasize that some of the grants contributed to more than one deliverable. As result as depicted in figure 5, the grants were contributing most to the topics and deliverables related to the WG3 and WG2 (WG3: End user engagement towards maximizing aerosol measurement use and WG2: Aerosol measurement improvement) with about 60 % of all grants. Following with 17 % each, and 34 % in total, WG1 and WG5 were targeted (WG1: Aerosol measurement homogenization and WG5: Project Dissemination). There has been a steady increase in grants contribution to WG4: Industry engagement towards innovative hardware, software products.

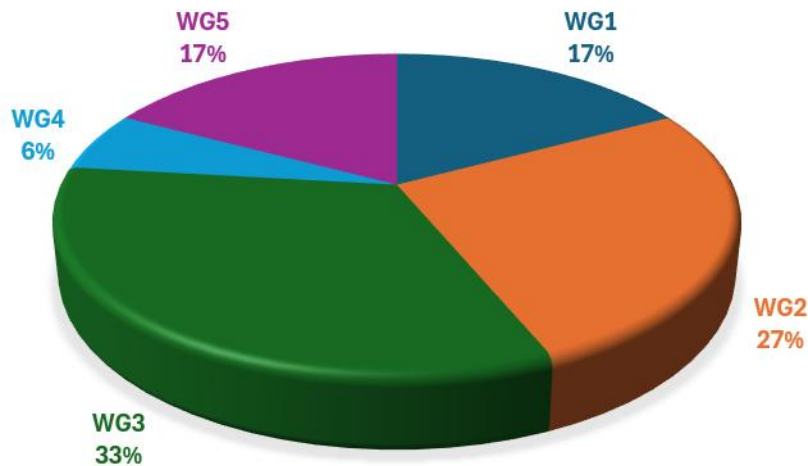


Figure 5. Contribution of grants to specific working groups of Harmonia.

The results of the Harmonia's grant projects have been successful in terms of involving majority of female researchers and ECRs, promoting EU COST Action Harmonia, related research and activities at many conferences with active networking, published papers, high contribution to the Action's deliverables, and other dissemination and outreach. Therefore, it can be concluded that the effectiveness of grant evaluations and management system for Harmonia has been successful. It is also important to emphasize the great impact of the grants on the grantees professional careers as well as general motivated and enthusiastic environment and networking between the Harmonia members.

4. Conclusion and future implementation

Proposed VM was successfully executed and planned goals with expected outcomes were achieved. Here we provided a detailed analysis of grant applicant and grantee characteristics, conducted grant linkages to Harmonia deliverables and working groups, evaluated grant outreach and dissemination, and summarized the

effectiveness of grant evaluations and management system for Harmonia grants in 2022-2026. The statistics were compared with Harmonia early periods.

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HARMONIA COST grant management including detailed analysis of the grants are linked to the deliverables D5.3: Annual review of progress/achievements towards deliverables during MC meetings, D5.4: Report on the dissemination of HARMONIA results to major stakeholder conferences and the final report.

Next is attached presentation entitled 'Overview of the COST Action Harmonia grants in 2022-2026' presented by this VM applicant at the final Management Committee meeting in Helsinki in Finland on 3-4 September 2026. Please note that all data had to be updated in October when all information was available on grants and reports.

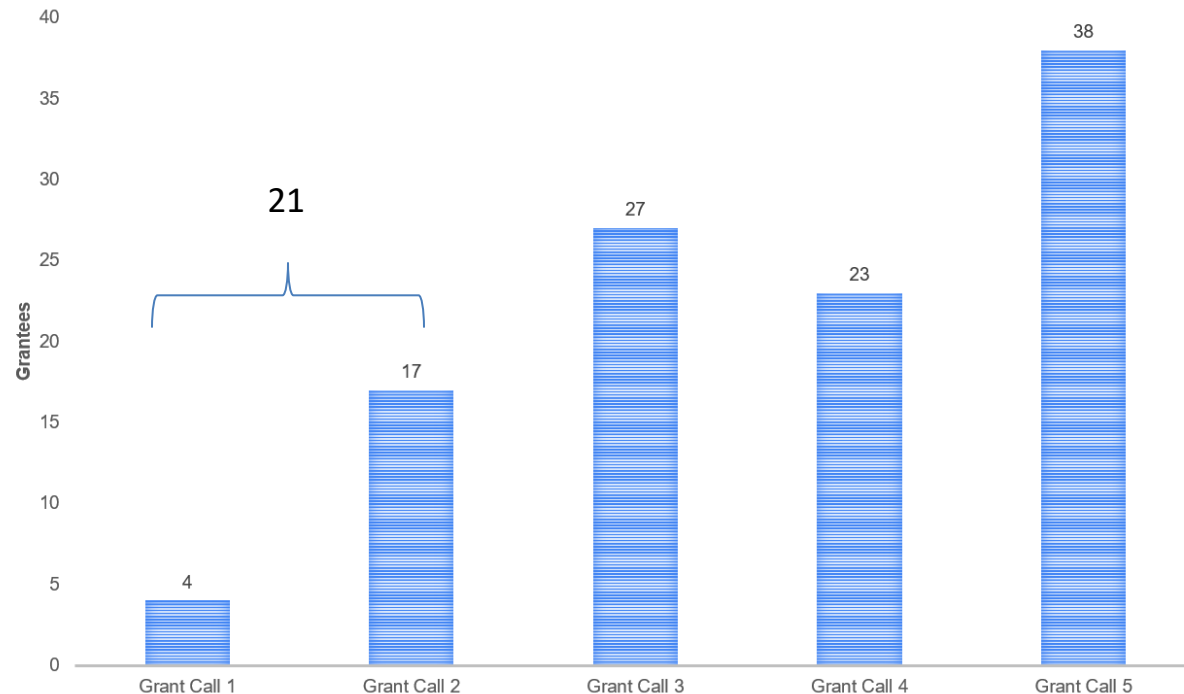
International network for harmonization of atmospheric aerosol retrievals from ground based photometers

An overview of HARMONIA grants to enhance networking and research collaboration (2022-2026)

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<https://harmonia-cost.eu/>

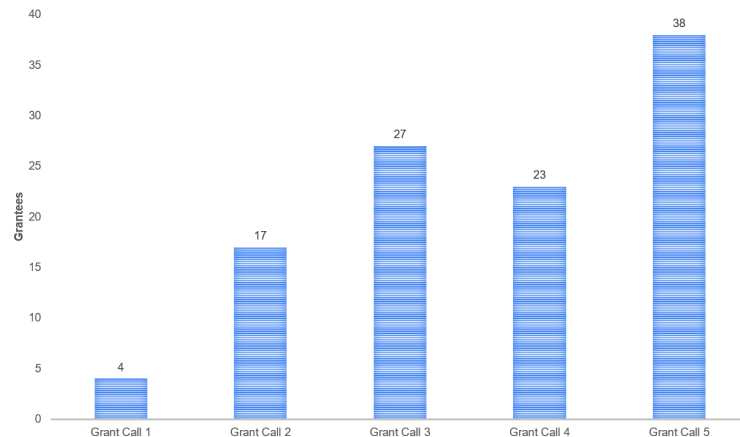
**A total of
109
grantees
funded**



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109
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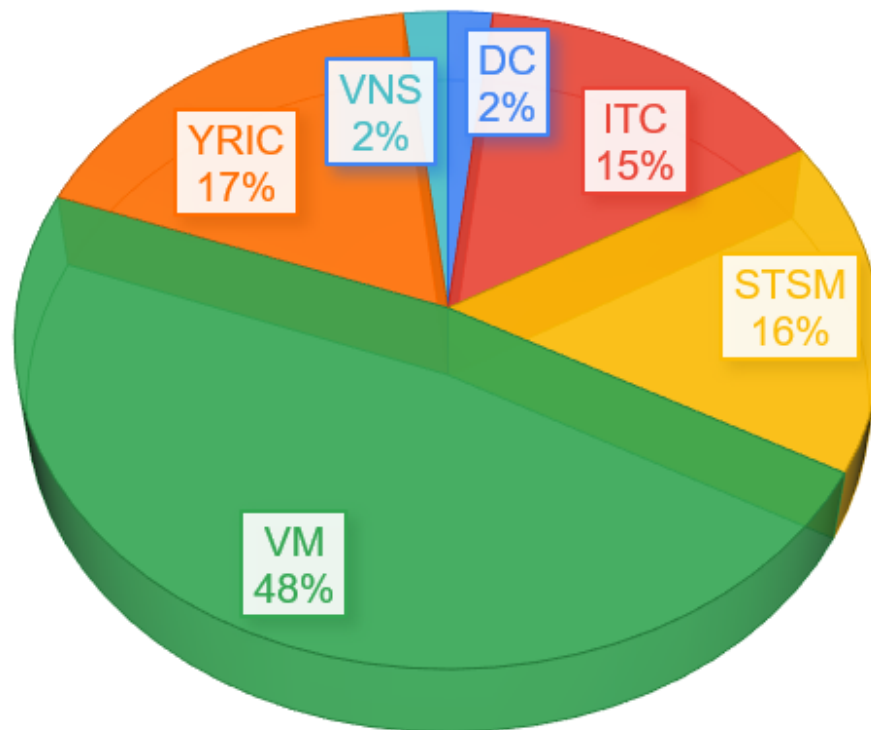
Over 48 months (2022-2026)

- 2 grantees per month
- 3 grantees per month in 2025-2026
- success rate to receive grant: 97 %



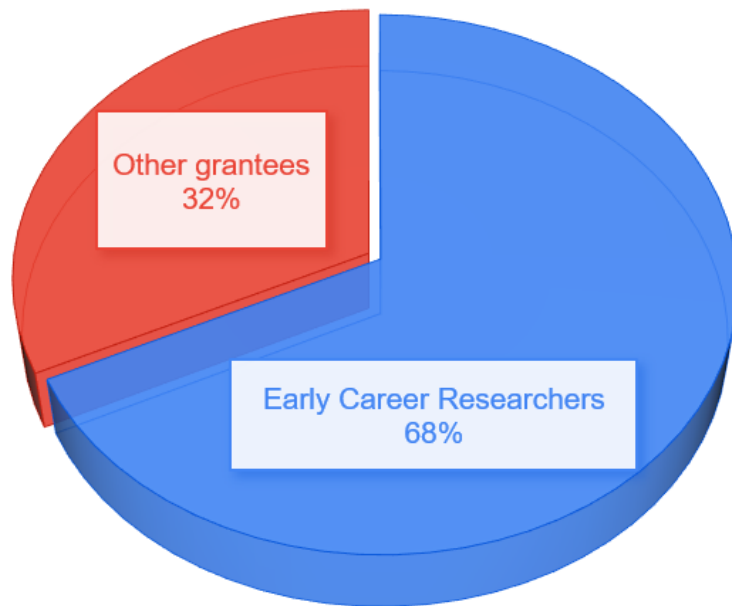
Grant type distribution:

Virtual mobility 48%
 Conference grants 34%

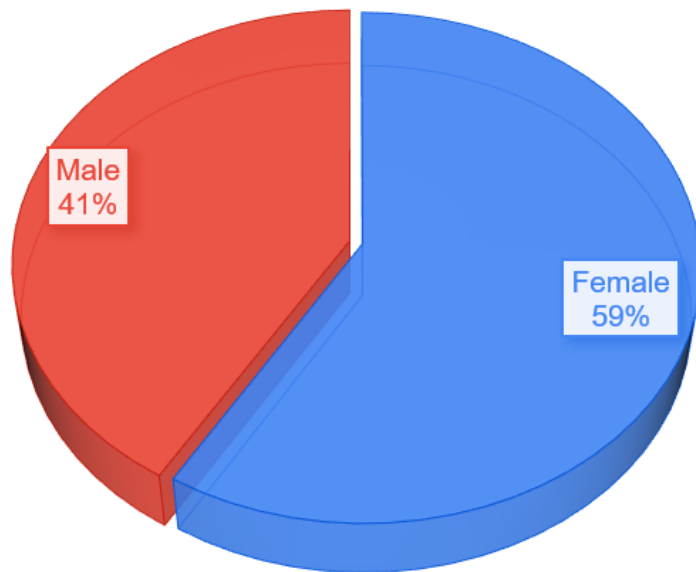


16 ITC	ITC Conference
19 YRIC	Young Researcher and Innovator Conference
2 DC	Dissemination Conference
52 VM	Virtual Mobility
18 STSM	Short-Term Scientific Mission
2 VNS	Virtual Networking Support

Grantee career stage:



**Grantee
gender:**



CONFERENCE GRANTS

- 37 grantees
- 15 international conferences
- outreach to > 118000 attendees

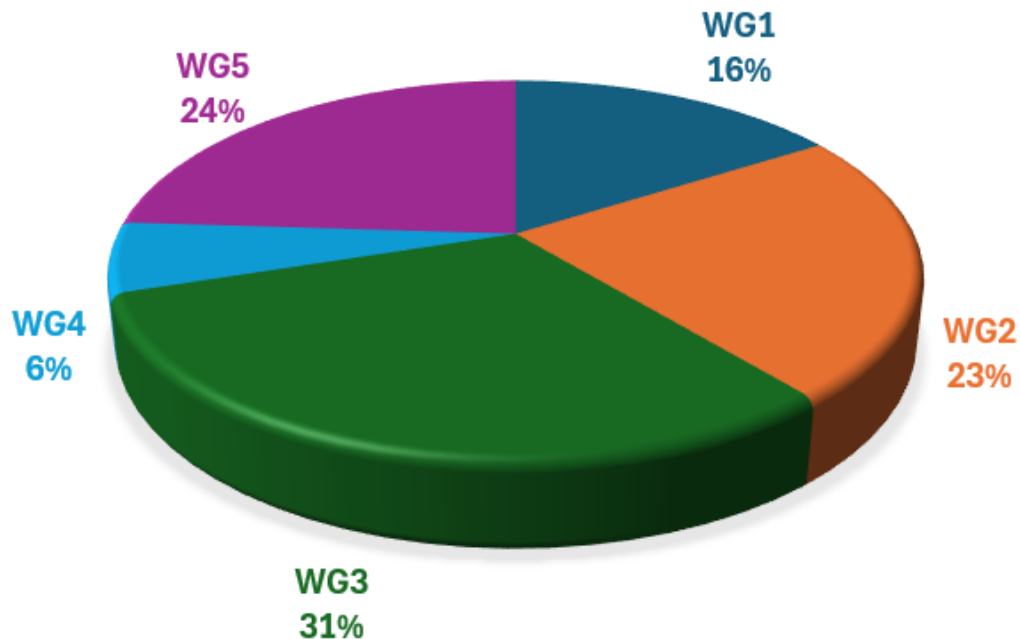
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20th Electromagnetic and Light Scattering Conference, Spain	1
EarthCARE Science and Validation Workshop 2025	1

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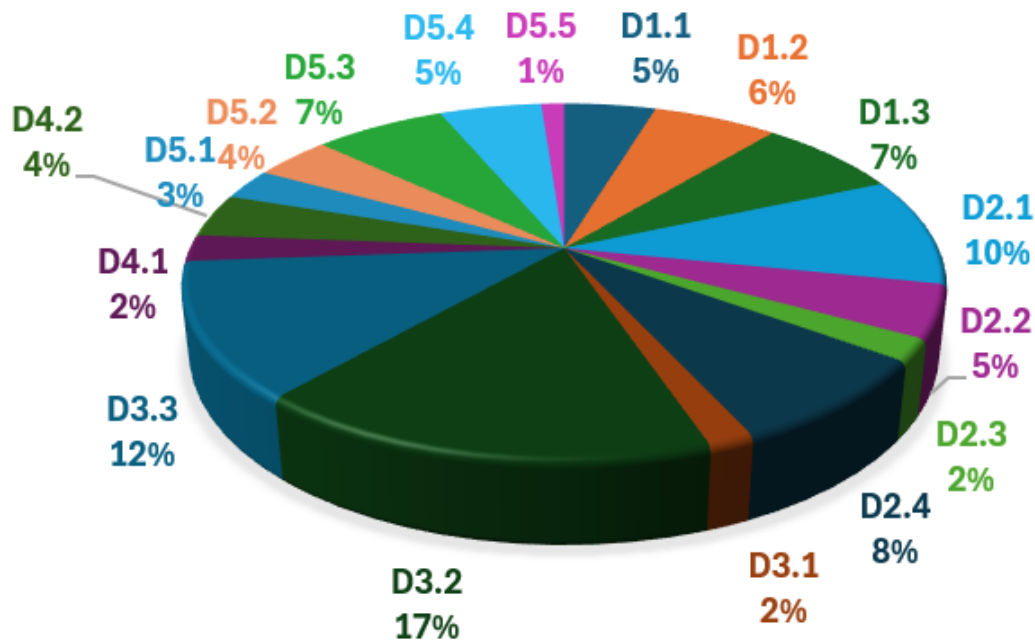
<https://harmonia-cost.eu/grantees/>

Contribution of grants to specific Working Groups of Harmonia

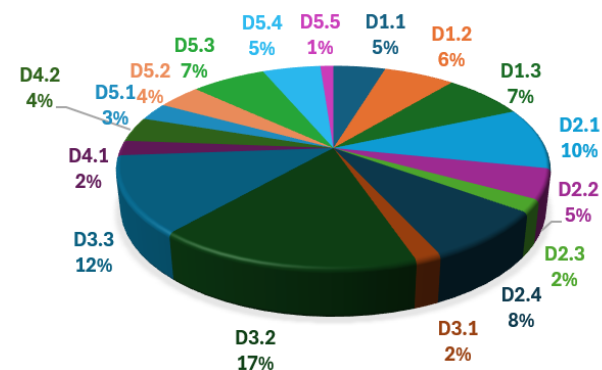


- WG1: Aerosol measurement homogenization
- WG2: Aerosol measurement improvement
- WG3: End user engagement towards maximizing aerosol measurement use
- WG4: Industry engagement towards innovative hardware, software products
- WG5: Project Dissemination

Grant contributions to Harmonia's deliverables



Grants contributions to Harmonia's deliverables



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*Thank you for your attention!
Further questions: pavla@lbhi.is*



Ideas to improve observations in Iceland welcome!
<https://my.tikee.io/projects/250611/timelapse>