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A strategy for meeting the needs for marine-based research in the Arctic

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Deliverable 3.9

Training Assessment Report

Submission of Deliverable

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Contents

Abstract

Work Package 3 of the Arctic Research Icebreaker Consortium (ARICE) organized training activities for early career polar scientists and professionals. Trainings were performed as in-person event in the format of the MOSAiC School (Deliverable 3.7 Summer School Final Report) and as virtual events in the format of individual webinars (see Deliverables 3.1, 3.2, 3.3, 3.8 and further webinar recordings), as well as in the format of a multi-day technician training course which moved from in-person to virtual due to global pandemic conditions.

In-person events promise to create enriching educational environments, and in particular the opportunity to participate in a live training during an Arctic research expedition has been proven a career and life-changing experience for the participants. On the other hand, virtual events are highly beneficial for engaging a larger number of people including people who, for various reasons, would not be able to attend in-person. The mixture of in-person and virtual events has been proven highly beneficial for the dissemination of ARICE content, including ARICE funded research cruises. The ambassador concept for the MOSAiC School and the recordings of the virtual events increased the reach of ARICE to a diversity of international audiences and will provide a long-term legacy of training activities in ARICE.

1. Introduction

In-person training activities like summer schools, field courses and excursions provide a great opportunity for in-depth experiences and learning, as well as networking and building personal connections. Online training, however, can reach a much wider and larger audience while the learning experience may be more superficial given the increasing videoconferencing fatigue in pandemic times.

This report summarises the finding of participation in ARICE training activities and assesses the overall success provided through various forms of surveys and feedback.

2. In-person training: The MOSAiC School 2019

ARICE and APECS enabled a unique in-person training opportunity of 6 weeks on the icebreaking Research Vessel Akademik Fedorov in the Central Arctic: The MOSAiC School, a “summer” school in the frame of the MOSAiC Expedition (Multidisciplinary drifting Observatory for the Study of Arctic Climate).

The MOSAiC School was a unique opportunity for 20 early career researchers from 11 countries during the first leg of the MOSAiC Expedition. They have been selected from about 250 applications from 35 countries with the help of 30 reviewers through a rigorous evaluation process. Coming from a wide background of environmental research backgrounds in physics, physical geography, glaciology, oceanography, geochemistry, geology, climate sciences, applied mathematics, biology, hydrology, remote sensing and modelling, and being early in their career, for most of them it was the first experience in the Arctic or on an icebreaking research vessel.

The aim of the MOSAiC School was to:

- Train and educate the next generation of Arctic system science experts

- Provide support to the MOSAiC teams and
- Communicate the newly gained knowledge experience through MOSAiC Ambassadors' projects

In practical, the MOSAiC School was organised in several parts including theoretical science, science communication input, and practical experience, which included the set up of the distributed network (DN) of instruments around the central MOSAiC ice floe (Figure 1).

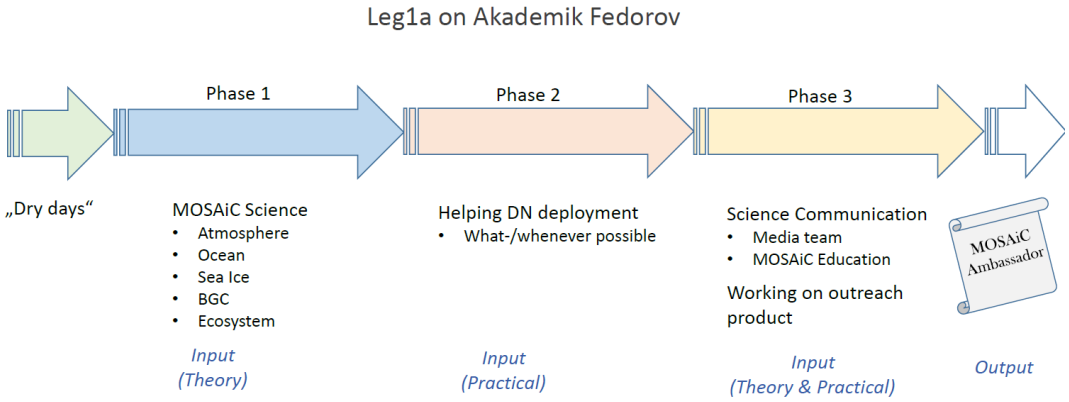


Figure 1: Concept of the MOSAiC School in three phases with different ratio of theoretical & practical input and planned output as MOSAiC Ambassador. Colour-code: blue = science lectures, red = practical field work, yellow = science communication.

Besides a wide variety of lectures, exercises, panel discussions and workshops, the MOSAiC School participants were involved in Ice Watch, polar bear watch for guaranteeing the safety of all people on the ice, creating weather forecasts for the next day, helping with ice drift modelling, designing the poster for all participants onboard, help answering the #AskMOSAiC questions, and reporting of daily activities of the MOSAiC School.

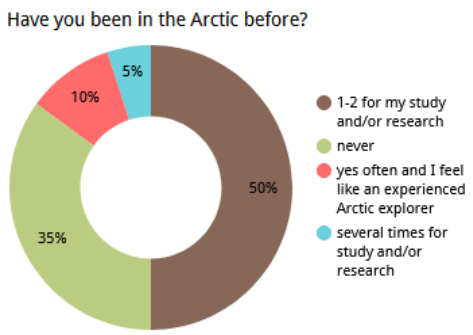
As a result of the MOSAiC School, the participants act as MOSAiC Ambassadors and pass their experience and therefore the legacy of MOSAiC to the public and young generation, e.g. by school visits, public talks, organising teachers workshops, developing scout patches, photo exhibitions, creating video & audio material, blogs, cartoons and other outreach products. More information on the MOSAiC Ambassadors' projects can be found on the APECS website and on related distribution channels, such as the APECS vimeo channel for the MOSAiC Ambassadors' projects.

The planning and implementation of the MOSAiC School is presented in Deliverable 3.7 Summer School Final Report.

2.1. Pre-School Assessment

August/September 2019, prior to the school start, the experience level and expectations of the participants were evaluated using an online google form. In addition, we asked whether they felt prepared to join the school about a month later and asked for first ideas for their potential outreach projects.

The pre-school assessment revealed that the majority of the participants had little experience in the Arctic: 50 % went once or twice to the Arctic before for study or research, 35 % have never been in the Arctic (Figure 2).



In regards to experience on an icebreaker, answers revealed that more than half of the participants had no experience on a research vessel (55 %). It became very clear that expectation for the MOSAiC School to help their career and professional development were high: 40 % said that the MOSAiC School likely will boost their career greatly, the rest said that the MOSAiC School will either have a great influence and or quite an influence on their career.

Figure 2: Pre-school assessment results on participants' experiences in the Arctic.

Most of them agreed that all the following skills will be improving their careers: New scientific knowledge, networking, science communication skills, practical experience, personal development and very new perspectives.

Finally, the evaluation showed that 65 % felt pretty to very prepared to go onboard, only 25 % felt fine but would love to feel more prepared and most of them provided personal reasons for lack of preparation.

Another round of assessments were performed during the very first part of the school during the "dry days", when challenges of long research cruises as a panel discussion were discussed. Prior to the discussion, all participants were asked to anonymously write expected physical, intellectual, personal/social and potential other challenges on cards and place them on a board for review.

2.2. Training assessment onboard

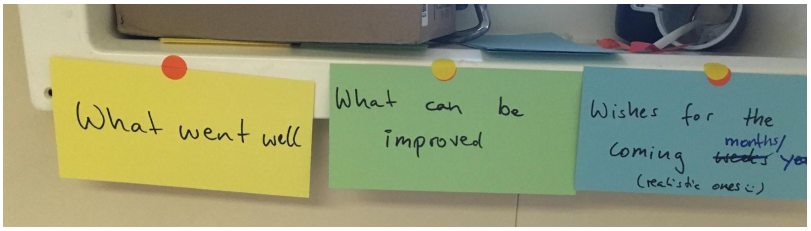


Figure 3: Feedback cards at the end of the three phases of the MOSiC School.

Given that most of the participants were exposed to a very new situation onboard an icebreaking vessel in Arctic conditions, it was important to regularly check on their well-being and synchronise expectations. For this, the day was started with a morning check-in in the lecture room accompanied with a teambuilding group exercise. In parts, the group exercise turned into a little outdoor-impro-exercise led by Dave Costa. The morning check-in gave room to suggest improvements and provide feedback on the previous day and on what is currently working well or not well. Additionally, anonymous feedback cards were provided towards the end of each of the three phases (~every 2 weeks) to evaluate what went well, what can be improved and wishes for the next period (Figure 3).

A mood board in the form of a target and a dimensionless scale helped to assess the group feeling and opinion for each of the three school phases (Figure 4).

The round target covered the topics of learning outcome, science involvement, group dynamics and organisation of the MOSAiC School. It became apparent that the MOSAiC School organisation and learning outcome was good from the beginning and became gradually even better from phase 1 to phase 3. The science involvement was not satisfying in the first phase where mostly lectures took place but improved in phase 2 and even in phase 3, which was surprising as it was the return journey. The group dynamic was very positive from the very beginning and could not have been rated more positively at the end of the cruise.

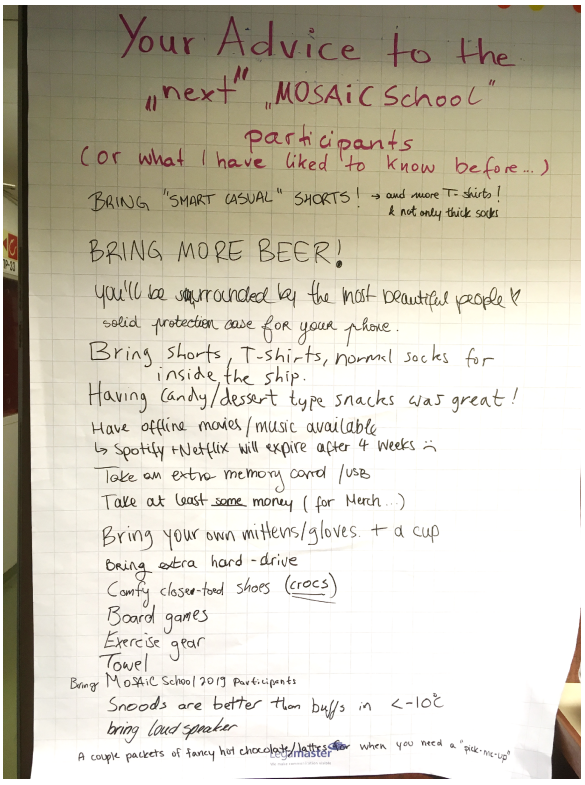
The dimensionless scale assessed the general perception of mood, safety and personal time. The group's mood was positive from the very beginning and even went "beyond the scale" towards the end of the cruise. Similarly, the safety feeling developed in a very positive way. The assessment of personal time was seen very differently and from discussions it became apparent that it was for some participants too much personal "downtime" and for others too little personal time. It was agreed that in this context it is very difficult to satisfy everyone, as some needed more time to work on their PhD or outreach project while others were looking for more input and exchange.

Figure 4: Dimensionless mood boards helped to assess the group's opinion in the three training phases on-board.

Towards the end of the cruise the participants were asked to review the expected physical, intellectual, personal/social and potential other challenges they wrote on cards prior the cruise. With colour-coded stickers they rated them as "not a challenge at all" (white), "slight challenge" (yellow) and "big challenge" (red). It was good to see that many white dots appeared on the cards. Red dots indicated existent challenges were "being confined to the ship with not much outdoor activity", "not enough exercise" and "some sea-sickness". A real intellectual challenge was "coding without internet". An update on not expected but real challenges was given in terms of the temperature on board being too warm and overt sexism. The latter was addressed and discussed among the women in the school, as well as with the whole group of MOSAiC School participants and with the cruise lead.

Smaller surveys were used in between to see how improvements could be made in terms of lecturing time and in some cases, we were able to offer a choice of lecture topics.

At the end of the cruise, the lecture room was very colourful with a variety of feedback posters and discussion outputs. At the last day of the MOSAiC School, participants were asked to contribute to an "Advice poster for the *next* MOSAiC School" which summarises what they would have liked to know before going on-board. Further, a "warm shower curtain" was added where participants wrote each other compliments and small, rewarding notes. In fact, these last moments were very emotional. As the MOSAiC School organiser, Josefine Lenz received a very appreciative letter accompanied with another, very positive (and maybe a little teasing) survey (Figure 5).



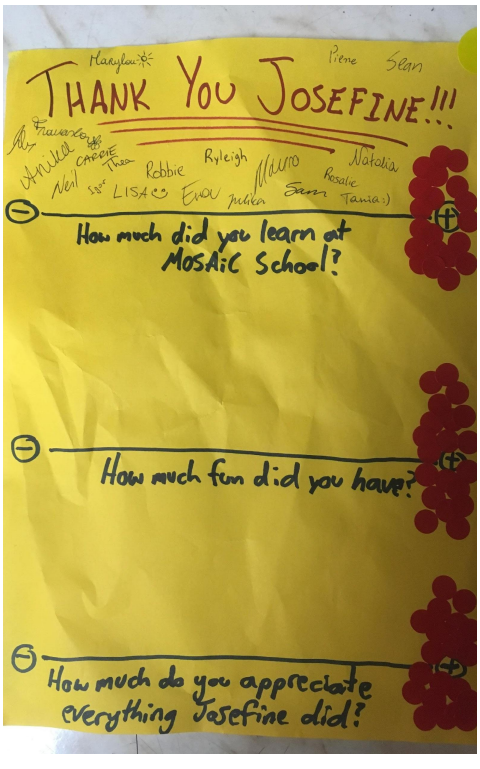


Figure 5: Lecture room at the end of the MOSAiC School and final feedback from participants.

2.3. Post-School Assessment

The post survey was designed to complement the pre-survey by using an online google form sent around in December 2019, with a reminder in January 2020, to allow the experience to have settled

in. Another survey 2 ½ years after the MOSAiC School was sent to evaluate the longer-term influence on the participants careers and success of their MOSAiC Ambassador activities.

2.3.1. Post-School Assessment 2 month after

The evaluation form asked for their learning success, lessons learned, the level of organisation, encountered challenges, the expected influence of the MOSAiC School on their careers. Further, the MOSAiC Ambassadors activity was addressed and open comments were enabled.

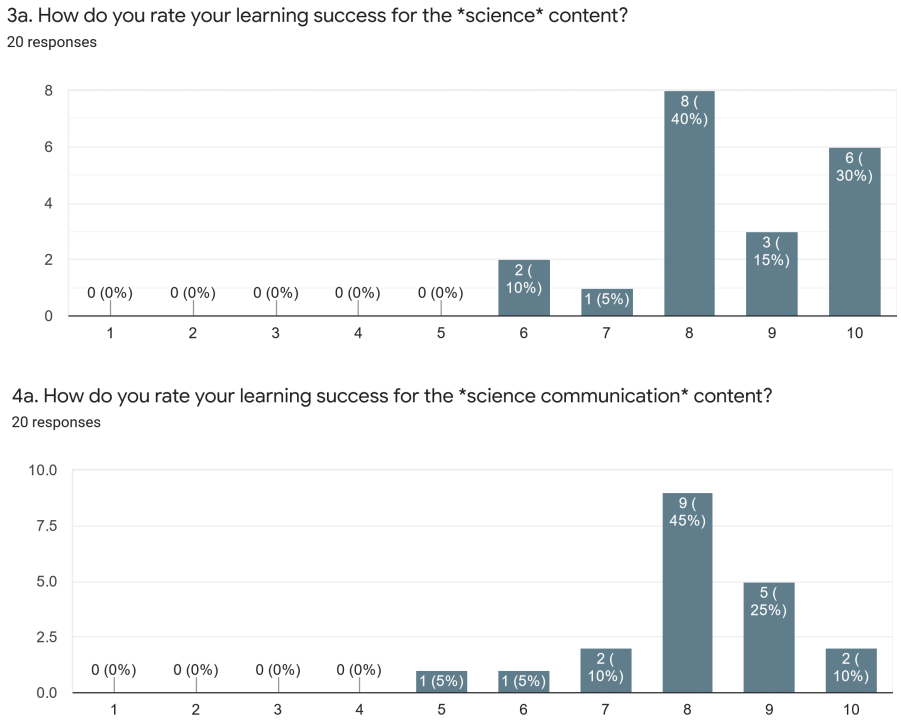


Figure 6: Evaluation of learning success in science and science communication.

The outcome of the post-assessment was overall very positive. The learning outcome was rated 10/10 by 50 % of the participants, 40 % rated it with 8 or 9/10 and 10 % rated the overall learning outcome with 6 or 7/10. The learning success in science and science communication was a little more differentiated (Figure 6). In fact, the balance of science lecture topics was reasonable given the limited exchange of lecturers between vessels (Figure 7).

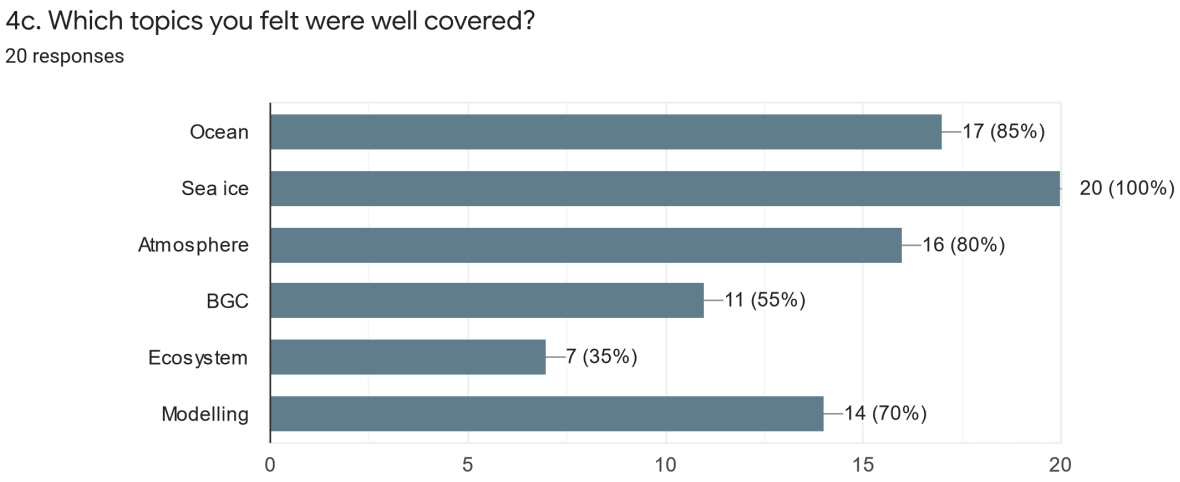


Figure 7: Topics covered in the MOSAiC School to the satisfaction of the MOSAiC School participants.

In terms of preparation for the MOSAiC School, the participants actually felt more prepared than they expected: 50 % were totally ready, 25 % felt pretty prepared and 15 % felt fine but would have loved to feel more prepared. The organisation of the MOSAiC School received a lot of positive comments, in fact 30 % rated it 10/10, 35 % rated it 9/10, 30 % rated it 8/10 and 5 % rated it 7/10.

In regard to challenges, comments made were mostly specific to ship-based expeditions, e.g. isolated space and lack of privacy, cabin fever, communication problems, but also gender equality issues. 14 out of 18 respondents knew whom to approach when they encountered problems. 15 out of 19 respondents felt like problems were addressed sufficiently or mostly sufficiently, 3 said not sufficiently and one said problems were not addressed.

Compared to the pre-survey, the MOSAiC School participants were a little less enthusiastic in terms of how the MOSAiC School will influence their career: 30 % agreed that the MOSAiC School would likely boost their career (10 % less than in the pre-survey) but 45 % still think it will have a great influence still.

Finally, the evaluation showed that 90 % of the participants would participate in the MOSAiC School again, 10 % said “maybe”, none said “no”.

Another round of appreciative comments by the MOSAiC School participants were received, among them the following:

> *“This was a wonderful experience, and I would do it all over again! I met an incredible group of people which I will stay in touch with for a long time, and that will eventually foster future interdisciplinary collaborations. Thank you very much for organizing this school.”*
>
> *“I cannot overstate my gratitude to have been part of this!”*
>
> *“Again, thanks a lot for putting so much effort into the organisation. It certainly was a great experience.”*
>
> *“One of my best dreams solved. Thank you for this opportunity, it greatly boosted my personal growth and I hope it will lead me to more success in science.”*

"Josefine did an amazing job wrangling lecturers for us, coordinating all of our time on the ice, and advocating for us to be included in the science objectives of the expedition. The MOSAiC School was so lucky to have Josefine with us!"

"I think this was overall an incredible experience, to allow young scientists on such an important expedition is really commendable."

"I think that the MOSAiC School was one of the best experiences in my life. There should be more such events for early career scientists. Taking part in this has gave me a lot of positive energy that I am able to spend on my future science challenges."

"Thank you very much for the opportunity. I will be forever grateful to have been chosen and looking forward to give back to APECS and our communities."

2.3.2. Post-School Assessment 2.5 years later

The final survey 2.5 years after the MOSAiC School ended, was answered by only 19 of the 20 participants, unfortunately, thus results are given in total numbers and not percentages.

At this point 7 former participants have graduated with a MSc. or PhD - none were still in the MSc studies but 11 are still or started working on their PhD. Two have been granted permanent positions in academie (both in Russia), three are working on postdoc or academic coordinator positions, two are employed outside academia. When asking whether the MOSAiC School supported or slowed down their career in an open question, most of the answers made clear that participating in the extensive training did not slow down careers but had a positive impact for some of them as described in some comments like the MOSAic School "is an asset during job interviews", "gained confidence as a researcher. Even the conflicts that were present gave me experience in managing people and situations which was very valuable", "helped me to appreciate research priorities in different disciplines of Arctic research". Figure 8 summarises ways in which the MOSAiC School provided benefits on the participants' professional careers.

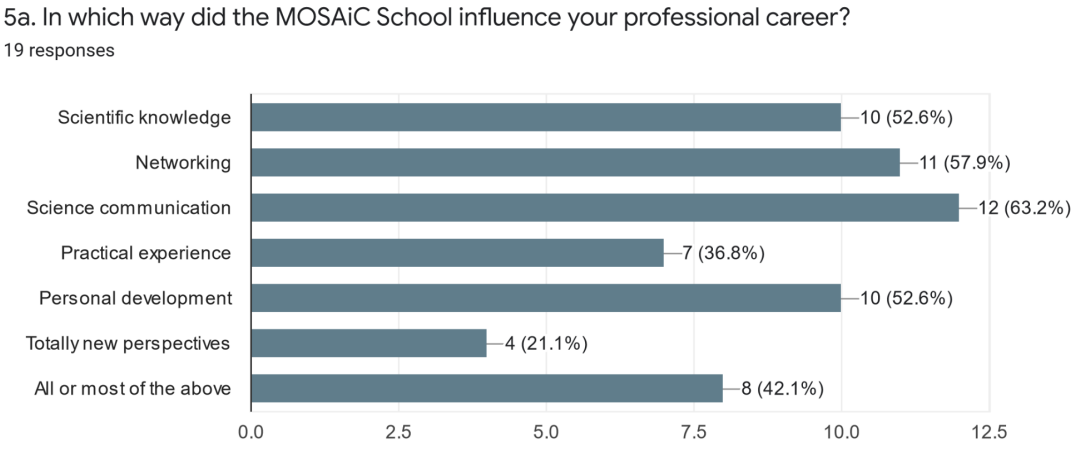


Figure 8: Influence of MOSAiC School on the professional career of the participants.

With regards to the outreach activities, most of the MOSAiC Ambassadors evaluated their activities as rather impactful (Figure 9), whereas the size of audiences was very different: 8 Ambassadors have reached 50 to 300 people, 5 indicated to have reached 500 people and 3 indicated to have reached

even more than 1.500 people. This mostly excludes the online readers, radio listeners and TV watchers whose numbers were not directly counted.

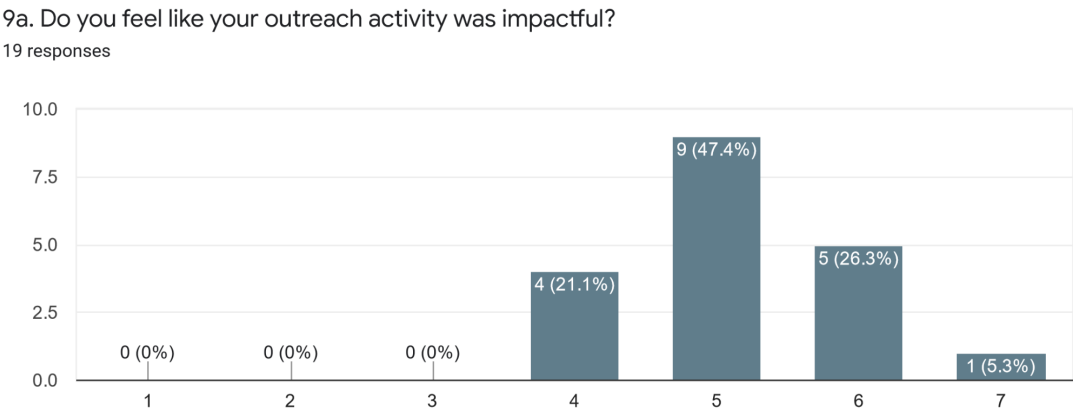


Figure 9: Self-evaluation of the impact of the performed outreach activities by the MOSAiC Ambassadors on a scale between 1 and 7.

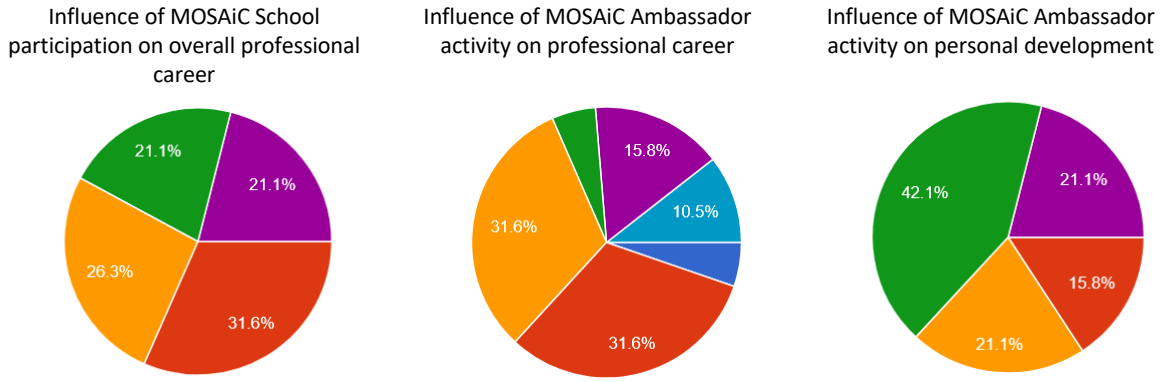


Figure 10: Influence of the MOSAiC School and Ambassador activities on professional career and personal development;blue: no influence, red: might have a small influence, orange: quite an influence, green: great influence, violet: career booster

Overall the influence on the overall professional career was rated balanced between “small” and “a great booster” (Figure 10).

2.4. Conclusion

The MOSAiC School 2019 was a huge effort and surely an absolutely unique training opportunity realised in ARICE. It has been proven that such in-person, interactive, hands-on, in-depth learning opportunities are of great value for early career scientists. It shows that the learning environment is a crucial part for sustainable knowledge transfer. Setting the scene on an icebreaking research vessel in the Central Arctic is of course somewhat special and the (many) surveys made clear this once-in-a-lifetime experience will surely never leave them again.

It also became apparent that the science communication component of the training, especially the Ambassador concept, has worked really well for many of the participants, and has shown that strengthening training participants as multipliers is a great tool to enhance the reach of training effects.

3. Online Technical Training

The early career technicians and engineers training was initially planned as an in-person training onboard a research vessel to facilitate practical knowledge by hands-on applications of scientific support technology on board. Despite several attempts for in-person training and due to the COVID-19 pandemic, organising the training on a vessel was not possible. After a project amendment in November 2020, the organisation of an alternative online format of the technical training started. The objective of the online training remained to convey an insider's view of technical operations on research icebreakers, provide a platform for interactive knowledge exchange and maximise the practical experience possible using the online meeting format.

The training took place between 30 March and 14 April 2021 and covered six training modules with a total duration of 13.5 hours: 1. How to Build a Deep Sea Robot, 2. Polar Marine Robotics, 3. Mooring Operations in Polar Waters, 4. Atmospheric Measurements Aboard Research Ships, 5. Technical Science Support at the British Antarctic Survey, and 6. Lab Management - My Lab is Moving!, see Deliverable 3.4 Early Career Technicians and Engineers Training Course Report. The target audience covered PhD students, postdoctoral researchers, but also early career technicians and engineers (from research institutes and private sector).

For the assessment of the technical training, an audience survey before the training (98 responses) was conducted, as well as during the training via short surveys. After the training concluded, we asked the registrants to evaluate the training modules they attended (85 responses).

3.1. Pre-Participation Assessment

The technical training was advertised through the ARICE, APECS and World Ocean Council outreach channels including websites and social media. We successfully generated a huge interest with 985 registrations in total. Participation was generally between 30-50 % of registrants, depending on the module. Participants came from all continents with the majority indicating the European Union (EU) as their current residence. Approximately half of the registered participants were junior/early career scientists or engineers and in fact 80 % indicated that their professional background is in science. About 38 % of the registered participants had no experience with research vessel cruises, in contrast with 27 % who were experienced with working on research vessels (13 % have been on a vessel once but not in polar waters). 47 % of the respondents have never been in the Arctic or Antarctic. The influence of the technician training on careers was rated rather minor with 50 % responding "I think it will have some influence on my career".

For more participants' statistics see Deliverable 3.4 Early career technicians and engineers training course report.

3.2. Post-Participation Assessment

Participants were asked to rate their satisfaction with the training organisation, the training platform (Zoom) and the trainers. Based on a 1-10 rating (very poorly to very well organised), most participants rated the training as well organised across different modules with an average rating of 9.2. Based on a 1-5 rating, participants were generally satisfied with the presenters (average 4.7). Participants were

generally satisfied with the training platform (average 4.4). Here, the audience could also comment on their satisfaction with the training platform. They expressed satisfaction with Zoom, requested more courses, and were aware of the remote learning shortcomings. Course satisfaction was also evaluated by asking whether they would recommend the ARICE online technical training to a colleague or friend. A majority (88.6 %) of respondents indicated that they would recommend the training to a colleague or friend, while the remainder indicated they may do so.

Further, we have asked the participants to rate how satisfied their expectations were for the individual modules (Table 1).

Module	**n**	**Average rating**
TTM1: How to Build a Deep Sea Robot	19	4.4
TTM2: Polar Marine Robotics	20	4.3
TTM3: Mooring Operations in Polar Waters	24	4.7
TTM4: Atmospheric Measurements aboard Research Ships	14	4
TTM5: Technical Science Support at the British Antarctic Survey	20	4.4
TTM6: Lab Management - My Lab is Moving!	16	4.7
Overall	**113**	**4.4**

Table 1: The training evaluation asked participants to rate how satisfied their expectations were with the course on a 1-5 scale from "not satisfied at all" to " very satisfied". There was overall high satisfaction with the training.

We have asked both groups, the one who registered (blue) and the one who actually participated (orange) about their expectations on the impact of the training on their careers (Figure 11). Prior to the training, participants expected the training to have some (60 %) or at least a minor impact (20 %), 10 % expected a major impact (9% expected no influence). After the training, the expectations were in the same range (50 % some impact, 23 % minor, 9% major 9 %, 10 % no influence in their careers).

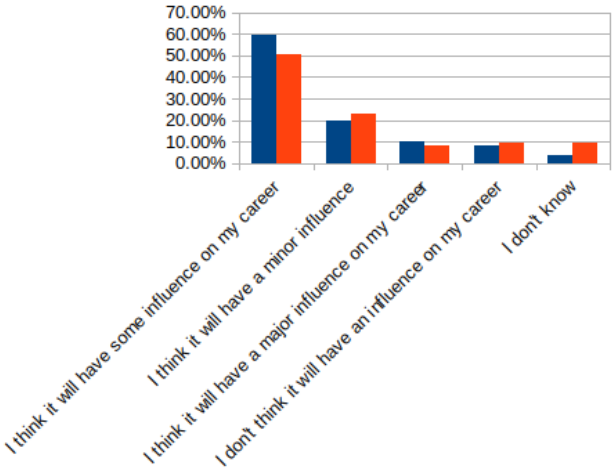


Figure 11: Comparison of audience expectations between the audience survey conducted before the modules (blue) and after the training among the people who participate (orange).

Nineteen participants answered the last question of the post-participation survey which asked about other thoughts or comments on the training. These contained gratitude for the training organisation in the digital format, because it actually enabled participation for some of them. Others asked for more technical courses which would develop into more detailed discussions. Some also desired more structure in the delivery of the training, and better practical opportunities. A desire for better networking opportunities, in breakout groups for example, was also expressed. Lastly, the respondents wished for more online and in person training in the future.

3.3. Conclusion

We achieved our goal to reach mostly early careers but the audience was clearly dominated by participants with a science background, thus, it seems like the target audience of technicians, professionals and engineers is still challenging to reach out to.

The training was received positively overall, indicated by the high satisfaction ratings. By using the Zoom Meetings platform, we aimed at maximising the audience interaction. The audience took advantage of this and frequently asked questions during the training. However, even when trainers answered many questions, there were usually more questions than participants, which made it difficult to implement practical parts and limited networking opportunities in this online version of technical training. We offered the option for networking and deeper discussions following the training on the wonder.me platform but this was taken advantage of in only two cases, and in both cases only ca. 5 people used this opportunity. It remains a challenge for future training to enhance audience interaction and networking.

Overall online training is a valid option in pandemic situations and in fact increases the reach of training opportunities for international participation. However, in-depth learning and building personal networks are limited compared to practical on-site training.

4. Webinars

Next to the MOSAiC Summer School and the Technical Training, APECS hosted 12 webinars, partly in collaboration with IOPAN and Arctic Portal in the time frame from February 2019 to February 2022. The individual webinars had a duration of 51 to 95 minutes with a total duration of 14 hours. The webinar series consisted of two parts:

Part 1 - Career Development & Soft Skill Training

This part of the webinar series focused on general soft skill topics (including Deliverables 3.1, 3.2, 3.3 and 3.8). The topics ranged from five webinars on pre-cruise preparation and risk reduction, (ship-time) proposal writing, data management to two webinars on soft skills training including paper writing and science communication.

Part 2 - Science Outcome of ARICE

This part of the webinar series covered all seven scientific projects funded by ARICE until the beginning of 2022. The various aspects of the individual projects were presented by the respective project leaders and at least one other researcher from the project. A total of 20 scientists participated in the webinars. Among the presenters, there was also a high proportion of early career scientists who were able to share their work and experiences on the expeditions in the webinars.

4.1. Promotion and Participation

To reach as many people as possible in the community of early career polar scientists and professionals, the individual webinars were promoted through the APECS and ARICE websites and newsletters as well as through all APECS social media channels (Twitter, Facebook, LinkedIn and Instagram). Additionally, announcements were sent out via the Cryolist mailing list and the speakers were encouraged to share the information with their networks, which proved to be a particularly effective way to promote the events (see section 5.2).

A total of 1.128 people registered for the webinars and 528 participated during the live sessions. Based on the Zoom registrations we were able to identify from which countries the participants were attending the webinar (Figure 12).

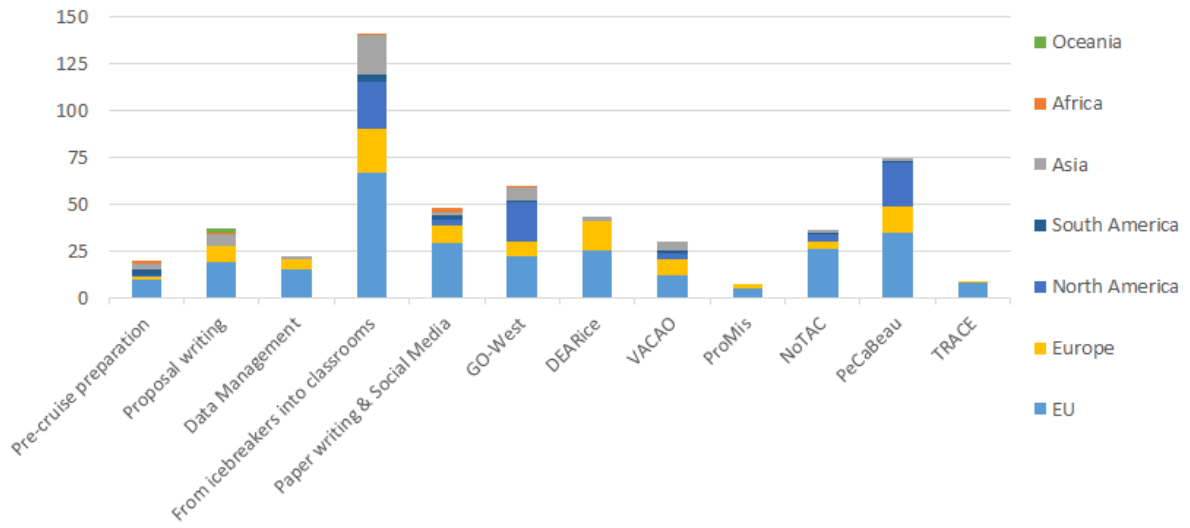


Figure 12: Webinar participants by continent (with a distinction between EU and non-EU countries for Europe).

The ratio of registrants to participants for each webinar ranged from 31-64 % (Table 2). The discrepancy between the number of registrations and the number of participants is a common pattern we see in APECS webinar coordination. Reasons are usually manifold, including less commitment for online than in-person assignments, changes in (working) schedules, and a Zoom fatigue during pandemic times.

	Registered	Attended live	Attendance ratio
Pre-cruise preparation	54	20	37 %
Proposal writing	119	37	31 %
Data Management	56	22	39 %
From icebreakers into classrooms	266	141	53 %
Paper writing & Social Media	100	48	48 %
GO-West	147	60	41 %
DEARice	80	43	54 %
VACAO	54	30	56 %
ProMis	19	7	37 %
NoTAC	66	36	55 %
PeCaBeau	117	75	64 %
TRACE	22	9	41 %

Table 2: The number of registered attendees and live attendees, as well as the ratio of registrants to attendees in percent for each of the 12 webinars.

During the ARICE webinars, we observed that many people from America dropped out of attending the live webinars, most likely due to the large time difference. To cover different time zones, the

individual webinars took place between 8 am and 5 pm GMT, but especially the webinars that took place in the morning made it difficult for participants in North and South America to attend live. These challenges were also reflected in email requests from people who were interested in participating in the webinars but were unable to attend due to time differences or scheduling conflicts and therefore inquired about recordings. To meet these challenges and to make the webinars accessible for the long-term legacy of ARICE, all webinars were recorded and are freely available on the websites of APECS and ARICE. To date, the recordings of all webinars have 14.230 impressions and have been viewed 797 times on the APECS Vimeo channel (data obtained on 11. October 2022), highlighting the value of this resource to early career scientists and professionals and the polar community in general.

4.2. Surveys during the webinars

During half of the webinars, we conducted short surveys asking participants form which continent they were joining, their current career stage, through which channels they learned about the webinar, and as an additional question for the scientific webinars, whether they work in the research area presented during the specific webinar.

In terms of the career stages, at least half and up to 65 % of the participants considered themselves as junior/early career, followed by up to one-third who are in between junior and senior or at senior level, and up to one-sixth identified themselves as other (Figure 13).

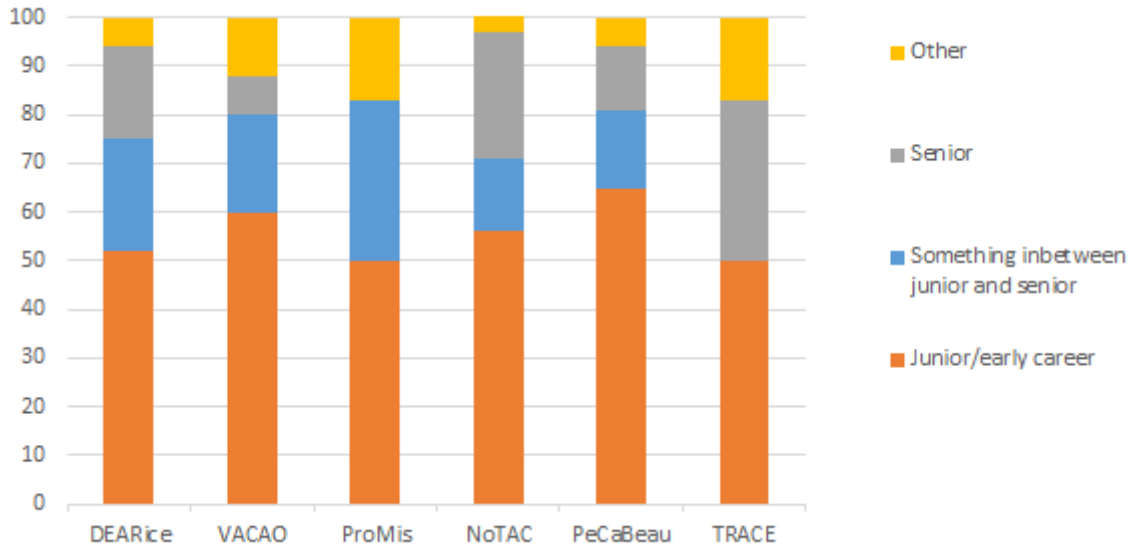


Figure 13: Career stages of participants of six webinars.

Surveying the participants during the webinars revealed that participants most often learned about the webinars through colleagues/friends, followed by the APECS newsletter/website and social media channels (Figure 14). In contrast, the ARICE newsletter/website and other sources did not appear to have reached the relevant audiences. To account for the possibility that participants may have learned about the webinars from more than one source, we allowed multiple answers for this question.

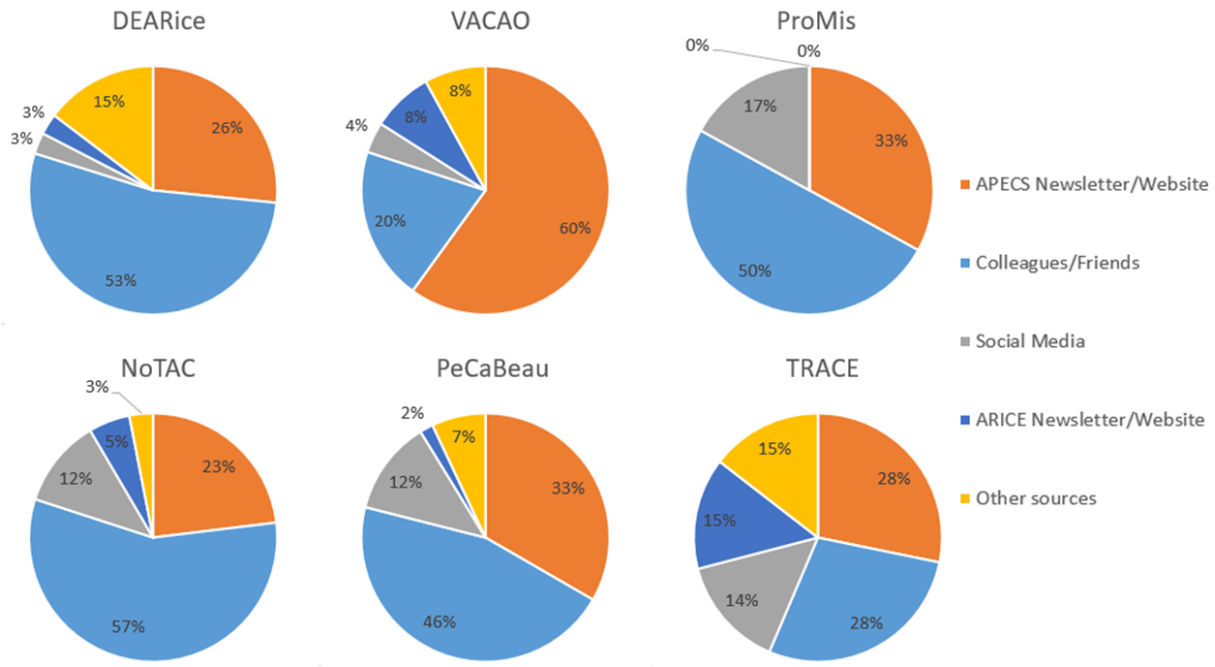


Figure 14: Sources from which the participants learned about the webinars.

In order to obtain information about the participants' scientific background, the last question of the survey referred to whether or not the participants work in the presented research areas or with the resulting data (Figure 15). The proportion of people from outside the field varied between the individual webinars and was up to two thirds for the two webinars on the VACAO and TRACE project. This result shows that the webinars contributed to an interdisciplinary exchange.

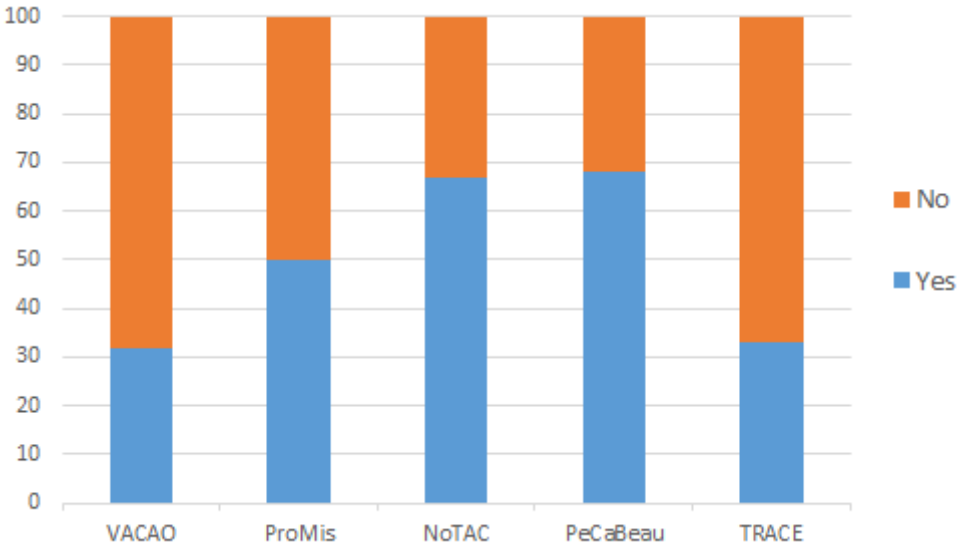


Figure 15: Distribution of participants working in the research area presented in the webinars or not.

4.3. Interaction and Feedback

The audience could actively participate in the webinars by asking questions to the presenters via the Zoom chat function or in the Q&A box. The questions were discussed and answered in a joint discussion at the end of each webinar. The viewers also had the opportunity to ask their questions directly to the presenters by using the "raise your hand" function, which was less frequently used than submitting written questions. At the end of each webinar, participants used the chat to give feedback to the presenters, which was very positive in all cases. Among the comments were the following:

"Thank you very much for the presentation, it was really interesting"

"fantastic webinar, thank you "

"Thanks so much to all the panellists for your amazing presentations!"

"Thanks for such a useful webinar!"

However, due to the informal and open format of the webinars, the level of satisfaction was not determined by a survey afterwards. The 38 speakers were all very positive about the webinars and especially all 20 scientists from the ARICE-funded projects expressed their gratitude for getting the opportunity to participate in the webinars to present their research to an interested audience.

4.4. Conclusion

Promoting individual webinars that take place over a long period at a varying frequency and cover a variety of topics is challenging. The number of participants varied between the individual webinars, which can be explained to at least a certain extent by the different topics, ranging from very general topics in the area of career development and soft skills to very specific research topics in the scientific part. The number of participants was additionally influenced by the size and engagement of the respective speakers' networks and their advertising efforts. The scientific collaboration of the projects with partners in other countries was partly reflected in the composition of the participants in the respective webinars.

