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D6.9 Impact of Eurofleets+ training and education from perspective of Eurofleets+ Alumni

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1. Eurofleets+ Education and Training Programme Impacts

Eurofleets+ included a comprehensive Education and training programme aimed at supporting early stage researchers' careers and to train the next generation of 'blue professionals'. In addition, it aimed to increase participation of representatives from less equipped countries and attract women to science; encourage young people to consider science careers; spread good scientific practices and facilitate exchange of personnel; and attract next generation of users for the European Research vessel fleet.

The education and training programmes ran throughout the duration of the project from 2019 to 2023, although was affected by a pause in activity during the COVID 19 Pandemic. The courses offered ranged from Floating Universities, Blue Skills Labs and workshops and Training and Educating through an Access and Exchange Programme.

In order to assess the impact of the Eurofleets+ Training Programmes a survey was conducted to gather feedback on the impact of the programmes on course participants, their careers or further education choices. A Eurofleets+ Alumni Forum was also held, where graduates from each course type presented on their Eurofleets+ experience and its impact on their work or studies to date. The results of the study were also presented and discussed in an open forum to explore how to improve course offerings into the future. The results of these activities are outlined in detail in Section 3.

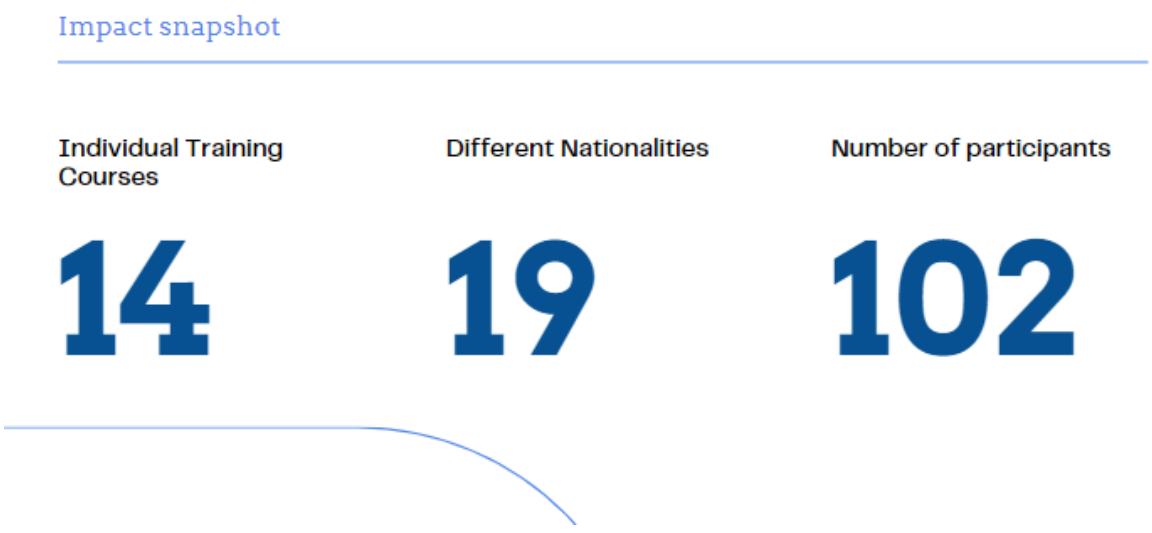

Figure 1 Eurofleets+ Education and Training Programme Impacts

The Eurofleets+ Education and Training Programme aimed to consolidate, advance and extend the successful education and training actions delivered in the previous Eurofleets projects, to prepare the next generation of European marine scientists and professionals, and open up the world-class marine infrastructures beyond research communities. Impacts delivered across the training programmes include:

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Skill Development

Education and training activities under Eurofleets+ has contributed to the development of specialised skills and expertise among participants. This includes training in operating state-of-the-art ocean observing platforms such as Remotely Operated Vehicles, Autonomous Underwater vehicles and Argo Floats (in partnership with Euro Argo ERIC). Other skills development included marine research techniques for environmental and biological sampling, in addition to geology, geophysics and sedimentology collection and analysis, and operating research vessels. The opportunity to practice hands on training has been rated extremely highly by all participants during the survey carried out to measure impact, with a strong advisory to continue this valuable opportunity.

Knowledge dissemination

Eurofleets+ Education and Training activities facilitated the dissemination of scientific knowledge and best practices to over 100 participants directly in person. By training scientists and researchers in advanced methodologies, the program helps to enhance the overall scientific understanding of marine ecosystems and related fields. Slides from all courses are available for open access on the Eurofleets+ Ocean Classroom portal which has been accessed 2484 times since its launch in June 2019 thus further broadening the impact of the programmes.

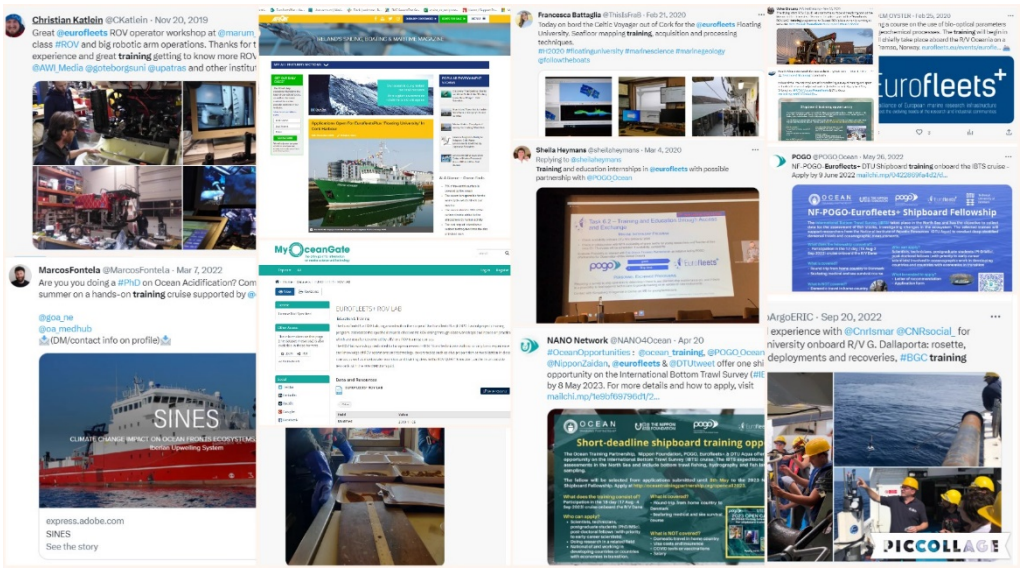

Figure 2 Dissemination of Eurofleets+ Education and Training Programmes

Collaboration and networking:

Eurofleets+ Education and Training activities brought together researchers, scientists, and operators from different countries and institutions. These opportunities for collaboration to foster networking, encourage knowledge exchange, and promote cooperation among professionals working in the marine research community was more important than ever before following the shutdown of activities due to the COVID19 pandemic. Over the course of the entire programme participants from 26 countries attended the courses from across not only Europe but from Asia, Central and South America and Africa. The opportunity to network with a wide diverse group demonstrated the importance of making connections with scientists with similar interests and the myriad of benefits

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that brings such as knowing what's happening in other academic/research communities. This assessment is further illustrated in the score of 4.45/5 which the survey respondents gave to the opportunity to build connections or networks with other European and International students through the training courses.

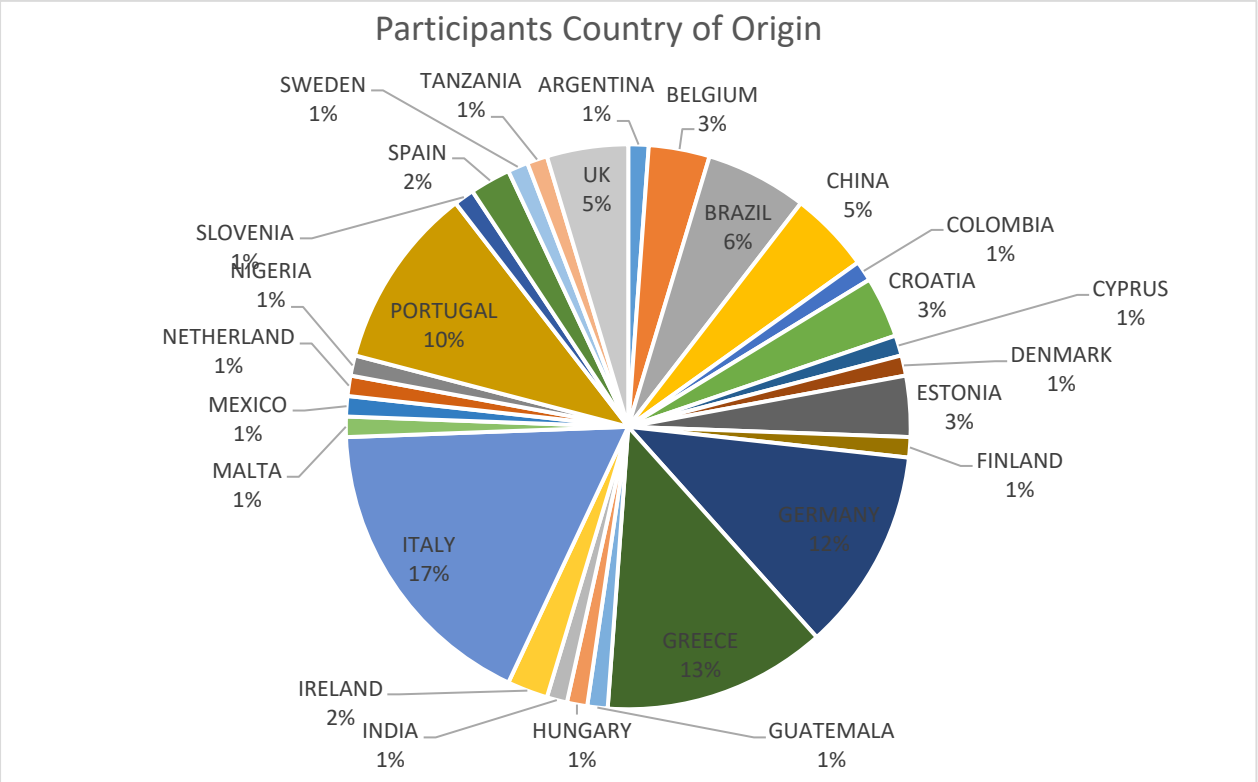

Figure 3 Eurofleets+ Education and Training Participants County of Origin

Capacity building:

By providing access to research vessels and training opportunities, Eurofleets+ has significantly contributed to capacity building efforts of individuals, organizations and countries. This can empower researchers and scientists to conduct high-quality research, contribute to scientific advancements, and build stronger marine research capabilities within their respective institutions. A key focus for Eurofleets+ was to provide training for non-equipped or countries who do not have developed Marine Scientific programmes.

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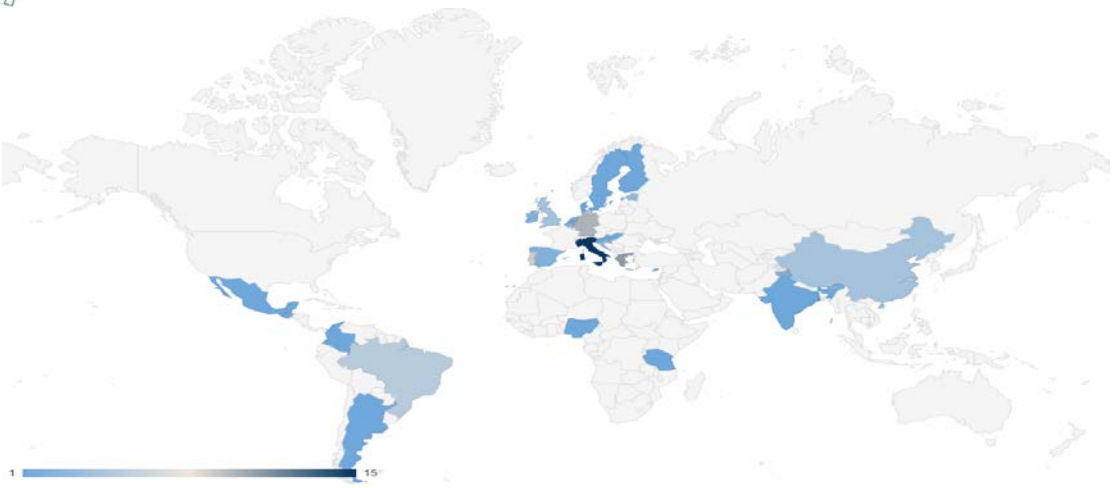

Figure 4 Geographical representation of participant countries

From the map above it is clear that poorly equipped countries and countries not usually associated with Marine Research are well represented. This is vital to ensure that capacity is built with a strong pipeline of highly skilled scientists across all geographic areas and regions especially considering the challenges we face with regard to climate changes and associated disciplines. Eurofleets+ is committed to providing opportunities for all genders, but has made efforts to ensure that female participation in disciplines traditionally dominated by males increased in Eurofleets+. Overall females made up 55% of all participants across all programmes. The biggest increase was seen across the Blue Skills labs for AUV from 2019 to 2022. In 2019 the AUV course gender split was 60% Male to 40% Female. In 2022 this had changed to 27% Male to 73% Female. This is a great success, and is a very positive trend. However, in the case of the ROV Blue Skills Labs there was no change with male participation remaining at 90%. It is evident from this that there is some work to be done in this area. The success of the AUV course could be attributed to a female course director which will be explored by the Eurofleets RI when established.

Career advancement:

Participation in Eurofleets+ Education and Training activities has enhanced the career prospects of individuals in their respective marine research fields. The acquired skills, knowledge, and collaborations gained through the initiatives contributed to professional growth and opened up opportunities for further research and career development. From the Alumni responses to the survey, presented or feedback during the forum we know that many have gone on to further studies, explored new areas of interest and transitioned to teaching the next group of undergraduates in their fields. Course directors indicated that the training courses have been a good source for suitable postgraduates and enabled the recruitment of a post-doc and also enabled the recommendation of another participant applying for PhD position in their institution. In response to survey questions related to the impact of the training received 75% of the respondents felt that practical courses such as those provided by Eurofleets+ benefited them when applying for further study opportunities or work in their chosen field, with over 55% stating that the skills and knowledge gained during the Eurofleets+ Training course had a high impact on their further study opportunities or career since participating. These metrics demonstrate the positive impact that the training programme had and the justification for these high scores provided by the alumni that validate the numbers include:

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- *First opportunity to take part in a real research cruise and opened up the possibility of a new consideration for their career.*
- *Learned about new opportunities for further practical training courses*
- *Provided confirmation that students were on the correct career path for them*
- *Demonstrated the applications for new techniques in the field of geology using unmanned vehicles.*
- *Provided stimulus for a desire to gain work experience rather than continue straight into a PhD.*

From the results of the survey, discussions during the alumni Forum and direct feedback from participants it is clear that training programmes such as those provided by the Eurofleets+ project are vital in the provision of real time, real life experience on living and working on vessels and with associated equipment and practices, personal interaction with teachers and instructors, capacity and curriculum building, and expansion of professional networks.

The slide in Fig 5 below from Eurofleets+ alumni, Larissa Oliveira summarises the impacts from the Eurofleets+ training programme on her career to date very succulently:

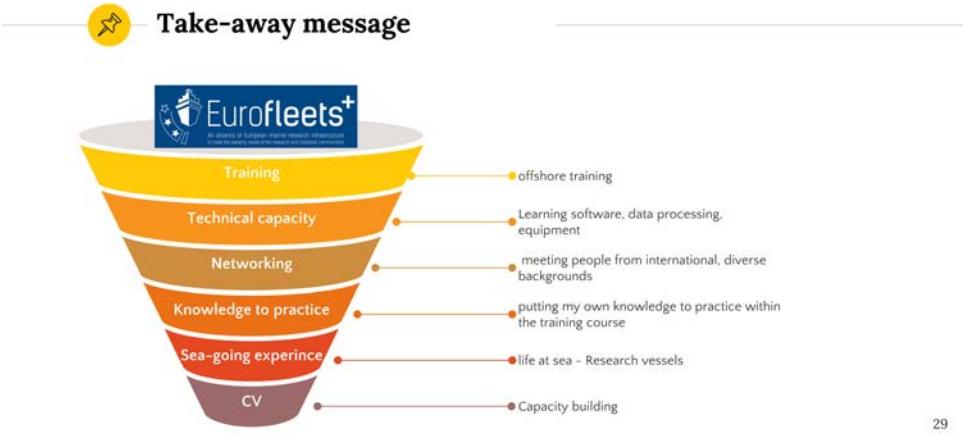

Figure 5 Eurofleets+ Education and Training Programme Impacts from an Alumni perspective

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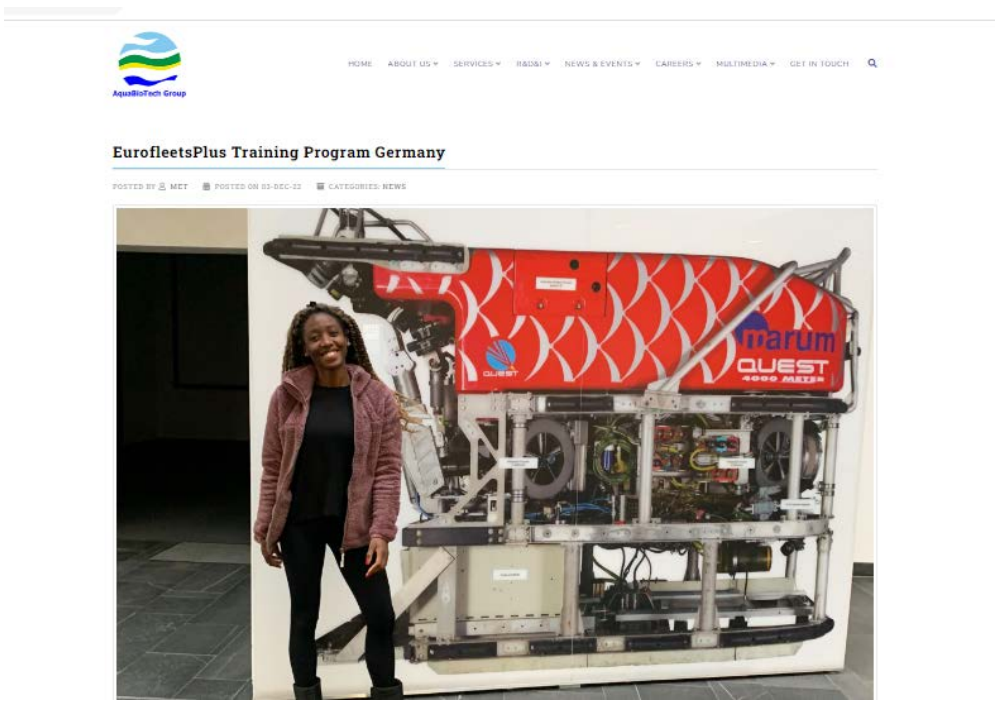
1.1 First Person Narrative of Eurofleets+ Alumni

Eurofleets+ alumni provided an insight into their experiences and the subsequent impacts on implementing their new knowledge on theirs studies/careers to date. Access full articles by clicking on the links.

https://www.eurofleets.eu/2021/10/11/eurofleets-benchmark-cruise-an-insider-experience/

https://www.eurofleets.eu/wp-content/uploads/2022/07/Lauretta_Kaerger_Cruise_Report_RVBelgica2022.pdf



https://aquabt.com/eurofleetsplus-training-program-germany/

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2 Eurofleets+ Alumni Forum

6.4.2 Eurofleets+ Ocean Classroom Portal envisaged an Alumni Forum, providing a space for Eurofleets+ training participants to engage, network and collaborate online. This forum would be used to measure the effectiveness, impact and benefits of Eurofleets+ training by tracking participants and assessing the skills and career progression of alumni though follow-on questionnaires and feedback. The forum was established at the beginning of the project providing a private space for early career scientists enrolled on Eurofleets+ Training courses to meet and discuss upcoming courses and catch up when the training had taken place. It was also a space where links to additional reading for courses was shared by Course directors and organisers. Unfortunately, and despite best efforts by the task leader Marine Institute, alumni did not engage with the platform as imagined. This is mainly due to a worldwide trend in the decline of 'Forums' or "chat rooms" who by the time of implementation in the project were facing challenges as users switched to social media platforms and other forms of online communication. This became very evident when, immediately on meeting at orientation sessions WhatsApp groups were set up between participants and interaction with the online forum ceased. Several attempts were made with different training groups, but all were unsuccessful.

As an alternative, efforts were made to keep in touch via social media channels, direct email and through course directors which was successful. A final Eurofleets+ Alumni Forum Workshop was planned towards the end of the project in parallel with the launch of Alumni Feedback survey which included questions to measure the impact the training received had on individual's further educations or careers to date.

The Eurofleets+ Alumni Forum Workshop took place on 31st of May 2023, as an online event. Its aim was to allow Eurofleets+ training participants to engage, network and collaborate online. It also aimed to measure the effectiveness, impact and benefits of Eurofleets+ training through open discussions follow-on questionnaires and feedback to allow for the improvement of training activities provided to young researchers in the future

It brought together course directors, Marine training programme managers and Eurofleets+ training course alumni to discuss and explore the current European marine training landscape, including that provided by Eurofleets+. The event featured a combination of presentations and open discussions to get feedback, monitor impact, provide networking opportunities, and collaborative problem-solving.

The event was moderated by Niamh Flavin, 6.4.2 Eurofleets+ Ocean Classroom Portal Task Leader. Full meeting agenda can be found in Annex 1.

Workshop overview:

13:30 Meeting room open to speakers to test screen sharing and microphones

14:00-14:05 Welcome

14:05-14:55 Presentations from Eurofleets WP 6 and Training leads

14:55 – 15:00 Short break

15:00 – 16:25 Alumni Presentations including **15:30-15:40 Coffee Break**

16:25 – 16:35 Survey Results Andrea Caburlotto

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16:35-16:55 Open Discussion

17:00 Forum Close

The event opened with a key note presentation by Andrea Caburlotto, Work Package 6 Education and Training leader providing an overview of the Eurofleets+ Training Activities 2019-2023. This was followed by invited speakers from various European Marine Training initiatives (John Boyd, Strategic Marine Alliance for Research and Training (SMART) programme director, Lilian Krug, Partnership for Observation of the Global Ocean (POGO)), and Eurofleets+ Course Directors from both the Eurofleets+ Floating University and Blue Skills labs tasks (Piotr Kowalczuk, IOPAN Training Initiatives and finally, Anna Wåhlin (UGOT), AUV Technical Training).

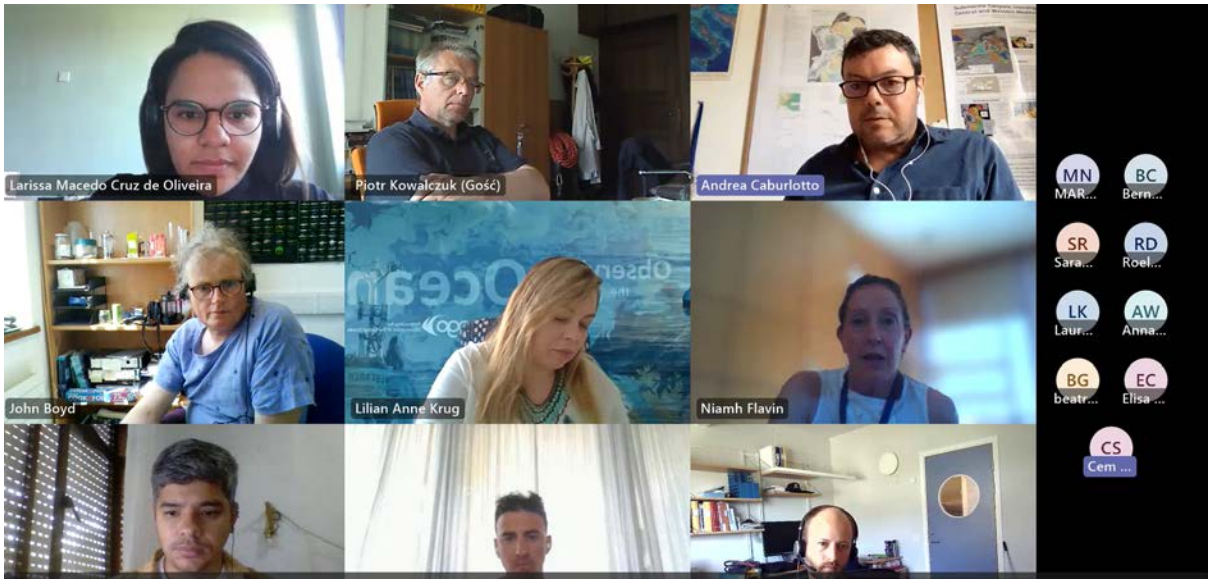

Figure 6 Eurofleets+ Alumni Forum Discussion Group

Effort was made to have one representative from each of the Floating Universities, Blue Skills labs and Marine Internship training but due to working schedules and sea time many were not available. Nonetheless, a good cross section of alumni shared their experiences of the training received and the positive effect on their careers to date.

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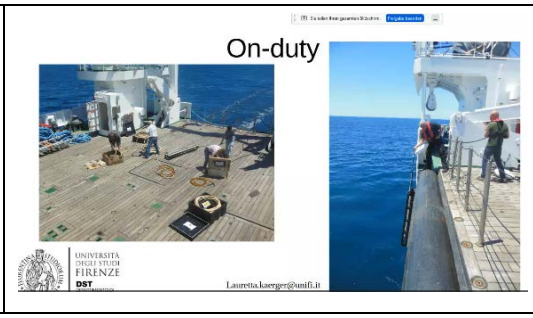
Eurofleets+ alumni presentations included:

Nil Rhodes, provided a presentation on his experience on the 1st Floating university which took place on the RV Celtic Voyager in Cork in late February 2020 (just ahead of the restrictions that came into place due to the COVID 19 Pandemic).

Roeland Develter, joined a Eurofleets+ Funded cruise (BENCHMARK) and worked with IMR ROV technicians over the ten-day cruise as part of the Technician Exchange Programme.

Larissa Oliveira, had the unique experience of participating in two Eurofleets+ training course, 1st Floating university which took place on the RV Celtic Voyager and the final AUV Lab led by UGOT and hosted on the SLU vessel RV SVEA.

Lauretta Kaerger joined a non Eurofleets+ funded cruise on-board the RV Belgica, a brand new vessel commissioned in 2021.



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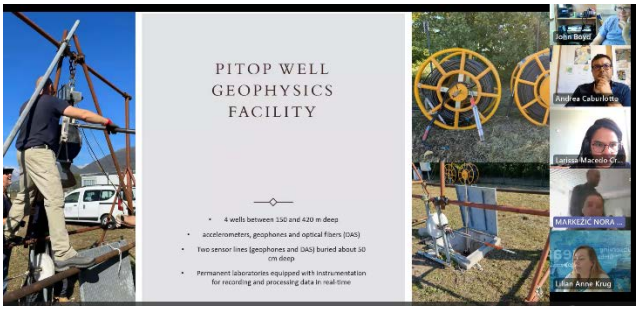
- Nora Markezic who participated in two seismic labs hosted back to back by OGS in September 2022.



A Questions and Answer session followed each of the presentations which allowed for deeper exploration of each of the speakers' experiences during and since their participation in the training courses.

All presentations can be found in Annex 4.2

2.1 Summary of Open Discussion

The resounding feedback from all speakers (borne out in the survey results) is that the training provided by EUROFLEETS+ is required, in demand and provides real impact to those who are lucky enough to participate.

Recommendations for EUROFLEETS RI:

- Develop Annual Training Programme
- Expand and develop partnerships with existing training programmes such as SMART and POGO
- Host annual or bi annual networking events for alumni
- Engage Industry in and securing funding for training courses

The predominant criticism is that there are not enough similar courses available, although this is outside the scope of Eurofleets+. Some countries such as Ireland have invested in programmes such as SMART but these are not widely available and are predominately run at a national level.

- Based on feedback from the survey, one approach that may be considered is to reduce the number of floating universities/Technical Labs offered per annum/project and increase the duration.
- Reconsider offering longer dedicated training cruises (8 to 10 days) focused on specific topics such as hydrography
- Look to increase the number of Marine Internships to allow for more one on one training opportunities to deliver more concentrated learning experiences. This could be particularly advantageous for those coming from non-equipped countries to increase capacity within their research group following.

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- More workshops, possibly annually to facilitate networking between alumni and course directors.
- Suggest that Eurofleets could support a similar initiative to the EuroMarine "Orienting Young ScienTists of EuromaRine (OYSTER), which is an independent working group funded by the EuroMarine network. OYSTER is dedicated to promoting and supporting opportunities for Early Career Researchers (ECRs) in marine science.
- Look for ways to tackle the decline in candidates who are interested in studying Science and Engineering (subjects that require the study of Mathematics and physics). This shortage is now affecting Research performing institutions who are finding it difficult to recruit suitable candidates.
- Continued partnership with POGO to offer Marine Internships on-board Eurofleets vessels
- Marine industry such as the offshore sector not contributing proportionally to the cost of training and education when compared to the take up of qualified graduates. Uneven playing field due to the disparity between salaries offered by industry and research/public institutions. Suggested that this would need to be a policy led initiative for it to be implemented correctly and effectively.
- Question raised as to why industry have been effectively sponsoring training in other scientific fields and not in the Marine sector. This could be a task for Eurofleets RI to develop in partnership with industrial partners across the sector.
- Short line of sight of funding having a negative effect and leading to the short timelines for training programmes. Funding is either project based (Eurofleets+) or National Programmes (SMART) which at most have 2 to 4-year funding budgets. Difficult to build capacity when reliant on short funding cycles. 8-10 year programmes would allow for solid foundations to be built and for programmes to develop and expand.
- Smaller events, weekend, one day or short online events, easier to organise and could have more of them for topics that don't require physical access to infrastructures.
- Develop a database of suitable candidates seeking training opportunities through open calls who are then paired with suitable openings when they become available.

3 Report on Impact of Eurofleets+ Education and Training Survey

The Eurofleets+ Alumni survey sought to establish what impact the training programmes had on alumni and to measure how their careers or further studies had been influenced. The feedback will also be used to communicate to the programme funders and directors the achievements of Eurofleets+ in delivering high quality practical training in marine research methods to young researchers and building a case for its continued support into the future. The survey had twenty-four questions in total and took an average of 10 to 15 minutes to complete. A total of 20 responses were collected with an even distribution across each of the training programme types. The results of each question and analysis are outlined below.

https://forms.office.com/e/Ln8ceAZaDB

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Section One General Overview Questions

Section one of the survey, questions one to seven sought to gather demographic information such as gender, age, current and past career/education status, specialist field of interest and what Eurofleets+ Training course the respondent took part in.

Q1. Your Name

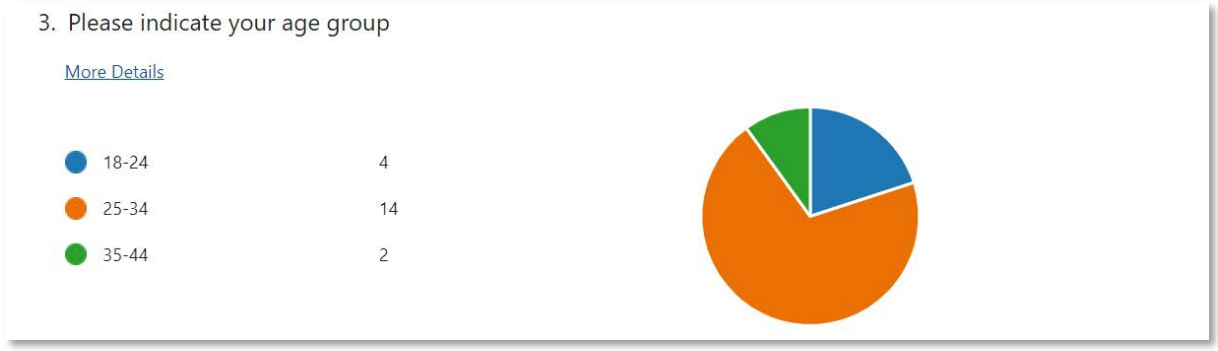
Requested the survey participants name, and was an optional question. 50% of the respondents chose to remain anonymous. None of the respondents had particularly negative feedback throughout the survey so we can only deduce that a heightened awareness around data protection was the motivator.

Q2. Please indicate your gender

Respondents were given the choice to indicate whether they were Female, Male or could choose not to disclose. The gender choices were limited to those required under Horizon 2020 reporting. Of the 20 responses, 40% were Male and 60% were female. This is an accurate reflection of the split of male vs female who participated across the various training programmes.

Q3. Please indicate your age group

Question three sought to establish the age category of the respondents as this was quiet varied across those who attended the training courses. Again the survey reflected the age profile of the alumni as a whole with the majority of respondents aged between 25-34.



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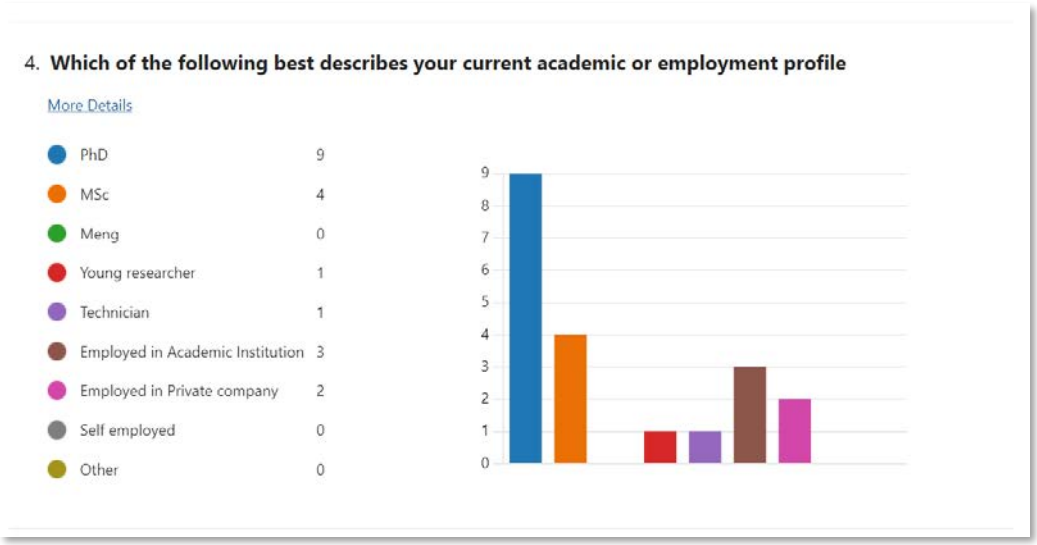
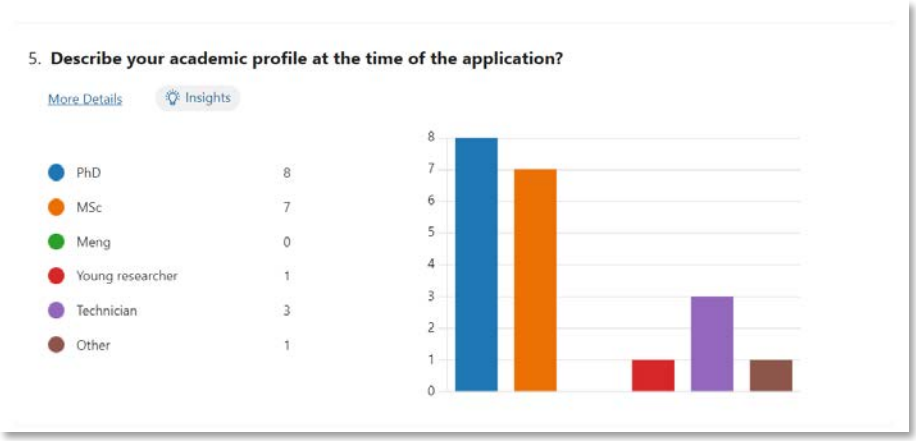
Q4. Which of the following best describes your current academic or employment profile?

In question four the objective was to establish the respondent's current academic or employment profile. This was especially interesting for the Alumni who took part in training opportunities in 2019/2020 to gain some insight into how they each had progressed. The results show that the majority, 45% are currently undertaking a PhD with a further 20% undertaking a Masters. The remainder are spread across either private employment, working in academic institutes, as technicians or as young researchers. The private employment is interesting as there is a belief that industry is not investing in capacity building at ground level despite being the dominant player in the recruitment market. This is causing a shortage of graduates opting for further education and retention of experienced staff in research organisations.



Q5. Describe your academic profile at the time of the application?

To determine how participants had advanced in their studies, career or study area respondents were asked what best described their academic profile at the time of application. The results are interesting here as we can see that there is now one additional PhD student which is a small change, and that Masters students have fallen by three. An assumption can be made that they have possibly moved to a Technician role in an organisation, as we know there is a shortage of skilled and experienced man power in these areas.



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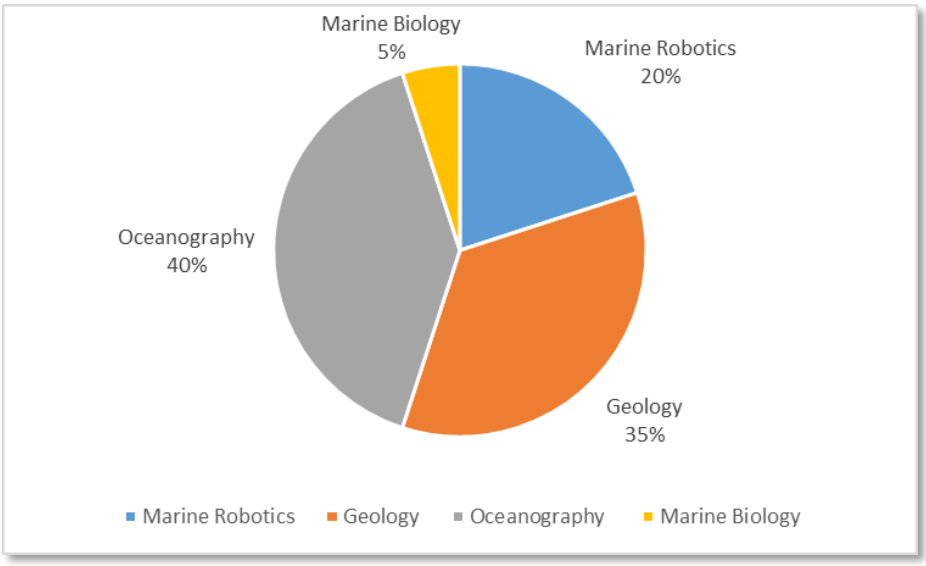
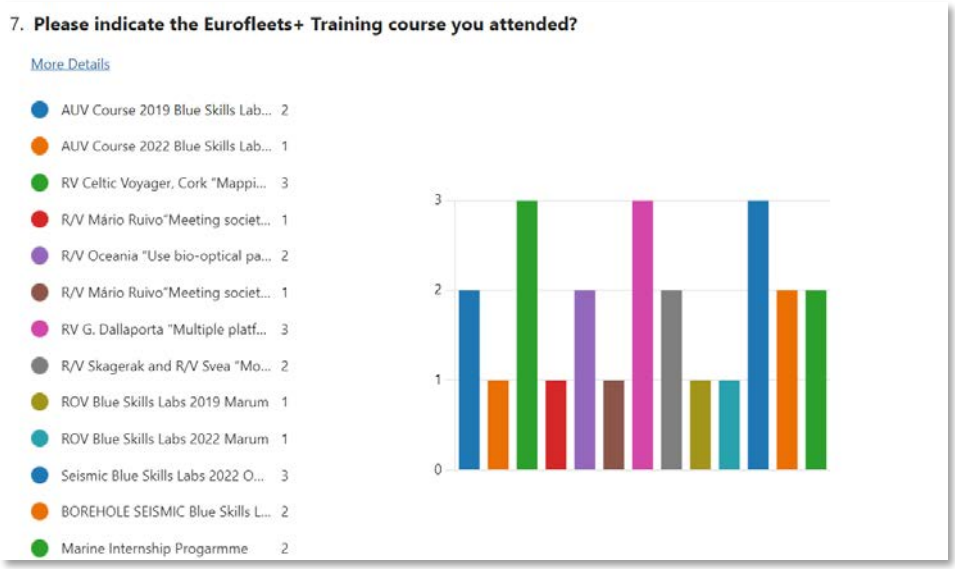
Q6. Please briefly outline your area of special interest or research in Marine Science

For ease of reporting the special interest or research in Marine Science have been broken into four categories based on the responses received. Oceanography and related areas are the largest group followed closely by Geology with Marine Robotics being the third largest group. These results are reflective of the training programmes offered and of the current areas that are of interest to researchers.



Q7. Please indicate the Eurofleets+ Training course you attended?

Each respondent was asked to indicate which of the training courses they had participated in. Of the twenty respondents those that attended the floating universities were best represented with a total 60% of responses. Blue Skills Labs represented 50% with the remainder for Marine Internship Training. Again this is a good representation of the split in numbers and course offered for each category.



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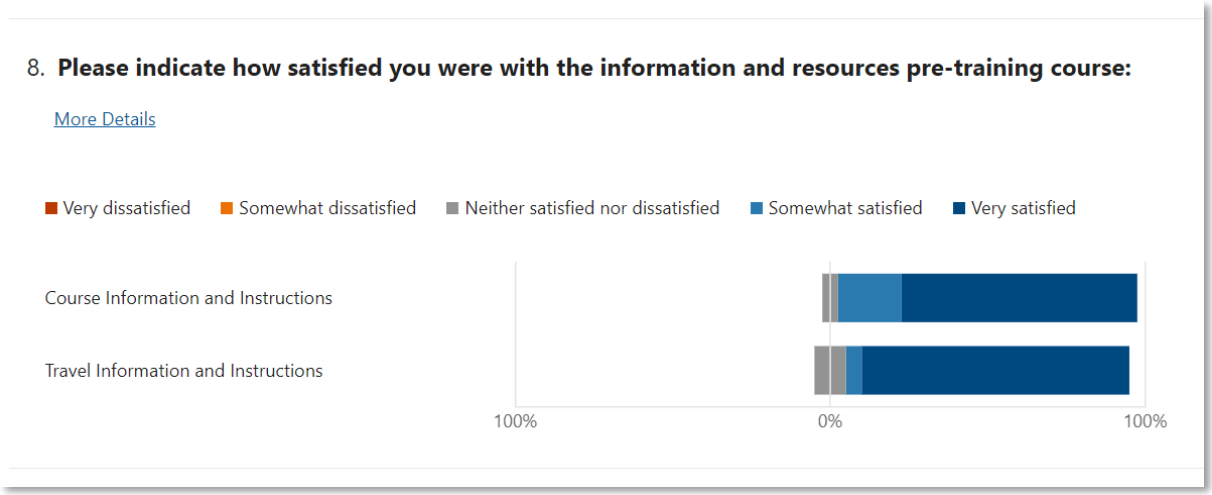
Section Two Course Feedback

The next part of the survey aimed to ascertain how satisfied the respondents were with the overall training programme. The questions in this survey are aimed at a higher level than the surveys filled immediately after course participation. It was hoped that the time since the course would provide the space to reflect on their experience and provide a better insight on how the training had impacted on their decisions with regard to further studies or career choices. The feedback will also be used to adapt and improve the developed course management and content so that it can be further elevated when integrated into the future Eurofleets RI.

8. Please indicate how satisfied you were with the information and resources pre-training course

Eurofleets+ followed a prescribed and detailed methodology for course preparation developed in Eurofleets One and Two, and improved in Eurofleets+. Course directors were equipped with a best practice template for pre course development including all necessary items that need to be considered when hosting a training course for participants who will be travelling to attend. Overall the response is resoundingly positive for both course Information and Instructions and travel information and instruction, although the latter may have room for improvements as three respondents were less than very satisfied.



9. Please provide more details on your response to Q8 above?

For some of the questions in the survey we asked participants to provide additional information to explain what motivated their answer. The responses provided more specific feedback that could be taken on board to improve the on boarding of training students at the beginning of courses. One or the best suggestions was to hold a pre-meeting online to provide instructions and allow attendees to ask questions directly to the course director and organisers to avoid unnecessary email traffic.

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10. Please indicate how satisfied you were with the training activities

All Eurofleets+ training courses are split into classroom lectures and practical training. The exact mix is contingent on the course, its design and the experience level of the students enrolled on the course which can often vary. Question ten sought to establish if the current structure met with participant's expectations. The majority of respondents were very happy with the classroom lectures, with only three respondents less than very satisfied. However, and this is what we consider to be the real strength of the training course provided by Eurofleets, 95% of participants were very satisfied with the practical training received.

11. Please provide more details on your response to Q9 above?

Again for question 11 we asked participants to provide additional information to explain what motivated their answer in relation to Question 10 above. Feedback confirmed that the current mix of classroom learning and practical hands on learning to be very effective. Some suggestions for improvements were additional training on how to produce cruise reports and more practical training time were recorded.

12. Please indicate how satisfied you were with scientific team (instructors):

In order to assess how participants regarded the different elements of each course from human and education resources to the comfort of surroundings a Likert scale question was used to gauge participant's experiences. Responses were primarily positive, however, a number of respondents indicated that there was some room for improvement on Lecture teaching skills, staff availability, quality of resources and opportunities for method application. This feedback will be used when future courses are being designed and scheduled.

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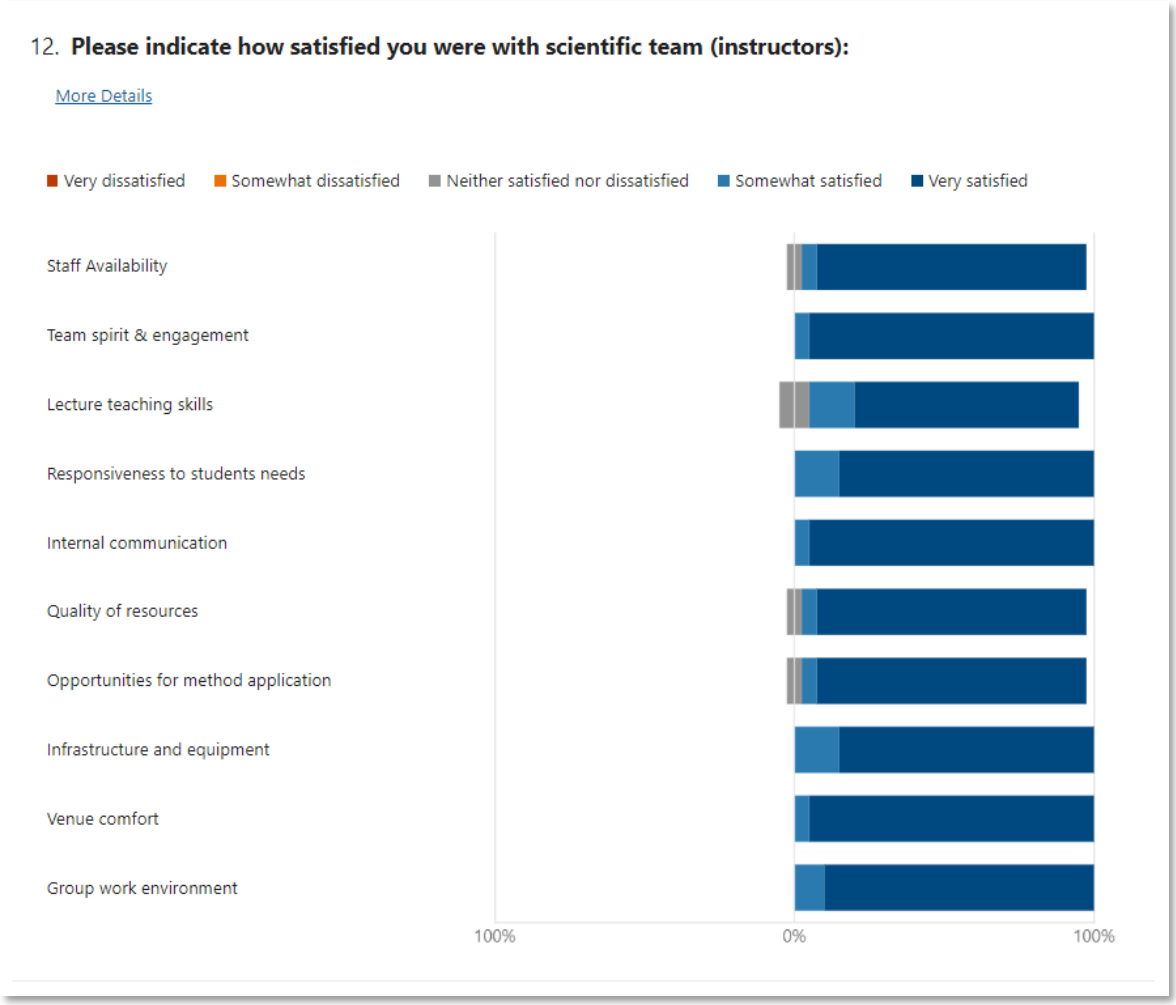

13. In your experience, what is the strength of the Eurofleets+ training programme compared with other training courses or programmes you have participated in?

To assess what works and what needs to be improved respondents were asked what in their opinion were the strengths and weaknesses of the programme. Question 13 and 14 addressed this area.

Q13; the response was that the opportunity for hands on practical experience was the leading attribute that was identified as a strength, followed by access to leading experts as trainers, working as part of a team in a real world environment and the opportunity to network with scientists from other disciplines and counties.

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14. In your experience, what if any are the weak points of the Eurofleets training programme compared with other training you have participated in?

Course duration was the principle area identified for improvement by 60% of respondents, with the short time for ship time and or practical training suggested as weak points.

Section Three IMPACT

Section three focused on establishing the impact of the Eurofleets training from the perspective of the alumni. The objective was to identify how the training had benefited (if at all) across various areas such as networking, future studies or career paths.

---

15. To what extent did you feel that the Eurofleets+ Training Activities helped you build connections or networks with other European and International students? 1 (did not help) to 5 (helped a lot)?

With an overall score of 4.45 out of 5 it was clear that nearly all participants felt that the training course provided a good opportunity to build connections or networks with other European and International students. We can see from analysis of the nationalities across the three courses that 19 different nationalities participated in the Floating University Programme, 16 in the Blue Skills Labs and seven in the Marine Internship. Most European countries were represented but there were also a number of participants from South America (Brazil, Mexico, Guatemala and Colombia) and China currently studying at European universities who took part.

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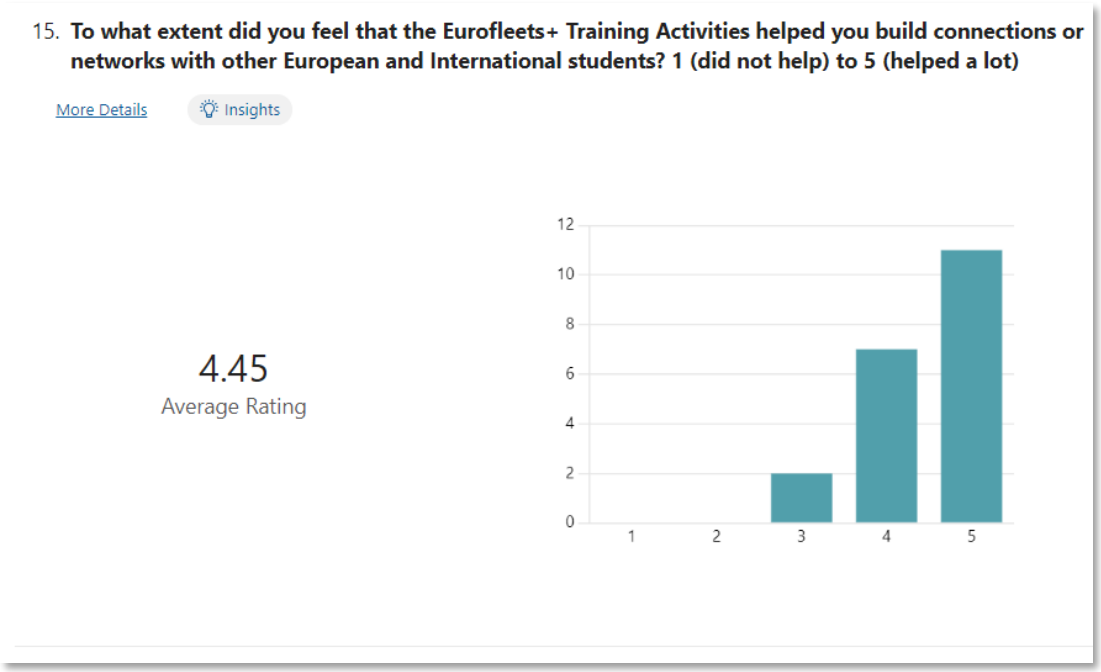
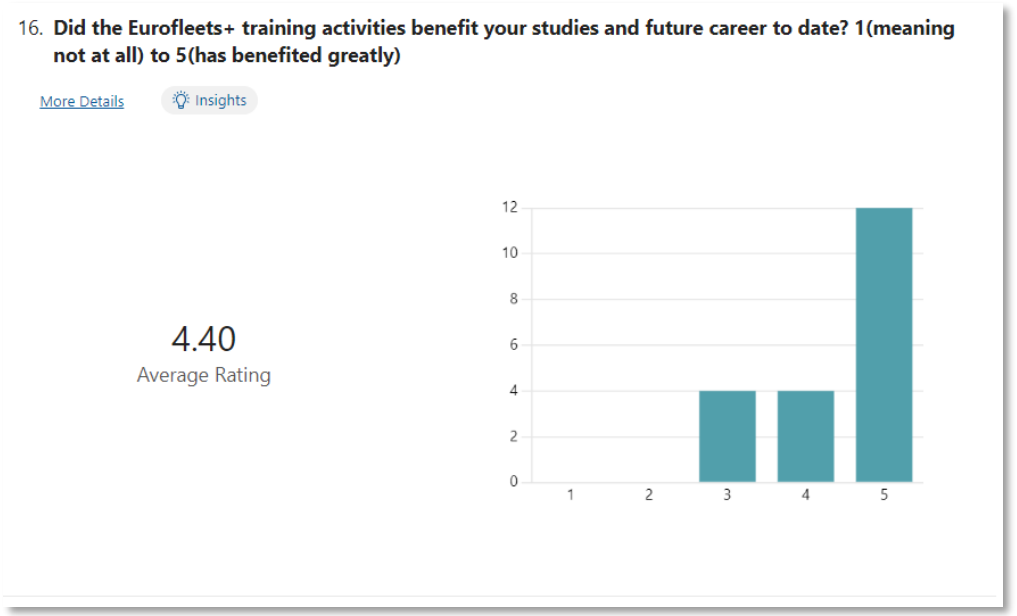


16. Did the Eurofleets+ training activities benefit your studies and future career to date? 1(meaning not at all) to 5(has benefited greatly)

Respondents were asked to rate if they felt Eurofleets+ training activities benefited their studies and future career to date. This question was more relevant to those who had undertaken their training earlier in the project as it allowed more time for the impact to be realised. However, the feedback was positive with a score of 4.40, which although good, still leaves room for improvement.



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17. Please comment/explain/describe your rating in question 16 above?

Though the responses to question 17 are qualitative we have included some of the direct quotes as we feel that the alumni themselves have best expressed the areas that they benefited most below. It is clear from responses that the course had impact both personally and professionally. It is also evident that the courses have helped when securing employment and for supporting further studies across the board.

"This opportunity let me build my professional network with other early-stage researchers who I am still in contact with and established professionals in the field. It gave me first-hand experience in the methodologies I have been discussing as part of my thesis and provided me with a comprehensive overview of the conservation methodologies for Nephrops".

"During my PhD I will have to perform a research cruise in the Southern Ocean. Eurofleets+ was my first experience at sea and I feel it gave solid basis to know some of the instruments and how to do research on a vessel".

"It allowed me to meet other students that were working in the same area as me and doing similar work; It allowed me to improve my knowledge on biological resources and biodiversity, for example it allowed me to recognize/learn about some species more efficiently".

"Yes, it secured me professional opportunities and research collaborations".

"Yes it helped when seeking advancement in my career as I was able to demonstrate hands on experience".

"Interest in different types of technologies for exploration is key to my work and here I have access to a new vessel and autonomous vehicle".

18. In your opinion do hands on, practical courses such as those provided by Eurofleets+ benefit you when applying for further study opportunities or work in your chosen field?

80% of respondents felt that practical courses such as those provided by Eurofleets+ were beneficial when applying for further study opportunities or work in their chosen field. 15% felt that it was somewhat beneficial and 5% that it was neither beneficial nor disadvantageous.

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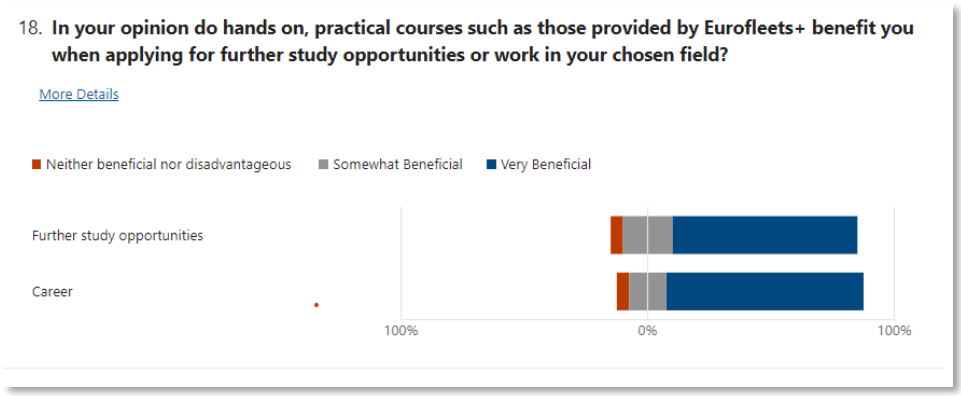
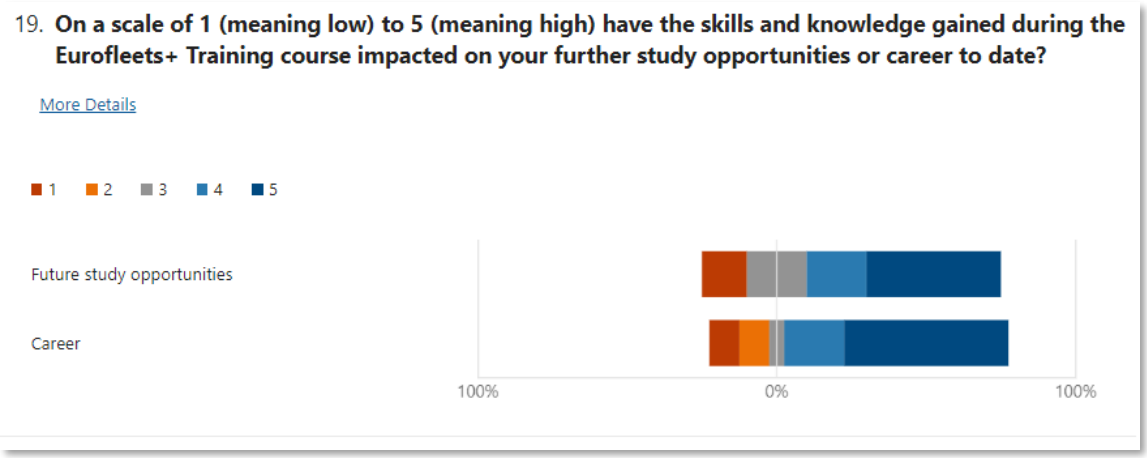


19. On a scale of 1 (meaning low) to 5 (meaning high) have the skills and knowledge gained during the Eurofleets+ Training course impacted on your further study opportunities or career to date?

The majority of respondents agreed that the skills and knowledge gained from Eurofleets+ Training course had a positive impact on their further study opportunities or career progression. Three respondents did not feel that it had any influence on their future study opportunities at all but 85% felt that it had a Med to High impact. With regard to career 80% felt that it had a Med to High impact.



20. On a scale of 1 (meaning low) to 5 (meaning high) how much did the Eurofleets+ Training course you took part in influence your decision-making in relation to further study or future career choices?

The outcome from Q19 is again reflected in the responses provided here when the influence of participating in the Eurofleets Training course had on decision with regard to further study or future career choices is assessed. It can be seen from the graph below that there was a significant impact on both areas, with further study being scoring 85% and Career area 90% for Med to High respectively.

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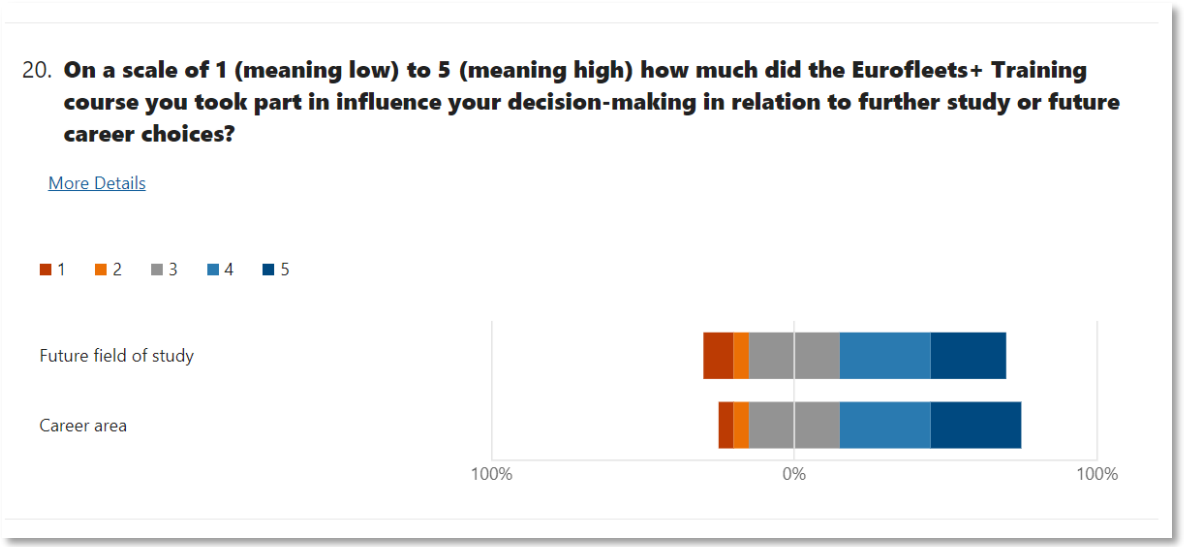

21. How much did the Eurofleets+ Training course you took part in influence your decision-making in relation to further study or future career choices?

Respondents were invited to expand on their response from Questions 19 and 20 providing examples of how the training had influenced their decisions in relation to further study or their future career choices. The feedback demonstrated the impact and value the training courses provided to alumni in various ways such as:

- First opportunity to take park in a real research cruise and opened up the possibility of a new consideration for their career.
- Learned about new opportunities for further practical training courses
- Provided confirmation that students were on the correct career path for them
- Demonstrated the applications for new techniques in the field of geology using unmanned vehicles.
- Provided stimulus for a desire to gain work experience rather than continue straight into a PhD.
- It changed my view on exploring opportunities abroad, getting out of my comfort zone.
- It showed me that making connections with other people with similar interests brings a lot of benefits on knowing what's happening in other academic's/research communities.

Section Four Next Steps

Section four, the final section of the questionnaire looked to the future of the Eurofleets training programme. Feedback provided will be adapted and integrated by the Eurofleets Research Infrastructure when established.

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22. Please outline any recommendations you may have to improve the Eurofleets+ training programme

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The Alumni were asked what recommendations if any they would suggest to improve the Eurofleets+ training programmes. Feedback such as this is invaluable so that the programme can be continually improved and adapted to meet the needs of the next generation of marine scientists.

One of the most frequent recommendations was for course length to be extended with increased focus on practical learning over classroom learning. It was suggested that some of the classroom learning could be provided online before the course commencement. More opportunities, possibly including shorter meetings/workshops to facilitate network-building for alumni and course directors was also recommend. Additional recommendations included longer and interdisciplinary courses, wider advertisement of courses, more hands-on learning particularly in techniques used during research cruises (e.g., acquisition methods, processing and post-processing)

23. Did you know about other training courses in Europe open to international participants with a format similar to Eurofleets (lectures and practice)?

Amongst the respondents there was little or no awareness of any similar programmes available, other than some summer schools aimed at specific topics. Those who provided examples were very specialised or provided little or no field experience. This would suggest that there is a great opportunity for Eurofleets to further develop its training courses for the future.

24. Do you think it would be worth the establishment of a permanent EU training based on the Eurofleets+ programme? (Please, comment your opinion)

Finally, respondents were asked if they saw value in the establishment of a permanent EU training based on the Eurofleets+ programme, to which the response was very positive.

"Absolutely. This is such a great opportunity for early scientist interested in Marine Science, especially the ones coming from a different background that have never had the opportunity to do hands on activities".

"I believe there are would be many benefits in establishing a permanent EU training based in the Eurofleets programme. I think it can provide high quality training to students and early stage researchers".

"In my experience (regarding my country and my experience as a student mostly through the pandemic), opportunities to provide students involved or interested in marine research with practical/hands-on training and experience are not very abundant or broadly available due to lack of infrastructure. The fact that we are in the middle of the UN Decade of Ocean Science for Sustainable Development highlights how this type of initiatives are important, relevant and even essential for future researchers generations".

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4 Annexes

4.1 Alumni Forum Agenda

This project has received funding from the EU
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under Grant Agreement No 824077

EUROFLEETS+ ALUMNI FORUM

Location: Online
Date: 31/05/2023
Time: 14:00 CEST
Facilitator: Niamh Flavin

Description :

The Eurofleets Alumni Forum workshop will allow Eurofleets+ training participants to engage, network and collaborate online. This workshop will also sims to measure the effectiveness, impact and benefits of Eurofleets+ training through open discussions follow-on questionnaires and feedback to allow for the improvement of training activities provided to young researchers in the future

Workshop overview:

13:30 Meeting room open to speakers to test screen sharing and microphones

14:00-14:05 Welcome

14:05-14:55 Presentations from Eurofleets WP 6 and Training leads

14:55 – 15:00 Short break

15:00 – 16:25 Alumni Presentations including **15:30-15:40 Coffee Break**

16:25 – 16:35 Survey Results Andrea Caburlotto

16:35-16:55 Open Discussion

17:00 Forum Close

EUROFLEETS+ ALUMNI FORUM

Location: Online
Date: 31/05/2023
Time: 14:00 CEST
Facilitator: Niamh Flavin

Part one

14:00 – 14:05	Welcome and introduction	Niamh Flavin
14:05 – 14:15	Overview of Eurofleets+ Training Activities 2019-2023	Andrea Caburlotto
14:15 – 14:25	Strategic Marine Alliance for Research and Training (SMART)	John Boyd
14:25 – 14:35	Partnership for Observation of the Global Ocean (POGO)	Lilian Krug
14:35 – 14:45	IOPAN Training Initiatives	Piotr Kowalczuk
14:45 – 14:55	AUV Technical Training	Anna Wåhlin
14:55 – 15:00	Short Break to allow changeover of presentations	

Part Two

15:00 – 15:15	Floating University – RV Celtic Voyager	Nil Rhodes
15:15 – 15:30	ROV Technician Exchange	Roeland Develter
15:30 – 15:40	Coffee Break	
15:40 – 15:55	AUV Lab - UGOT	Larissa Oliveira

EUROFLEETS+ ALUMNI FORUM

Location: Online
Date: 31/05/2023
Time: 14:00 CEST
Facilitator: Niamh Flavin

Part Two contd.		
15:55 – 16:10	Marine Internship Training – RV Belgica	Lauretta Kaerger
16:10 -16:25	Seismic lab – OGS	Nora Markezic (TBC)
Part Three		
16:25 – 16:35	Eurofleets+ Training Impact Survey Result	Andrea Caburlotto
16:35– 17:55	Open Discussion	
17:00	Forum Close (Niamh Flavin)	

Additional information

The meeting will be recorded with your permission.

4.2 Alumni Forum Presentations

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EUROFLEETS+ ALUMNI FORUM WORKSHOP

Overview of Eurofleets+ Training Activities 2019-2023

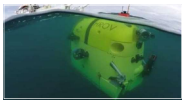
OGS

SCIENTIFIC RESEARCH

Provide evidence for **ACTION** and **SUPPORT A SUSTAINED EXPLOITATION OF OCEAN RESOURCES**

+

TECHNICAL DEVELOPMENT

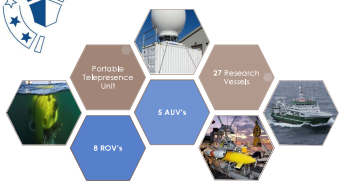


Allow new, high-tech **EXPLOITATION** in **ECOLOGICALLY SENSITIVE AREAS**

BUILD CAPACITY FOR SUISTAINABLE "BLUE GROWTH"

TRAINING

NEXT GENERATION of marine scientists and technicians should be trained at EU level to better prepare them for **NEW CHALLENGES AHEAD**



The EurofleetsPlus project will enable **OPEN ACCESS** to an integrated and advanced research vessel fleet, designed to meet the evolving and challenging needs of the user community.

THE MISSION TO MAKE **EU RESEARCH VESSELS** AVAILABLE TO MARINE SCIENCES RELATED EARLY CAREER RESEARCHERS AND TECHNICIANS OFFERS TRAINING OPPORTUNITIES NOT OTHERWISE AVAILABLE TO:

- BUILD CAPACITY IN EUROPEAN OCEAN SCIENCES RESEARCH
- FACILITATE THE TRANSFER OF KNOWLEDGE AND TECHNOLOGY BY FACILITATING BROADER ACCESS TO EUROPEAN RV & RIS
- ENHANCE UNDERSTANDING OF OCEAN SCIENCE RESEARCH AND CREATE A MORE 'OCEAN LITERATE' PUBLIC

Eurofleets+

BUILD CAPACITY IN OCEAN SCIENCES RESEARCH

FLOATING UNIVERSITY

BLUE SKILLS LABS, WEBINAR & WORKSHOPS

MARINE INTERNSHIP

Eurofleets+

DESIGNED FOR EARLY STAGE RESEARCHERS (ESRS) AND IT WILL CONTRIBUTE TO CONSOLIDATE THEIR CAREERS, DEVELOP A NETWORK OF COLLEAGUES AND IN TURN COULD TRANSFER KNOWLEDGE TO A LARGE NUMBER OF MENTORED STUDENTS IN A DOWNFLOW CASCADING PROCESS.

"Mapping the Ocean Floor: An Introduction to Practical Aspects of Hydrographic Surveying"

"Use bio-optical parameters as convenient tool to study marine biogeochemical processes "

"Meeting societal needs for impartial evidence on the state and sustainable use of the ocean biological resources: the case of the Nephrops norvegicus (Norway lobster) "

"Multiple platforms to measure the ocean"

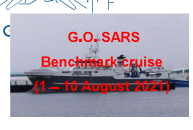
"Modern techniques and platforms for ocean observations"

Eurofleets+

PROPOSED DEDICATED TRAINING COURSES TO ENABLE THE NEXT GENERATION OF MARINE RESEARCHERS TO FULLY UTILIZE THE POSSIBILITIES OFFERED BY THIS KIND OF SCIENTIFIC INSTRUMENTATION ONBOARD EUROPEAN RESEARCH VESSELS.

Eurofleets+

FACILITATE THE TRANSFER OF KNOWLEDGE AND TECHNOLOGY BY FACILITATING BROADER ACCESS TO RVS AND RIS.

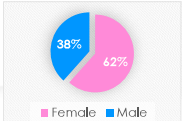


pogo
Partnership for Observation of the Global Ocean

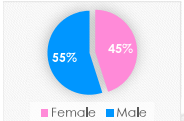
Eurofleets+

Eurofleets+

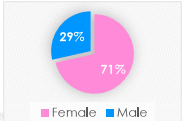
110 APPLICATION
39 PARTICIPANTS
FROM **19** NATIONALITIES



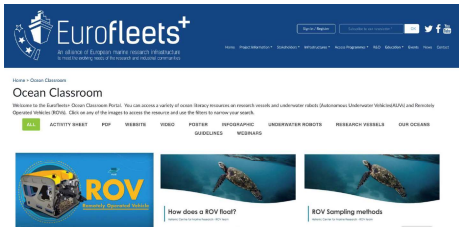
55 APPLICATION
40 PARTICIPANT
FROM **16** NATIONALITIES



7 PARTICIPANT
FROM **7** NATIONALITIES
HOSTED ON BOARD EUROFLEETS RVS



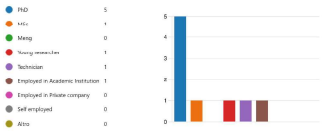
www.eurofleets.eu/classroom/



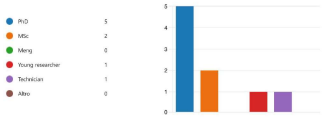
The new **Ocean Classroom** contains resources for people of all ages, from young children of 4 years of age upwards. The resources available can be used by teachers, parents and members of the public to increase their knowledge of research vessels and underwater robots such as Remotely Operated Vehicles (ROVs) and Autonomous Underwater Vehicles (AUVs) and Gliders.

Thank you for attending the Eurofleets Training activities & your attention!

Current academic or employment profile

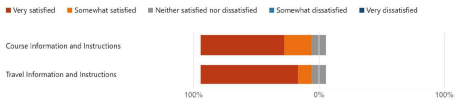


Academic profile at the time of the application



8. **Please indicate how satisfied you were with the information and resources pre-training course:**

Altri dettagli



SUGGESTIONS

- PRE MEETING WITH INSTRUCTORS
- QUICKER AND CLEAR CONTACT PERSON

10. **Please indicate how satisfied you were with the training activities**

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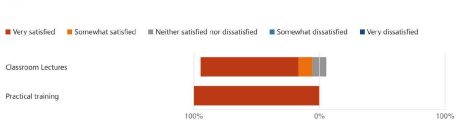

SUGGESTIONS

- Classroom lectures might be too extensive

12. **Please indicate how satisfied you were with scientific team (instructors):**

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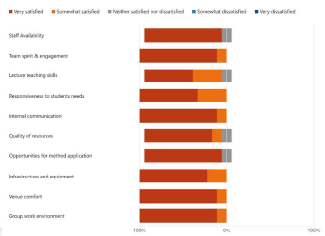

STRENGTH POINTS

- REAL SCIENCE & DATA COLLECTION
- HANDS ON PRACTICE
- EXPERTS IN DIFFERENT FIELDS

WEAK POINTS

- SHORT TIME
- MORE PREPARATION IN ADVANCE FROM THE INSTRUCTORS
- PARTICIPANTS SELECTION TOO CLOSE TO THE TRAINING
- UNAVAILABILITY OF PLANNED INSTRUMENTS

15. **To what extent did you feel that the Eurofleets+ Training Activities helped you build connections or networks with other European and International students? 1 (did not help) to 5 (helped a lot)**

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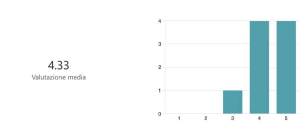

16. **Did the Eurofleets+ training activities benefit your studies and future career to date? 1(meaning not at all) to 5(has benefited greatly)**

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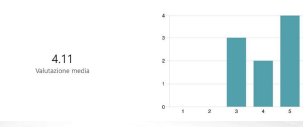


21. **How much did the Eurofleets+ training course you took part in influence your decision-making in relation to further study or future career choices?**

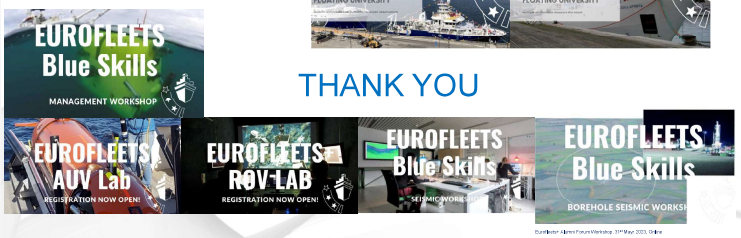
Not a great impact on the career, but:
usefull to new ideas,
experiences,
interests in new fields,
different methodology

22. **Please outline any recommendations you may have to improve the Eurofleets+ training programme:**

Longer & interdisciplinary courses
Omline pre-meeting
How to write complex cruise reports
Hands-on learning (more acquisition,processing and post proc,...)
Meeting/workshops to facilitate network building

24. **Do you think it would be worth the establishment of a permanent EU training based on the Eurofleets+ programme? (Please, comment your opinion)**

YES



THANK YOU

SMART Sea School

Foras na Mara Marine Institute | Ollscoil na Gaillimhe University of Galway | UCC University College Cork, Ireland | INFOMAR | ATU

Celtic Voyager 1996 -2023

34m

Tom Crean 2023 -

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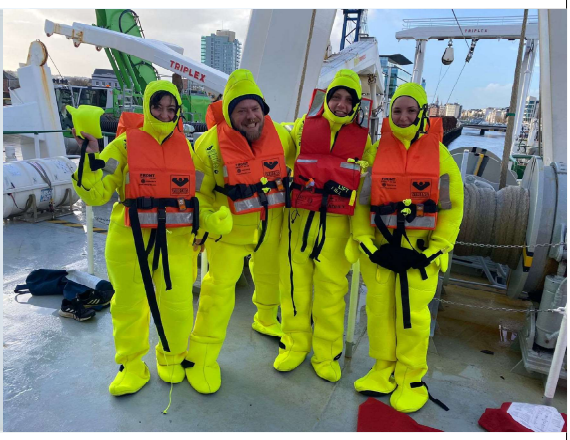
SMART Sea School supplies

Opportunities to learn skills, practice, get experience, meet people on a fully equipped and supported RV

Training Surveys 2011 to present

Learners	Programmes	RV Days	Vessel Charter
2,300	100	420	€4,900,000 2011-present

SMART Marine Institute Research Vessel Bursaries & CPD Module



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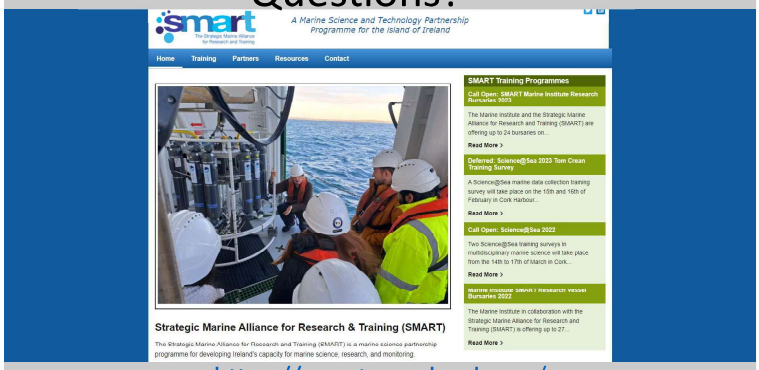
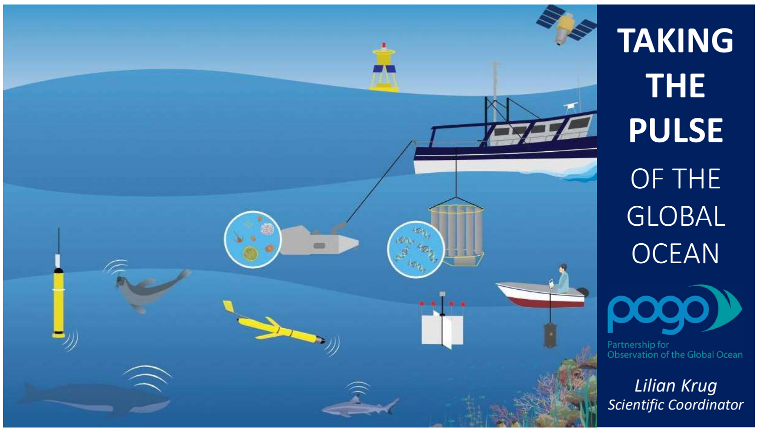
- https://mfrc-atu.ie/
- https://www.infomar.ie/
- https://www.universityofgalway.ie/
- https://www.ucc.ie/en/bees/

Questions?

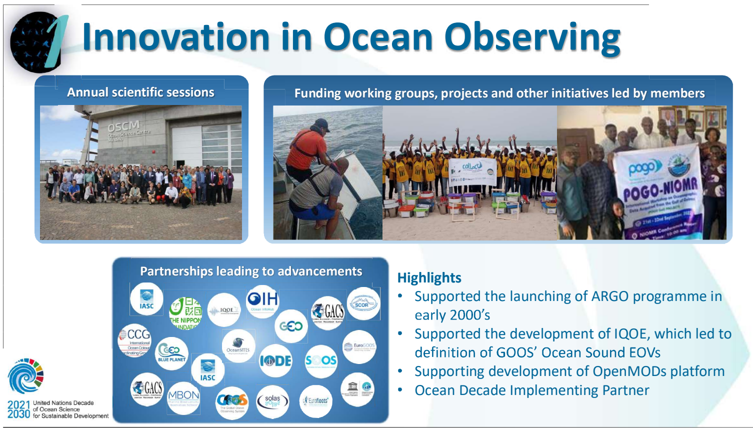


https://smartseaschool.com/

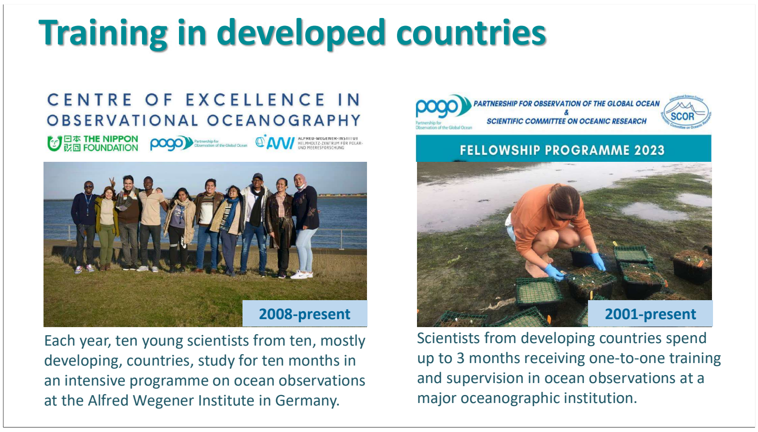
Thanks a million to all our supporters, instructors, vessel crews and students!


TAKING THE PULSE OF THE GLOBAL OCEAN
pogo
Partnership for Observation of the Global Ocean
Lilian Krug
Scientific Coordinator


Who we are
Expand international support for ocean observing, promoting and delivering the development of a truly global ocean observation system to advance understanding of the ocean and its wise use for the benefit of all humankind.
55 members
29 countries
Our priorities
Emerging methods, technologies & low-cost solutions to worldwide ocean observation
Train the next generation of marine scientists
Strive for a more ocean literate society
Innovation in Ocean Observing
Outreach and Advocacy
Capacity Development
pogo
Partnership for Observation of the Global Ocean

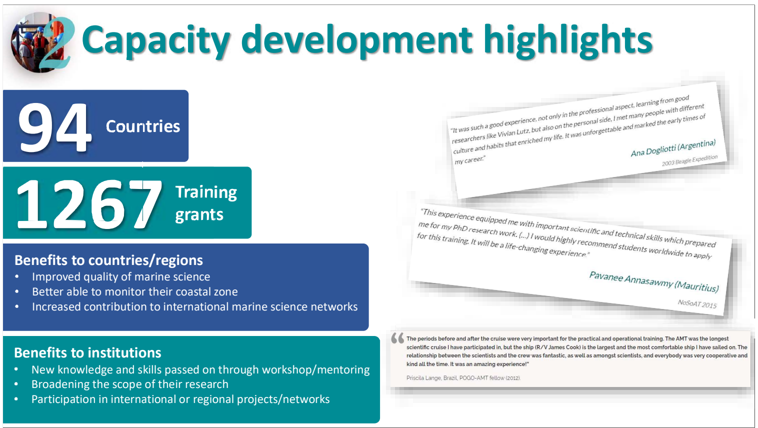

1 Innovation in Ocean Observing
Annual scientific sessions
Funding working groups, projects and other initiatives led by members
Partnerships leading to advancements
Highlights
Supported the launching of ARGO programme in early 2000's
Supported the development of IQOE, which led to definition of GOOS' Ocean Sound EOVs
Supporting development of OpenMODs platform
Ocean Decade Implementing Partner
2021 2030 United Nations Decade of Ocean Science for Sustainable Development


2 Capacity development
Training in developed countries
Ten-month Observational Oceanography training
1-3 months training at advanced oceanographic institutions
Training in developing countries
POGO's and members-led Regional Trainings
Support well-established programmes
Austral Summer Institute (Chile)
Master programme in Physical Oceanography (Benin)
Training at sea
Open Call for shipboard training
One-on-one shipboard training fellowships
Floating Summer Schools
Annual expeditions (AMT), long term observatories (PAP), etc


Training in developed countries
CENTRE OF EXCELLENCE IN OBSERVATIONAL OCEANOGRAPHY
THE NIPPON FOUNDATION
2008-present
Each year, ten young scientists from ten, mostly developing, countries, study for ten months in an intensive programme on ocean observations at the Alfred Wegener Institute in Germany.
PARTNERSHIP FOR OBSERVATION OF THE GLOBAL OCEAN & SCIENTIFIC COMMITTEE ON OCEANIC RESEARCH
SCOR
FELLOWSHIP PROGRAMME 2023
2001-present
Scientists from developing countries spend up to 3 months receiving one-to-one training and supervision in ocean observations at a major oceanographic institution.


Training in developing countries
Countries with past regional trainings
NF-POGO Regional Training Programme on Sustainable Marine Resource Management (Bangladesh)
Introduction to Observational Physical Oceanography (Benin)
POGO/CLIVAR IORP Regional Training Workshop on Observing the Coastal and Marginal Seas in the WIO
CENTER FOR STUDIES ON BAY OF BENGAL
Austral Summer Institute (Chile)
POGO-ITCOocean International Training on Ocean Observations to Societal Applications (India)


Training at sea
Pooling infrastructure, resources and expertise to provide practical hands-on, ship-board technical skills whilst building capacity in oceanographic observations
OCEAN TRAINING PARTNERSHIP
One-on-one training
Training-dedicated cruises
Partners
THE NIPPON FOUNDATION
PML Plymouth Marine Laboratory
National Oceanography Centre
British Antarctic Survey
Eurofleets


2 Capacity development highlights
94 Countries
1267 Training grants
Benefits to countries/regions
Improved quality of marine science
Better able to monitor their coastal zone
Increased contribution to international marine science networks
Benefits to institutions
New knowledge and skills passed on through workshop/mentoring
Broadening the scope of their research
Participation in international or regional projects/networks
"It was such a good experience, not only in the professional aspect, learning from good researchers like Vivian Lutz, but also on the personal side, I met many people with different culture and habits that enriched my life. It was unforgettable and marked the early times of my career."
Ana Dogliotti (Argentina)
2003 Beagle Expedition
"This experience equipped me with important scientific and technical skills which prepared me for my PhD research work. (...) I would highly recommend students worldwide to apply for this training. It will be a life-changing experience."
Pavanee Annasawmy (Mauritius)
NoSoAT 2015
The periods before and after the cruise were very important for the practical and operational training. The AMT was the longest scientific cruise I have participated in, but the ship (R/V James Cook) is the largest and the most comfortable ship I have sailed on. The relationship between the scientists and the crew was fantastic, as well as amongst scientists, and everybody was very cooperative and kind all the time. It was an amazing experience!"
Priscila Lange, Brazil, POGO-AMT fellow (2012).

Capacity development highlights

94 Countries

1267 Training grants

Benefits to countries/regions
- Improved quality of marine science
- Better able to monitor their coastal zone
- Increased contribution to international marine science networks

Benefits to institutions
- New knowledge and skills passed on through workshop/mentoring
- Broadening the scope of their research
- Participation in international or regional projects/networks

nano NF-POGO Alumni Network for the Ocean

Maximising benefits and extending opportunities beyond the NF-POGO trainings

Networking

NANO meetings

NANO newsletter

NANO at High-level events

Joint Research Projects

Regional research projects involving ~100 ECOPs (2012-2017)

NANO-OOAP: Network of 36 EOV monitoring stations maintained by members in 18 countries (2018-pres)

Outreach & Citizen Science

NANO Outreach and CS activities

NANO Webinar series

CS projects SAGITTA & C4CEM

Outreach and Advocacy

Participation in high level events
(COP, GEO, UN Ocean Conference,...)

Letters and statements
aimed at governments and intergovernmental organisations
(G7, UN, IPCC,...)

Interaction with general public & schools
- Brochures aimed at policy makers/the general public/schools on the importance of ocean observing
- Shipboard outreach initiatives targeting primary and secondary schools
- Citizen science activities with secondary schools in Africa

Science communication
- Member of the Ocean Decade Communications Advisory Group
- Sponsorship of Oceanography magazine Special Issues
- Case studies illustrating socio-economic benefits of ocean observing

More information

lakrug@ualg.pt

POGO Strategy:

عربي
English
Español
Français
Português

POGO annual report

English
Français

Follow NANO for opportunities

Job & Fundings
Grad/Postdoc positions
Trainings
Workshops
Call for abstracts..

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www.pogo-ocean.org | pogoadmin@pml.ac.uk | POGO_Occan | POGO.Occan | pogo_occan

Eurofleets+
An alliance of European marine research infrastructure to meet the evolving needs of the research and industrial communities
www.eurofleets.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 824077

Floating University – preparation steps

1. Preparation of the scientific objectives and call for candidates according to Eurofleets+ Research Vessels Training Toolkit for course directors
2. Course advertisement and publication of call
3. Selection of candidates based on merits and education profile
4. Internal co-ordination of the cruise planning, access to instrumentations, selection of teachers and instructors, preparation of syllabus and teaching material
5. COVID Pandemic – sanitary regulations
6. Students reception – mobilization days, practical information on living and working on the research vessel.

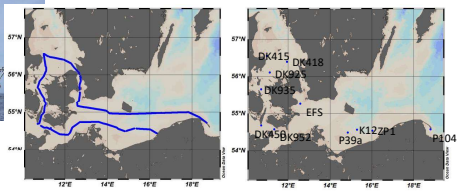
Course theme:
Use bio-optical parameters as convenient tool to study marine biogeochemical processes

Course objectives:

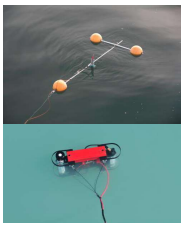
The course is addressed to post-graduates student conducting education and research for development of Master of Science and Ph.D. degree and aim to explain how optical properties of marine waters are linked with biogeochemistry of marine basins

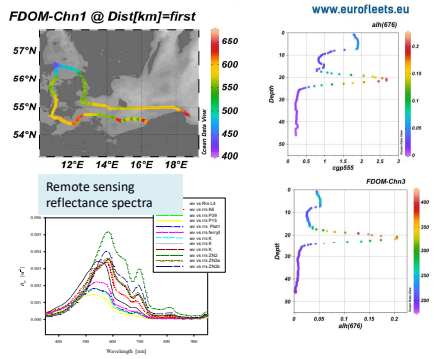
Floating University Course took place on board r/v Oceania 30 May - 8 June 2021 from Gdansk, Poland to Gdansk around Danish Island of Sjælland. Two mobilization days 30 May and 1st June 2021. 7 students representing 6 nationalities selected from 5 European countries – Italy - 2 students, Greece – 2 students, UK, Denmark and Germany - 1 student each, Gender balance – 5 women, 2 men

Transects and stations

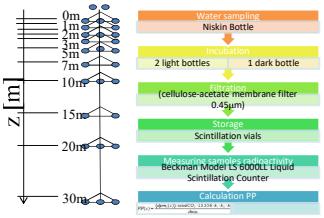


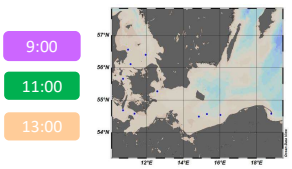
Measurement of physical parameters (T, S) and inherent and apparent optical properties along the ship track and vertical profiling on 11 stations at the Danish and Polish coastal waters.

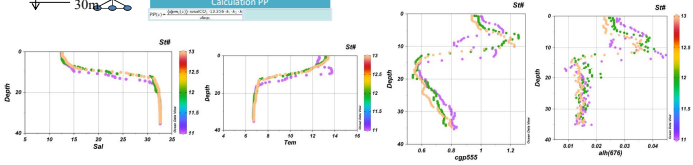




Primary production incubation

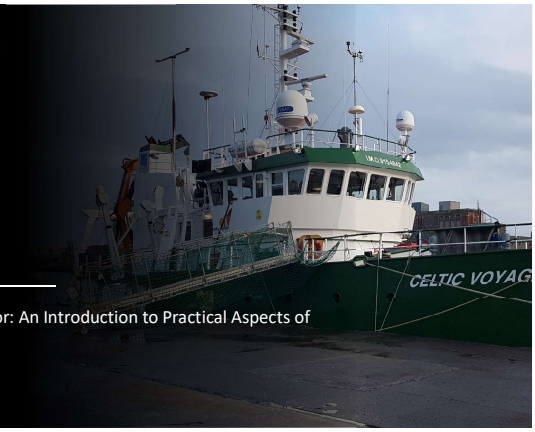






Students activities

Eurofleets+ Floating University



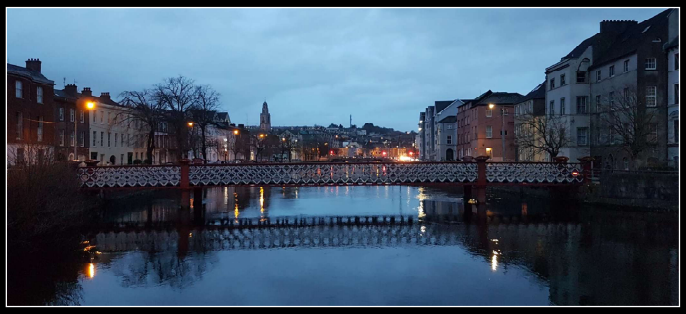
Mapping the Ocean Floor: An Introduction to Practical Aspects of Hydrographic Surveying

RV Celtic Voyager

About myself

- 2015-2019: BSc Marine Sciences at the University of Barcelona (Spain)
- 2019-2021: MSc in Polar and Marine Sciences (POMOR) at Saint Petersburg State University (Russia) and Bremen University (Germany)
- 2021: MSc thesis at the University Centre in Svalbard (Svalbard, Norway)
- 2021-2023 Research assistant at UNIS

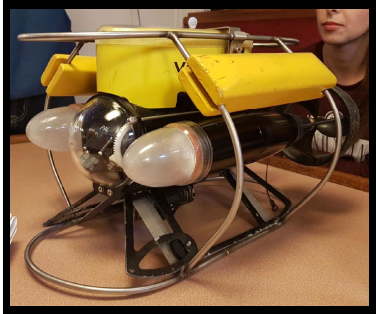
- *06/2021: GASGEM cruise. Onboard RV Clione.*
- 11/2022: AeN Closing the Gap research cruise. Onboard the G.O.Sars as part of the Nansen Legacy Project in the Barents Sea.
- 03/2023: Arctic Submarine Groundwater Discharge (KH2023-7003). Onboard RV Kronprins Haakon in Isfjorden and Hornsund (Svalbard archipelago)
- Summer 2023: More to come



Cork, Ireland - 19th to 25th February 2020

Eurofleets+ Floating University 2020

- Focused on hydrographic data acquisition in Cork harbor and the South Coast of Ireland.



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- Improved our knowledge on scientific instrumentation – multibeam (MBES) and subbottom profilers.

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- We covered MBES:
  - Data acquisition
  - Data process
  - Data analysis.

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- Focused on hydrographic data acquisition in Cork harbor and the South Coast of Ireland.
- Improved our knowledge on scientific instrumentation – multibeam (MBES) and subbottom profilers
- We covered MBES:
  - Data acquisition
  - Data process
  - Data analysis.
- Learned about the amazing Irish hydrographic service and Marine Institute.

Shared our research

Made a little project with outreach purposes

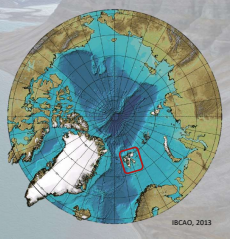
- I gained valuable knowledge about hydrographic instrumentation such as MBES and subbottom profilers, and how they are used to map and characterize the ocean floor.
- I also had the opportunity to learn about the marine surveying activities performed in Ireland.
- It was a fun and enlightening experience, and I was able to meet some amazing people whom I still keep in touch with.
- **Overall, this experience has enhanced my career.**

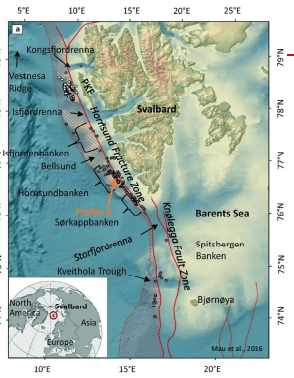
Active gas seepage in western Spitsbergen fjords, Svalbard archipelago: spatial extent and geological controls

Nil Rodes[1,2]*, Peter Betlem[1,3], Kim Senger[1], Miriam Römer[2,4], Andy Hodson[1], Martin Liira[5], Riko Noormets[1], Srikumar Roy[6], Aleksandra Smyrak-Sikora[1], Gerhard Bohrmann[2,4]

*Contact information: **nilr@unis.no**

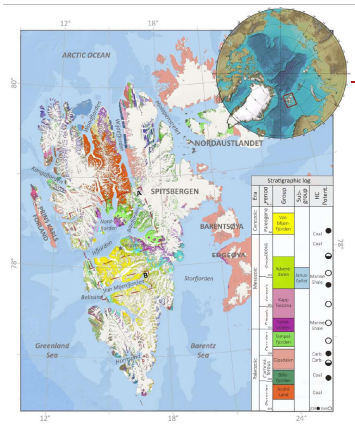
[1]The University Centre In Svalbard
[2]University of Bremen
[3]University of Oslo
[4]MARUM – Center for Marine Environmental Sciences
[5]University of Tartu
[6]University College Dublin





STATE-OF-THE-ART BACKGROUND

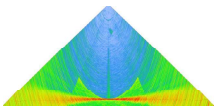
- Gas seepage along **continental margins**.
- Extensively studied **offshore** Svalbard. And in the **fjords**?
- HE449 cruise August 2015 → **gas seepage in the fjords of Spitsbergen**!
  - **Shallow** marine environment
  - Early climate change **warning** system

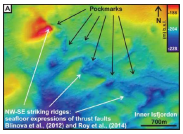


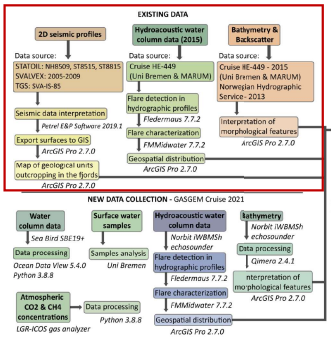
RESEARCH OBJECTIVES

1. **Gas seepage distribution and seasonality.**
2. **Stratigraphic units -Mesozoic organic-rich formations-.**
3. **Geologic control of present-day fluid expulsion.**

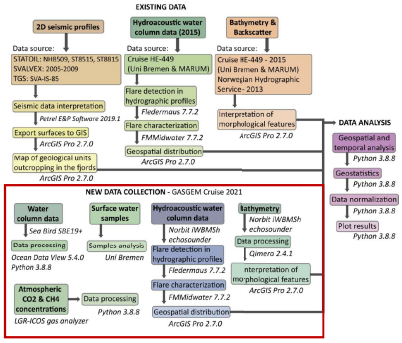
DATA & METHOD







DATA & METHOD



DATA & METHOD

Research Grant

Research Vessel – Arctic Czech Station

DATA & METHOD

Research Grant

Research Vessel – Arctic Czech Station

Norbit Subsea

DATA & METHOD

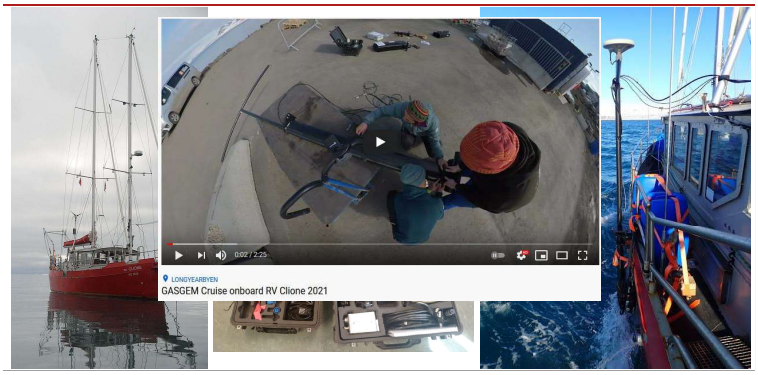
Research Grant

Research Vessel – Arctic Czech Station

Norbit Subsea

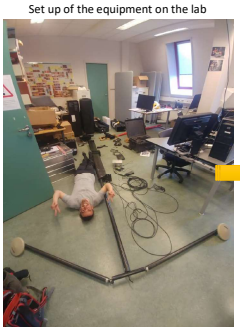
Great team and motivation!

DATA & METHOD

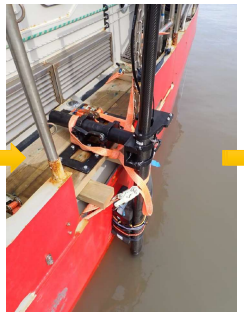


Set up of the NORBIT iWBMSh system

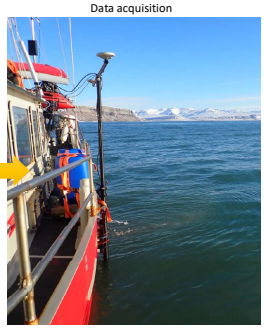
Set up of the equipment on the lab



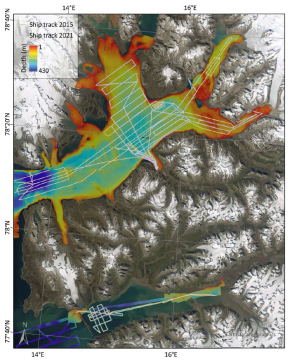
Assemble the MBES to the vessel



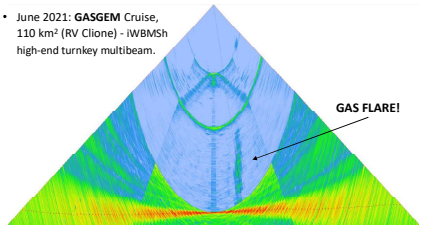
Data acquisition



WATER COLUMN IMAGING



- August 2015: **HE449** Cruise, 176 km² (RV Heincke) - Kongsberg EM710.
- June 2021: **GASGEM** Cruise, 110 km² (RV Clione) - iWBMSh high-end turnkey multibeam.



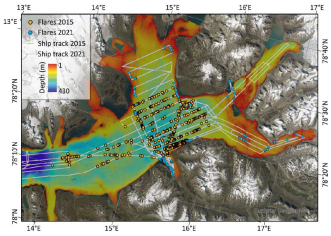
WATER COLUMN IMAGING

Results 2015

- Isfjorden: **668 flares** (176 km²).

Results 2021

- Isfjorden: **152 flares** (110 km²).



FURTHER RESEARCH

- **FJORDGAS** project.
- **September 2023**, main fjords of **Spitsbergen**.
- **RV Heincke**.
- Investigate **gas seep system** in Svalbard's fjords.
  - **Distribution** of gas bubble emissions.
  - **Quantitatively** estimate gas seepage.
  - Gas associated with **permafrost**.
  - **Gas hydrates** in the sediments.
  - Fluid flux **seafloor-hydrosphere-atmosphere**.

Eurofleets+
www.eurofleets.eu

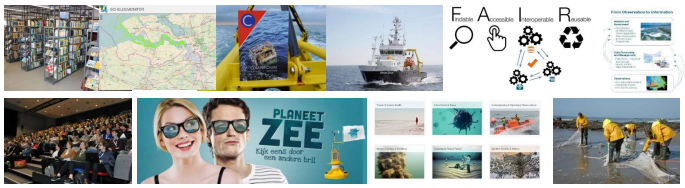
Thank you for your attention!

VLIZ pioneer in marine science

Roeland Develter – 31/05/2023

EF+ training experiences

Flanders Marine Institute



Scientific Institute; since 1999; VLIZ vzw

Data, Information, Outreach, Infrastructure, Research & Innovation

VLIZ

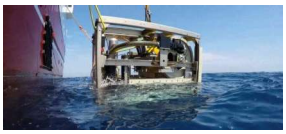
Marine Robotics Centre

- Started in 2018
- Joined March 2021
- Currently team of 8
- Operation of marine robotic platforms
- Integration on these platforms
- Development of novel techniques

VLIZ

Marine Robotics Center

- Our platforms
- My focus : ROV and glider
- Also: AUV and USV




VLIZ

August 2021

Training

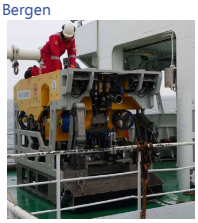
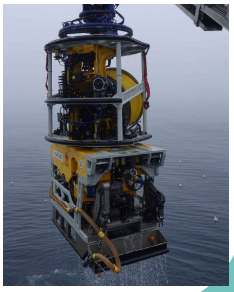
- EF+ WP "training and education"
- Knowledge transfer
- Building experience
- August 2021
- Benthic habitat mapping in the Denmark Strait


VLIZ

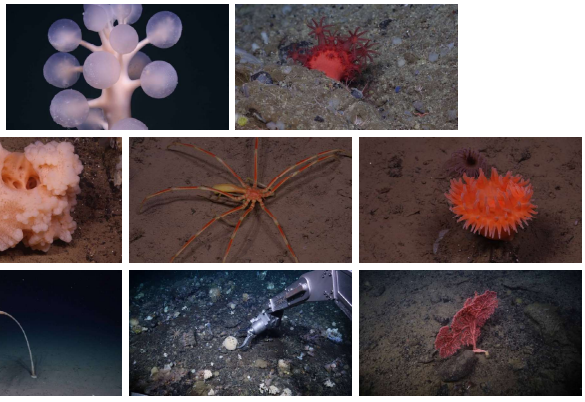
August 2021

Benchmark cruise

- Remotely Operated Vehicle
- NORMAR from University of Bergen
- Ægir6000
- 25 dives 300-1400m
- CTD casts
- Multibeam,...

VLIZ



June 2022

EF+ Cruise IOPD

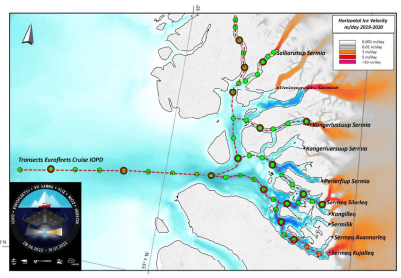
- High resolution imaging of glacial induced plankton dynamics
- Early career scientists
- Personally: operational experience, logistics, cruise planning


VLIZ

June 2022

EF+ Cruise IOPD

- Video plankton recorder
- Continuous Particle Imaging and Classification System
- Multiparameter CTD
- FRRF
- Pigments, nutrients
- Plankton nets
- Turbulence

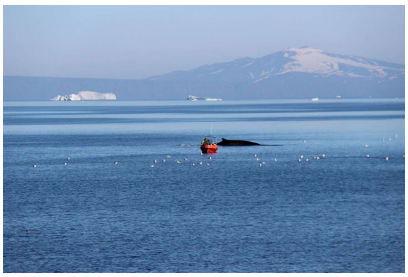


VLIZ

VLIZ

VLIZ pioneer in marine science

Thank you!
Questions?



Time-lapse video West-Greenland fjords from RV Sanna - youtube.com/watch?v=WI1Vz4c0ncE

Floating University & Blue skills lab

A postgraduate student's experience

Larissa de Oliveira, PhD

Who am I?

PhD in Marine Geosciences

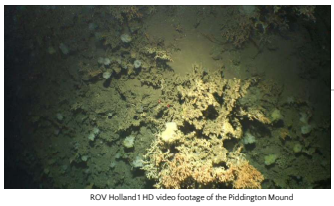
- Thesis title: "The Application of machine learning and 3D Photogrammetry for Cold-water Coral habitat classification in the NE Atlantic"
- Studying automated image analysis techniques for cold-water coral classification

Postdoc in the Department of Geography at UCC

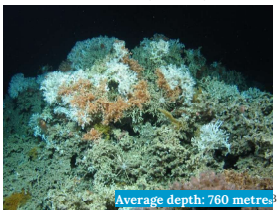
Motivation

COLD-WATER CORALS

- CWCs represent one of the most important deep-sea ecosystems;
- Little is known about CWC's key ecosystem functions and distributions
- Irish ocean resources had a turnover of €6.2 billion as of 2018



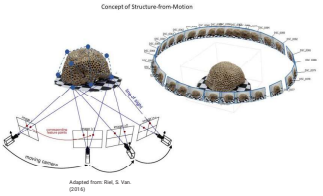
ROV Holland1 HD video footage of the Piddington Mound

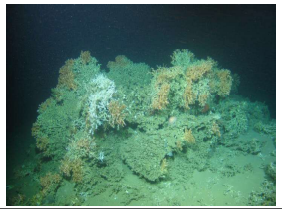


Motivation

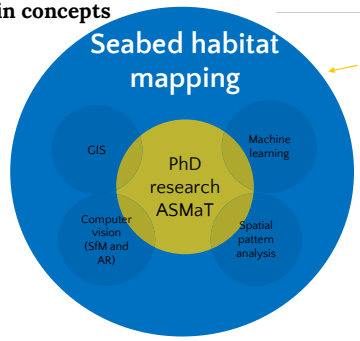
3D ANALYSIS OF NATURALLY 3D SHAPES

- Need to account for the natural scleractinian coral branching structure of CWCs
- The magnitude of influence of 3D measures e.g. structural complexity is still poorly understood





Main concepts



Sea-going experience
Marine data acquisition
Marine data processing

Eurofleets training

2020

EUROFLEETS+ Floating University – "Mapping the Ocean Floor: An Introduction to Practical Aspects of Hydrographic Surveying"

2022

Eurofleets+ Blue Skills Lab
AUV workshop

1 Eurofleets+ Floating University

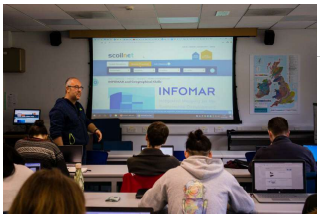
Celtic Voyager, Cork, Ireland, 2020

EUROFLEETS+ Floating University – "Mapping the Ocean Floor: An Introduction to Practical Aspects of Hydrographic Surveying"

A hands-on experience

Learning from the best

Infomar, Marine Institute data processing skills



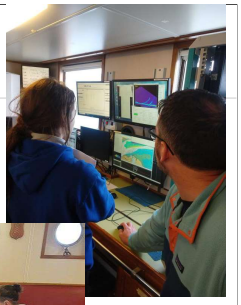
Acoustic data acquisition and processing

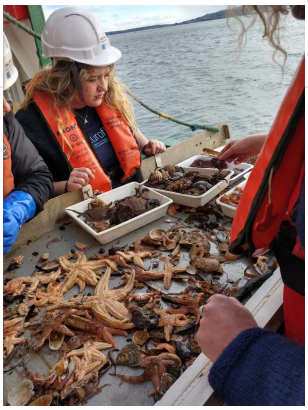
KONGSBERG

Seafloor Information Systems (**SIS**)

Process

Qimera





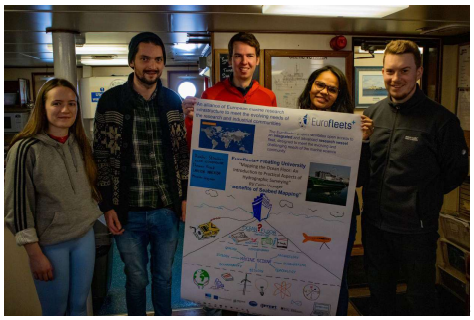
Benthic and sediment sampling

Survey design, importance of sampling grid, use cases, logging

Sediment sampling

Sampling tools, marine sedimentology applications

Brainstorming

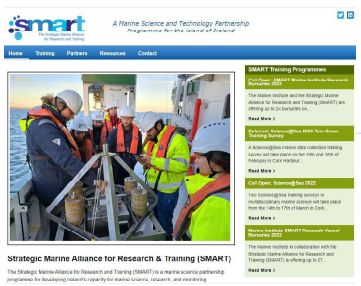


Fast forward 1 year...

News

Luke and Larissa teaching on SMART Seaschool

Students from NUIG, Maynooth and UCC took part in an two day practical course on board the RV Celtic Explorer.



https://smartseaschool.com/

2022

2 Eurofleets+ Blue Skills Lab AUV workshop

Gullmar Fjord, Sweden, 2022

Gothenburg University (UGOT) in collaboration with the Swedish Marine Robotics Centre (SMaRC)

Technical training with the best

Oceanographic experts

- Prof Anna Wåhlin
- Filip Stedt

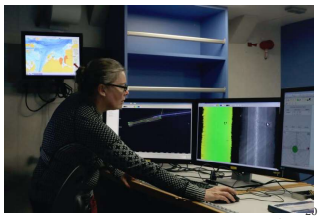


Image: Kai Salm

AUV 'RAN'

Course programme

- Oct 31st – set-up software, installing maps, plan draft mission, pre-mission procedures and QC of mission plan
- Nov 1st – Group excercises and lectures
- Nov 2nd – Practical training (mission QC, pre-dive checks and execution of mission)
- Nov 3rd – Practical training (mission QC, pre-dive checks and execution of mission) and data post-processing
- Nov 4th – data post-processing and course report preparation.

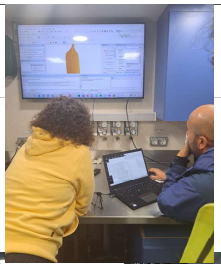
A hands-on experience

- pre-mission procedures and QC of the mission plan
- Practical training (mission QC, pre-dive checks and execution of mission)
- data post-processing and course report preparation.

Reflection

SEA·BIRD SCIENTIFIC

graph-tool



Focus groups

- Day 1

Oceanography - CTD

Shallow waters

- Day 2

Acoustics - MBES/SBP/SSS

- Day 3

Oceanography - CTD

Deep waters

Group exercises

- Focus group discussion
- Defining research questions
- Discussing the mission plan - strategies, locations
- Survey design - equipment set up

Image: Kai Salm

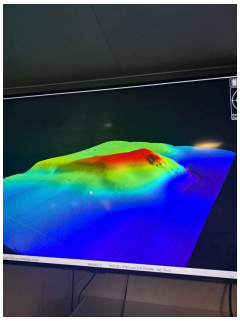
Data collection

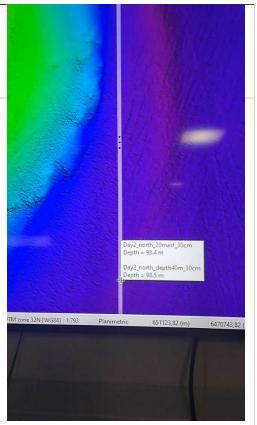
We created two missions:

Survey A: South of the fjord and included a patch test and mapping of an interesting geomorphological feature.

Survey B was to the North of the fjord. Survey B comprised of an MBES test with the AUV in two different survey modes:

1. based on the altitude
2. depth
3. Two frequencies





Data presentations

- Each group presented the findings of their mission

Image: Kai Salm

The people

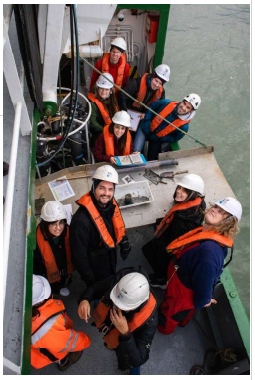
- >10 countries
- Different backgrounds
- A lot to share

Image: Kai Salm

Take-away message

Thanks!

*Any **questions** ?*



ResearchGate

@LarissaMacedoCO

Larissa.oliveira@ucc.ie

Eurofleets+ Marine Intership

01. - 08.06. 2022, RV Belgica
Lauretta Kaerger

Lauretta.kaerger@unifi.it

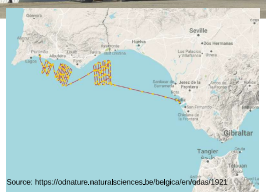
Eurofleets+ Intership

01.-08.06.2022

RV Belgica

Cádiz, Spain – Portimão, Portugal

Objective: Detect offshore tsunami deposits in the Gulf of Cádiz



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Why & how did I join?

- My PhD topic: Earthquake and tsunami hazards in western Tsucany
- High similarity between my topic & the cruise objectives
- High similarity in used methods

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Cruise objectives & Methods

- Search for offshore tsunami deposits
- Geophysical methods:
  - Two seismic methods
  - Bathymetry
- CTD Log (Depth, Temperature, Density)

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Cruise objectives & Methods

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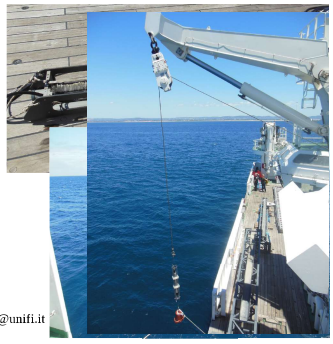

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Team

UNIVERSITEIT GENT

1 2 9 0 UNIVERSIDADE D COIMBRA

U LISBOA UNIVERSIDADE DE LISBOA

RWTH AACHEN UNIVERSITY

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Live on board

- Safety briefing
- 4h Shift system
  - 0400-0800
  - 0800-1200
  - 1200-0400
- 8h Free time

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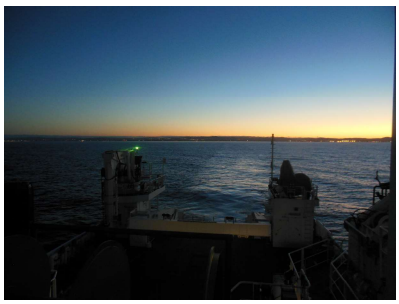

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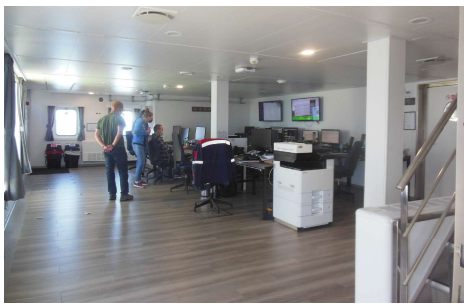
On-duty



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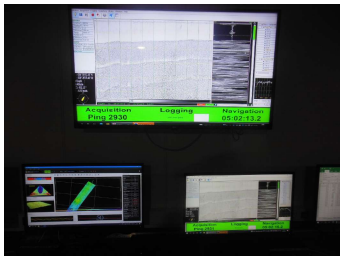

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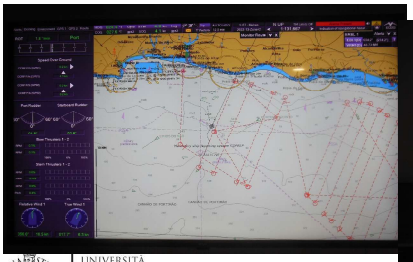

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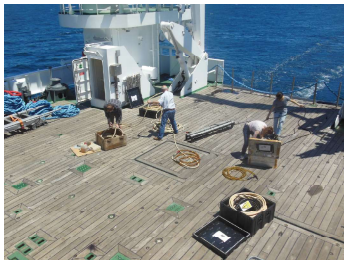

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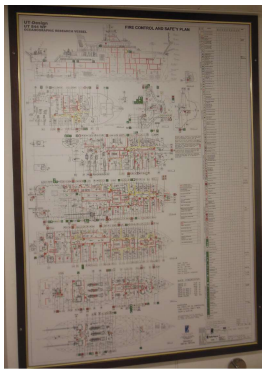

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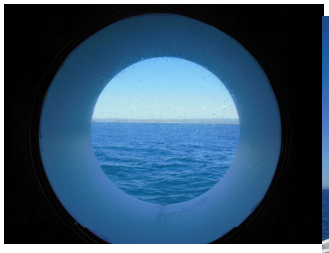

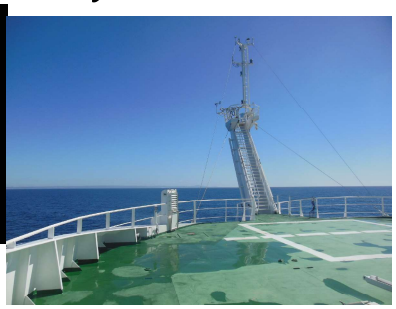

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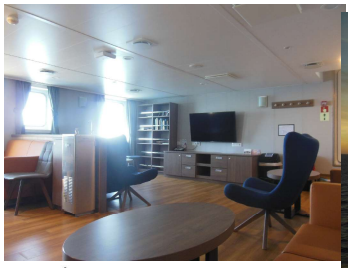

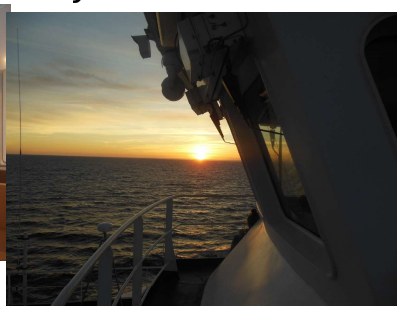

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Aftermath

- Scientifically: Very successful cruise
- Better understanding about data collection & first interpretation of raw data
- Field work & what an go wrong and still make it successful
- Exchange with different scientist from different universities and at different career stages
- Building connection
- Limited direct gain for my PhD project

UNIVERSITÀ DEGLI STUDI FIRENZE
DST DIPARTIMENTO DI SCIENZE DELLA TERRA
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Recap

- Really interesting experience
- Really helpful in understanding methods and data collection
- Good networking opportunity

UNIVERSITÀ DEGLI STUDI FIRENZE
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EUROFLEETS+BLUE SKILL LABS

SEISMIC AND BOREHOLE SEISMIC WORKSHOPS

10-14th October 2022

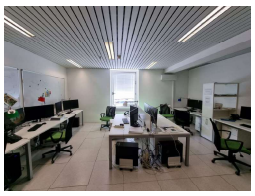
Eurofleets+
An alliance of European marine research infrastructure to meet the evolving needs of the research and industrial communities

Seismic workshop

10-11th October

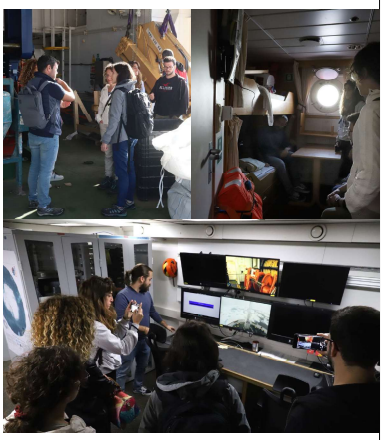
Topics:

- Basics of wave propagation
- Marine seismic data acquisition
- Seismic data processing
- Seismic tomography and application to marine data



R/V LAURA BASSI

Length: 80m
Breadth: 17m
Gross Tonnage: 4028 GT
Ice class: icebreaker
Service speed: 12 Kts
Laboratory facilities: wet and dry lab
Sampling capabilities: 18m long piston corer
Other: supports ROV deployment, multi channel seismic sources and recorders, multi-beam for shallow and dee- water receivers, CTD and plankton sampling

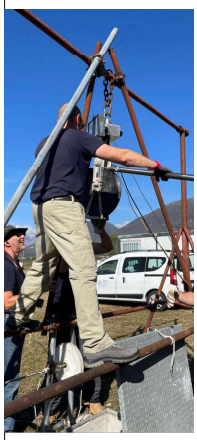


Borehole Seismic workshop

12-14th October

Topics:

- Vertical Seismic Profiling (VSP)
- Electrical methods for well exploration
- Seismic modeling applied to borehole exploration
- VSP data processing with Vista software



PITOP WELL GEOPHYSICS FACILITY

- 4 wells between 150 and 420 m deep
- accelerometers, geophones and optical fibers (DAS)
- Two sensor lines (geophones and DAS) buried about 50 cm deep
- Permanent laboratories equipped with instrumentation for recording and processing data in real-time

THANK YOU FOR YOUR ATTENTION!