



## 1<sup>st</sup> USER WORKSHOP REPORT

Ref.: D7.3\_V1.1

Date: 29/11/2019

Euro-Argo Research Infrastructure Sustainability and Enhancement  
Project (EA RISE Project) - 824131

This project has received funding from the European Union's Horizon 2020  
research and innovation programme under grant agreement no 824131.  
Call INFRADEV-03-2018-2019: Individual support to ESFRI  
and other world-class research infrastructures





Disclaimer:

This Deliverable reflects only the author's views and the European Commission is not responsible for any use that may be made of the information contained therein.

## Document Reference

Project	Euro-Argo RISE - 824131
Deliverable number	7.3
Deliverable title	1st user workshop report
Description	1st User Workshop report
Work Package number	WP7
Work Package title	Euro-Argo RISE visibility : communication and dissemination towards user's community
Lead Institute	E-A ERIC
Lead authors	E. EVRARD
Contributors	D. FITZHENRY, C. GOURCUFF, D. KASSIS, B. KLEIN, G. NOTARSTEFANO, S. POULIQUEN
Submission date	29/11/2019
Due date	[M09] - 30 September 2019
Comments	<a href="#">Click here to enter text.</a>
Accepted by	C. GOURCUFF

## Document History

Version	Issue Date	Authors	Comments
1.0	25/11/2019	E. Evrard	Initial version
1.1	29/11/2019	E. Evrard	Integration of partners' comments (DF, CG, DK, BK, GN, SP)

## EXECUTIVE SUMMARY

The 7<sup>th</sup> Euro-Argo Science Meeting is one of the main place for science around Argo in Europe. Held on a biennial basis by Euro-Argo, this event is a way of supporting and strenghtening European Argo community.

This meeting report provides a summary of the main highlights and key messages delivered during this 7<sup>th</sup> edition. The book of abstracts, presentations, posters and pictures of this event are available on the website:

<https://www.euro-argo.eu/News-Meetings/Meetings/Euro-Argo-Users-Meetings/7th-Euro-Argo-Science-Meeting>

### 7<sup>th</sup> Euro-Argo Science Meeting in numbers:

69 participants

35 organisations

17 countries

43 % female participants

30% female speakers and chairs

## TABLE OF CONTENT

<b>1</b>	<b>Introduction</b>	<b>4</b>
1.1	Context	4
1.2	Goals of the meeting	4
1.3	Committees	5
1.3.1	Scientific Programme Committee	5
1.3.2	Organising Committee	5
1.4	Overview of registered participants	5
<b>2</b>	<b>Sessions presentations</b>	<b>7</b>
2.1	Opening	7
2.2	Session 1: Meso to large scale ocean structure and variability	7
2.3	Session 2: Marginal Seas with a focus on the Mediterranean & Black Seas	8
2.4	Session 3: Extension of Argo to BGC	8
2.5	Session 4: New datasets, analysis methods and services to users	8
2.6	Session 5: Technological innovations	9
<b>3</b>	<b>Main outcomes of the meeting</b>	<b>10</b>
<b>4</b>	<b>Focus on Science Meeting participants</b>	<b>12</b>
4.1	Foster exchanges and better understand participants’ needs: demo tools.	12
4.2	Better know the participants: interactive polls	13
4.3	Get feedback from attendees on this event: interactive polls	13
<b>5</b>	<b>Awards: Best talk and best poster</b>	<b>15</b>
<b>6</b>	<b>Communication</b>	<b>17</b>
6.1	Press releases	17
6.1.1	Euro-Argo press release	17
6.1.2	Ifremer press release	19
6.2	Twitter	20
<b>7</b>	<b>Annexes</b>	<b>22</b>
	Annex 1: Final Agenda	22
	Annex 2: Slido polls results - users’ profiles	33
	Annex 3: Slido Poll results - feedback from attendees	37

# 1 Introduction

## 1.1 Context

The Euro-Argo Science Meeting is held on a biennial basis to bring together Argo scientific users in Europe. It is an important event as it is the primary forum for Argo science in Europe.

This year, the event was postponed due to major events occurring at the same time (Euro-Argo ERIC evaluation, end of June 2019 – OceanObs'19, mid-September 2019). In order to maximize impact in the Argo community, our 7<sup>th</sup> Euro-Argo Science Meeting took place in October 2019. The chosen location was Athens (Greece) and the meeting was organised with the help of HCMR.

## 1.2 Goals of the meeting

Main goals were to:

- Bring together users of Argo data and to provide an opportunity for high-level science interactions in link with Argo.
- Stimulate research activities using Argo data, especially in combination with other data types and in model studies.
- Highlight the new fields of research activities and applications allowed by the extensions of the core Argo programme to biogeochemistry, greater depths, and specific regions of interest (marginal seas, boundary currents, high latitudes).
- Strengthen links with industry and foster Research and Development activities related to Argo.
- Allow users to widen their experience of the Euro-Argo community, welcome young scientists into that community, encourage their use of Argo data and provide an opportunity to participate in discussions of how Argo should evolve within Europe and globally.

This event is a way of supporting and strengthening the European Argo community. It is also a great opportunity to foster links between young scientists and those with more experience in the Argo project at European or international level.

## 1.3 Committees

### 1.3.1 Scientific Programme Committee

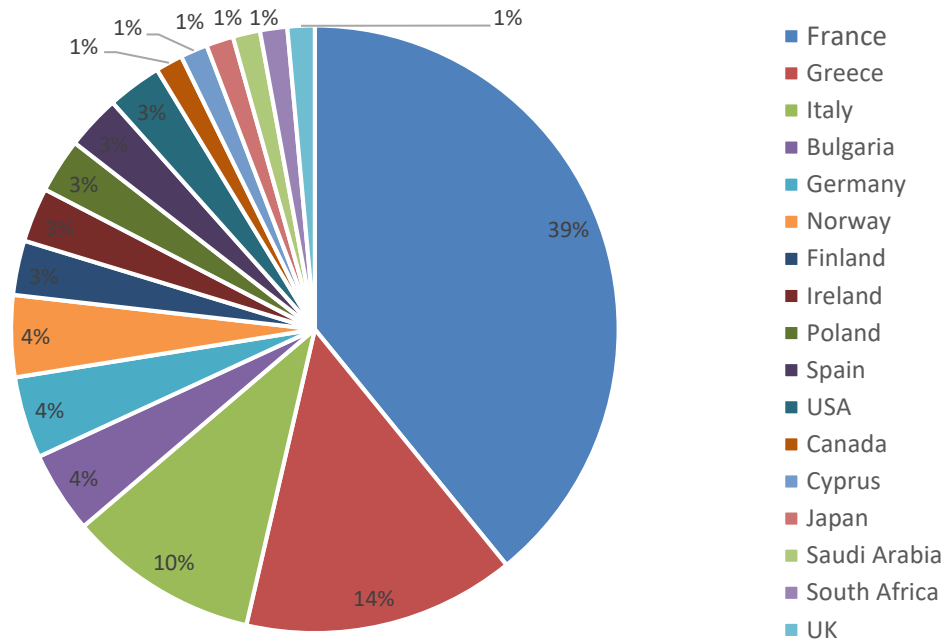
- **Claire Gourcuff** (Euro-Argo ERIC office, France)
- Fabrizio D'Ortenzio (LOV, France)
- Dimitris Kassis (HCMR, Greece)
- Birgit Klein (BSH, Germany)
- Guillaume Maze (Ifremer, France)
- Giulio Notarstefano (OGS, Italy)
- Grigor Obolensky (Euro-Argo ERIC office, France)
- Diarmuid O'Conchubhair (MI, Ireland)
- Laura Tuomi (FMI, Finland)
- Pedro Vélez (IEO, Spain)

### 1.3.2 Organising Committee

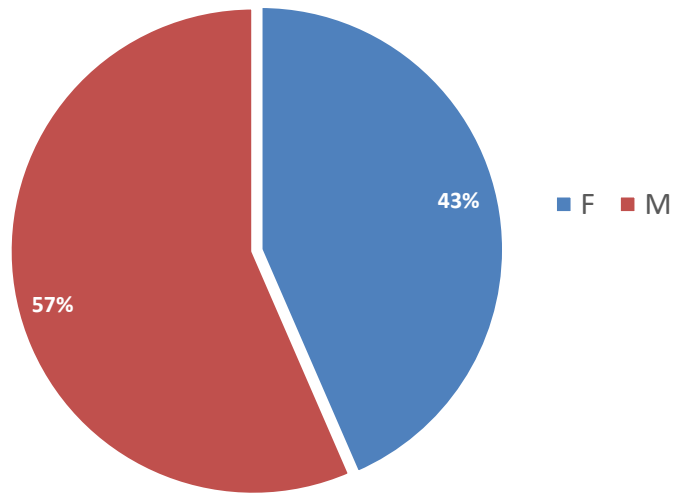
- **Francine Loubrieu** (Euro-Argo ERIC office, France)
- Estérine Evrard (Euro-Argo ERIC office, France)
- Claire Gourcuff (Euro-Argo ERIC office, France)
- Dimitris Kassis (HCMR, Greece)

## 1.4 Overview of registered participants

This meeting gathered about 70 participants, among which 43% were female. 17 countries were represented, including 11 Euro-Argo ERIC members and observers.



Origin of meeting participants



Gender ratio



## 2 Sessions presentations

The two days of the meeting were an opportunity to exchange views on various selected topics (see Annex 1 for the final agenda).

### 2.1 Opening

The meeting started with an introduction by HCMR, the co-organising partner of this event. Aristomenis KARAGEORGIS presented HCMR's organisation and its research topics.

Four keynote speakers followed one another during this opening session:

- Jean-Marie FLAUD, from MESRI, welcomed the participants to this event;
- Georges PETIHAKIS, from HCMR, presented European Research Infrastructures in the framework of European Ocean Observing System (EOOS);
- Sabrina SPEICH, from ENS, laid out main messages from OceanObs'19;
- and then Sylvie POULIQUEN, from Euro-Argo ERIC, exposed what Euro-Argo has done in the past 5 years and its plans for the future.

This opening session presented an introduction on Euro-Argo involvement in providing *in situ* high quality data and its success over the past five years. The four speakers underlined Euro-Argo's integration into the European Ocean Observing System as part of the Global Ocean Observing System (GOOS).

The speakers also highlighted the challenges for the Argo community, both in terms of sustainability and cooperation on how to set up the new Argo design, first at a European scale and then at a more global scale.

In terms of Ocean Observing community, the way forward after the OceanObs'19 conference was exposed. Main recommendations from Ocean Observation community leaders along with those from Community White Papers authors will guide the development of a living action plan. This document aims at summarizing these high-level recommendations: it will show how the community can be involved in sustained ocean observations by leveraging the UN decade, GEO and GOOS and advising policy makers.

### 2.2 Session 1: Meso to large scale ocean structure and variability

This session was dedicated to mesoscale and large scale variability in the ocean. It included topics on inter-annual to decadal variability of water mass properties, heat and freshwater content and boundary currents. This session opened the floor to young scientists: seven talks including the keynote speaker and four posters were presented.

As the keynote speaker, Toshio SUGA from JAMSTEC/Tohoku University and co-chair of Argo international, presented the development of Argo during the past 20 years and how it became an essential network for operational systems but also for climate change assessment made recently by IPCC. The new Argo design is now ongoing (global, full depth and multidisciplinary)

and Toshio SUGA underlined the challenges for extensions and advocates for the needs of pilot regional projects.

### 2.3 Session 2: Marginal Seas with a focus on the Mediterranean & Black Seas

This session was dedicated to Marginal Seas (Mediterranean Sea, Black Sea, Baltic Sea and Nordic Sea), an area of special interest for Europe. In fact, Marginal Seas are very specific: small, bordered by many countries (sometimes in a difficult geopolitical context), they have specific environments. They are often subject to higher temporal and spatial variability, such as, for example, internal waves in Mediterranean Sea and have sometimes specific biogeochemical settings as for example the H<sub>2</sub>S production in Black Sea. Collaboration between bordering countries is also sought for deployment and for recovery.

Thus, oceanographers need to deal with these specific conditions and adapt Argo floats to operate in these regions.

For this 2019 event, there was a focus on the Mediterranean & Black Seas: nine talks (including the keynote speaker) and eight posters were presented in Athens. Pierre-Marie POULAIN, keynote speaker from OGS, presented the regional MedArgo network, in terms of deployment, collaborations, data and future plans.

### 2.4 Session 3: Extension of Argo to BGC

Extension of Argo to Biogeochemistry (BGC) was endorsed by Argo International in April 2019. Dedicating a session to this topic was a way to show the enthusiasm of European partners to develop this new extension. This session includes four talks (including the keynote speaker) and one poster.

Ken JOHNSON, from MBARI and Co-chair for international Biogeochemical Argo, presented a keynote speech on the future of BGC Argo. The message was that Argo is becoming the main source of biogeochemical data for the global ocean. The array will grow in future years and deployments are moving to sustained efforts at basin/global scale.

### 2.5 Session 4: New datasets, analysis methods and services to users

Dedicating a session on new datasets, analysis methods and services to users showed Argo's potential to users. For new users of Argo, it was also a way of presenting and sharing information on how to handle data and what can be done with such data. Five talks (including the keynote speaker) and three posters were presented for this session.

Paolo LAZZARI, from OGS, presented a keynote speech on the BIOPTIMOD project, an innovative approach for the integration of satellite and BGC optical data in Copernicus Marine Environment Monitoring Service (CMEMS) models.

## 2.6 Session 5: Technological innovations

This session was dedicated to the present and future technological innovations. Manufacturers (Argo profilers and sensors), service providers and scientists involved in technological development of Argo. Argo extensions (BGC and deep) were presented together with core Argo, showing new technological challenges to tackle. This session included six talks (including the keynote speaker) and six posters.

Xavier ANDRE, from Ifremer, was the keynote speaker and presented an overview of the platforms and their applications (present and future). He advocated for technology to adapt to science needs and not the contrary.

### 3 Main outcomes of the meeting

Participants welcomed this opportunity to meet other institutes in Europe and other types of users. This event is a unique European occasion to stimulate marine science research, gather European scientific Argo community and allow cross fertilization of science.

The main conclusion of this meeting is the growth of Argo data, with new users joining the community. It reflects the dynamism and engagement of the European Argo community but also the need to regularly gather different types of users to better understand their requirements. The specific outcomes by session are described below.

#### **Session 1 main outcomes:**

This session demonstrated how the next generation of scientists are well informed about the Argo system which allows them to answer their scientific questions on global scales. It also reflects the effective organisation of the Argo data system: young scientists know where to go to get the Argo data and how to process them. This session also underlined how Argo data can complement other datasets (The Global Ocean Ship-based Hydrographic Investigations Program (GO-SHIP) and Marine Mammals Exploring the Oceans Pole to Pole (MEOP) to answer scientific questions on ocean structure and variability.

#### **Session 2 main outcomes:**

This session was successful not only in terms of the variety of talks and posters presented but also for the various geographical coverage of the study areas, demonstrating the success of the extension of Argo in the European Marginal Seas (Mediterranean Sea, Black Sea, Baltic Sea and Nordic Seas). This session also underlined the usefulness of Argo data not only for scientific purposes but also for society. Indeed, they can have a strong impact on society as was shown in a presentation about a tropical cyclone in the Mediterranean area.

#### **Session 3 main outcomes:**

It showed that BGC Argo has become the main source of BGC data for marine sciences and demonstrated how this kind of platform improves our knowledge of ocean processes as well as biological processes. In fact, integration of BGC Argo data into models can improve our estimation of chlorophyll or radiometric data for example, and thus in the future our understanding of biological processes such as primary production. This session made it clear how important it is to integrate these different communities and different users.

#### **Session 4 main outcomes:**

The main outcome of this session is the use of Argo data by new users (*i.e* new to the physical oceanographers and data manager community). This session showed great examples of new users and users requirements: in Norway, Argo data are used for coastal management,

fisheries and aquaculture, oil rigs used them for cross referencing data, which is a proof that Argo community is growing and highly dynamic.

**Session 5 main outcomes:**

This session showed how technology is taking up the challenge for the extensions of Argo (deep, BGC, high latitudes...). As it is an important aspect of Argo, that science and technology should have a comprehensive and open dialogue. Thus, Argo users should keep providing the technology developers and manufacturers with their scientific needs.

## 4 Focus on Science Meeting participants

For this event, the scientific and organising committees wanted to foster interactivity with the audience. As a reminder, one of the goals of the Science Meeting are to attract new users and understand the needs of the existing ones.

For this, two tools were used:

- Live demos during poster sessions for existing tools,
- Use of an interactive online tool (Slido), for questions and polls.

### 4.1 Foster exchanges and better understand participants' needs: demo tools.

Two existing monitoring tools were presented:

- Euro-Argo ERIC monitoring tool (<https://fleetmonitoring.euro-argo.eu>)
- JCOMMOPS 3D visualisation tool (<https://www.esriurl.com/Argo>)

It was a way to advertise the existing tools to new users and to get feedbacks from current users to further improve these tools.



Euro-Argo monitoring tool demonstration



JCOMMOPS 3D visualisation tool

## 4.2 Better know the participants: interactive polls

By using an interactive tool, participants were allowed to answer online polls.

One third of the participants answered the polls during the event, with very positive messages. Main conclusions of the polls are presented hereafter.

The first poll was about the profile of the participants (see Annex 2 for detailed results).

The main conclusions were:

- A majority of scientists, not only from research/scientific community but also from other communities: operational oceanography, weather forecasting community and technological community,
- Interested in all Argo missions (including extensions)
- Many new to Argo community
- Not only interested in Argo, but also in other types of observing platforms as well as in a variety of topics related to ocean observation
- Having heard about the event by word of mouth or through Euro-Argo channels.

## 4.3 Get feedback from attendees on this event: interactive polls

In order to improve the event format, a poll was created to get feedback on the event. Very positive comments were collected (see Annex 3 for detailed results), indicating the success of

the meeting, by matching users expectations and having an identity within the European Argo community.

Main conclusions are presented below:

- **Session topics highly relevant**
- New topics have been proposed, in relation to the **future of Argo** and its links with **bigger observation systems**
- Some future sessions should be dedicated to **discussions, training courses** or **deployment coordination**
- Some **reminder on data management principles** could be beneficial as a data management session (but not to much to avoid overlapping with ADMT at a European level)
- Participants are **less interested** in a dedicated session to interact with **manufacturers**
- Foster the discussions with some **roundtables**
- Need **more time for discussions** (during questions and posters sessions) – this feedback echoes the need for a discussion session
- **Increase** in meeting's **duration**
- **Increase the frequency** of the event (every year was often suggested)
- Keep this meeting as an **independent meeting**, *i.e* not as a side meeting of another event
- **Highly positive comments on geographic location and meeting place**
- Try to **attract people** from **outside** the Argo community
- The interactive tool was **not considered useful** for questions to speakers
- The majority of participants did not have recommendations for the next event. Nevertheless, among the few recommendations, some were about more **practical sessions** or the real need for a more **enhanced poster session**.



## 5 Awards: Best talk and best poster

This year, the conveners decided to propose an award for the best talk and the best poster. Participants were asked to vote anonymously with ballot papers.

Among 26 presentations, Elena Terzic from OGS won the award for her presentation on “Atmospheric and in-water radiative transfer model validation with BGC-Argo float data in the Mediterranean Sea”.

Among 22 posters, Xavier André from Ifremer won the award for his poster on “Deep-Arvor profiling float”.

The results were advertised on Twitter and Euro-Argo website:



**Euro-Argo ERIC** @EuroArgoERIC · 23 oct.

Congratulations to Xavier André (left) from @Ifremer\_fr & Elena Terzic (middle) from @OGS\_MAOS, the winners for the best poster and best talk of this #7EAScienceMeeting!



## 7th Euro-Argo Science Meeting AWARDS: best talk and best poster

The 7<sup>th</sup> Euro-Argo Science meeting, hold by Euro-Argo in Athens the 22<sup>nd</sup> and 23<sup>rd</sup> of October, gathered around 80 European scientists. They voted for the best talk and the best poster.



the winners (Euro-Argo ERIC)

More information : <https://www.euro-argo.eu/News-Meetings/News/Latest-News/7th-Euro-Argo-Science-Meeting-AWARDS-best-talk-and-best-poster>



## 6 Communication

### 6.1 Press releases

#### 6.1.1 Euro-Argo press release



## Euro-Argo ERIC

European Research Infrastructure Consortium

Press release - Scientific event

# 7<sup>th</sup> Euro-Argo Science Meeting

The 7<sup>th</sup> Euro-Argo Science Meeting will be held on 22-23 October 2019 in Athens, Greece.

### What is Argo ?

The Argo network is a global array of approximately 4000 autonomous instruments, deployed over the world ocean, reporting subsurface ocean properties, such as temperature and salinity, to a wide range of users. These data are crucial for scientists who study global climate change and its regional impact.



### What is Euro-Argo ?

The Euro-Argo ERIC allows active coordination and strengthening of the European contribution to the international Argo programme. Its contribution represents nearly 1/4 of the global array of floats. It also provides open and free access to quality controlled data to the research – climate and oceanography – and operational oceanography communities.

### Why this meeting ?

- To bring together European users of Argo data and to provide an opportunity for high-level science interactions
- To stimulate research activities using Argo data
- To highlight the new fields of research activities and applications allowed by the extensions of the core Argo programme to biogeochemistry, greater depths, and specific regions of interest (marginal seas, high latitudes)
- To allow users to widen their experience of the Euro-Argo community and welcome young scientists
- To discuss how Argo should evolve within Europe and globally




For more informations: [www.euro-argo.eu](http://www.euro-argo.eu)

Contact Euro-Argo communication officer:

+ 33 (0) 6 73 78 34 60 / [marine.bollard@euro-argo.eu](mailto:marine.bollard@euro-argo.eu) / [euroargo@ifremer.fr](mailto:euroargo@ifremer.fr)



## 6.1.2 Ifremer press release



Institut français de recherche pour l'exploitation de la mer

L'INSTITUT RECHERCHE EXPERTISE INNOVATION L'OcéAN POUR TOUS

Twitter Facebook YouTube LinkedIn Instagram

Actualités et Agenda > Agenda > 7ème meeting scientifique Euro-Argo

### 7ème meeting scientifique Euro-Argo


Ce meeting permet de réunir plus de 80 scientifiques qui utilisent régulièrement les données Argo. Ses objectifs ? Mettre en commun les différentes expériences et résultats de chacun et stimuler les activités de recherche en lien avec les données Argo. Les chercheurs peuvent par exemple échanger sur la façon de les intégrer dans des modèles, ou de les combiner avec d'autres types de données. Cette rencontre européenne permet aussi de mettre à l'honneur les nouvelles extensions du programme Argo aux paramètres biogéochimiques, aux plus grandes profondeurs et aux régions d'intérêt spécifique (mers marginales, hautes latitudes, zones côtières). C'est aussi l'occasion de recueillir les besoins des utilisateurs scientifiques sur ces nouvelles thématiques.

Lancé en 2000 par la Commission Océanographique Intergouvernementale de l'Unesco (COI) et l'Organisation Météorologique Mondiale (OMM), le programme international Argo est le **premier réseau global d'observation *in situ* des océans**. Il permet **d'observer, comprendre et prévoir le rôle de l'océan sur le climat de la planète**. Grâce à Argo et aux observations de surface des satellites, les scientifiques ont déjà pu affiner considérablement les estimations du **stockage de chaleur par les océans**. Ce paramètre est un facteur déterminant pour **estimer l'ampleur du réchauffement climatique** et pour mieux comprendre **les mécanismes de la hausse du niveau moyen des mers**.

Euro-Argo est la contribution européenne au réseau international Argo, constitué de près de 4 000 flotteurs autonomes qui mesurent en temps réel la température et la salinité de l'océan. Ces flotteurs sont déployés à l'échelle de la planète, depuis la surface, jusqu'à 2 000 ou 4 000 mètres de profondeur (voire 6000 mètres pour quelques-uns). Euro-Argo s'engage d'ores et déjà dans la transition vers un nouveau design « global, profond et multidisciplinaire ». Dans cette perspective, il opère la nouvelle phase d'Argo, avec une extension aux plus grandes profondeurs et aux régions d'intérêt spécifique pour l'Europe (couverture des zones polaires, mers marginales, zones côtières). Désormais, le réseau intègre aussi une composante biogéochimique : certains flotteurs sont équipés de capteurs de mesure de la concentration en oxygène, en Chlorophylle a, en nitrates et en particules en suspension mais aussi du pH, et de la pénétration de la lumière.

Créé en 2014, l'ERIC Euro-Argo est une structure européenne qui a pour objectif d'optimiser, de pérenniser et de renforcer la contribution de l'Europe au programme Argo. Elle assure ainsi un rôle de coordination et est en charge de l'achat et du suivi de flotteurs européens, avec l'ambition de maintenir ¼ du réseau global. L'infrastructure, dont le siège est situé au centre Ifremer de Brest, compte aujourd'hui 12 pays membres (Allemagne, Bulgarie, Espagne, Finlande, France, Grèce, Irlande, Italie, Norvège, Pays-Bas, Pologne, Royaume-Uni).

Ifremer participe à ce grand programme notamment en maintenant 10 % du réseau, en hébergeant un des deux centres mondiaux d'analyse et de stockage des données Argo et l'ERIC Euro-Argo depuis sa création.



22-23 octobre  
Athènes

**Site Web**  
7th Euro-Argo Science Meeting

Partager

Facebook Twitter Google+ ...

**En savoir plus**

En savoir plus : Comment observe-t-on les océans ? Le réseau de surveillance Argo

Mots-clés

euro-argo flotteurs argo

Dernière modification le 21/10/2019

Press release available online:

<https://wwz.ifremer.fr/Actualites-et-Agenda/Agenda/7eme-meeting-scientifique-Euro-Argo>

## 6.2 Twitter

The official hashtag for the event was #7EAScienceMeeting.

16 tweets were published during the event, including 12 with the official hashtag.

Some examples of tweets during the event are presented below.



**Euro-Argo ERIC** @EuroArgoERIC · 22 oct.

Tamaryn Morris rising up the question of Argo sampling in Boundary Currents in her talk on the Agulhas Current using #MOCCA #argofloats #7EAScienceMeeting



Euro-Argo ERIC a retweeté



**Guillaume Maze** @mazeguillaume · 22 oct.

#7EAScienceMeeting Kenneth Lee showing its PhD results about the key role of wind stress curl from winter atmospheric extreme events to drive North Atlantic stratification interannual anomalies



Euro-Argo ERIC a retweeté



**ICM Young Researchers** @icm\_young · 22 oct.

One of our @icm\_young researchers, Anna Olivé, has just presented the first results of her PhD entitled: 'Scotia Sea pathways as deduced from Argo Floats' in the #7EAScienceMeeting in Athens, Greece. Congrats! 🇪🇺 🇬🇷 @EuroArgoERIC



🗨️ 3 ❤️ 14



**Euro-Argo ERIC** @EuroArgoERIC · 23 oct.

End of the 7th Euro-Argo Science Meeting held in Athens. Many thanks to all the ~70 participants and to the presenters for the quality of their talks and posters! Special thanks also to Dimitris Kassis from @hcmr\_ocean for his help in the organisation. #7EAScienceMeeting



🗨️ 3 ❤️ 19



## 7 Annexes

### Annex 1: Final Agenda





# 7<sup>th</sup> Euro-Argo Science Meeting

22-23 October 2019

Final agenda

Location: Divani Palace Acropolis Hotel, Athens, Greece





## Aims of the workshop

- To bring together users of Argo data and to provide an opportunity for high-level science interactions in link with Argo
- To stimulate research activities using Argo data, especially in combination with other data types and in model studies
- To highlight the new fields of research activities and applications allowed by the extensions of the core Argo programme to biogeochemistry, greater depths, and specific regions of interest (marginal seas, boundary currents, high latitudes)
- To strengthen links with industry and foster Research and Development activities related to Argo
- To allow users to widen their experience of the Euro-Argo community, welcome young scientists into that community, encourage their use of Argo data and provide an opportunity to participate in discussions of how Argo should evolve within Europe and globally.

## Organising Committee

### *Scientific Programme Committee*

The **workshop conveners** include the following people:

- Fabrizio D'ORTENZIO (LOV, France)
- Claire GOURCUFF (Euro-Argo ERIC office, France)
- Dimitris KASSIS (HCMR, Greece)
- Birgit KLEIN (BSH, Germany)
- Guillaume MAZE (Ifremer, France)
- Giulio NOTARSTEFANO (OGS, Italy)
- Grigor OBOLENSKY (Euro-Argo ERIC office, France)
- Diarmuid O'CONCHUBHAIR (MI, Ireland)
- Laura TUOMI (FMI, Finland)
- Pedro VÉLEZ (IEO, Spain)

### *Practical organisation – local arrangements*

For practical information please contact Francine LOUBRIEU at [euroargo@ifremer.fr](mailto:euroargo@ifremer.fr).

## WebSite

<https://www.euro-argo.eu/News-Meetings/Meetings/Euro-Argo-Users-Meetings/7th-Euro-Argo-Science-Meeting>

## Session Overview and Detailed Agenda

Tuesday 22 October 2019		
08:30	Registration in the Hall of the Conference Room	
OPENING SESSION		
09:00	Welcome	Jean-Marie FLAUD <i>MESRI - France</i>
09:05	European Research Infrastructures in the framework of EOOS	Georges PETIHAKIS <i>HCMR - Greece</i>
09:20	Main messages from OceanObs'19	Sabrina SPEICH <i>Laboratoire de Météorologie Dynamique, ENS - France</i>
09:35	What Euro-Argo has done and future plans	Sylvie POULIQUEN <i>Euro-Argo ERIC - France</i>
Session 1: MESO TO LARGE SCALE OCEAN STRUCTURE AND VARIABILITY		
Chair: Birgit KLEIN, BSH		
09:50	<b>Towards a New Phase of the Argo Program</b>	<b>Keynote speaker:</b> <b>Toshio SUGA</b> <i>JAMSTEC/Tohoku University - Japan</i>
10:10	1. Interior water-mass variability in the southern-hemisphere oceans during the last decade	Esther PORTELA RODRIGUEZ <i>LOPS/CNRS - France</i>
10:30	2. High resolution Argo profiling in a Western Boundary Current	Tamaryn MORRIS <i>South African Weather Service – South Africa</i>
11:00	<b>Poster session</b> <b>Coffee Break</b>	<b>20 min</b>
11:20	3. Interannual impact of extreme wintertime weather on the North Atlantic subtropical stratification	Kenneth E. LEE <i>Ifremer/LOPS - FRANCE</i>
11:40	4. Scotia Sea pathways as deduced from Argo floats	Anna OLIVÉ ABELLÓ <i>CSIC - Spain</i>
12:00	5. A Deep Coherent Eddy in the northern Norwegian Sea observed with Argo floats.	Henrik SØILAND <i>IMR - Norway</i>
12:20	6. Salinity - Oxygen Indices for Climate variability in the South Atlantic	Cristian FLORINDO-LOPEZ <i>NOC - UK</i>
12:40	<b>Lunch break</b>	<b>60 min</b>

<b>Session 2: MARGINAL SEAS WITH A FOCUS ON THE MEDITERRANEAN &amp; BLACK SEAS</b>		
<i>Chair: Giulio NORTASTEFANO, OGS</i>		
<b>13:40</b>	<b>MedArgo: the regional Argo network for the Mediterranean and Black seas</b>	<b>Keynote speaker:</b> <b>Pierre-Marie POULAIN</b> <b><i>OGS/CMRE - Italy</i></b>
14:00	7. A study of the Tyrrhenian Intermediate Water (TIW) using Argo floats, XBT and model data	Ernesto NAPOLITANO <i>ENEA - Italy</i>
14:20	8. Local Re-analysis of the Cyprus Basin: assimilating gliders and profiling floats to reproduce surface drifter tracks	Daniel HAYES <i>Cyprus Subsea Consulting and Services C.S.C.S. - Cyprus</i>
14:40	9. Argo floats - an important element of oceanographic observations in the Southern Baltic Sea.	Waldemar WALCZOWSKI <i>IOPAN - Poland</i>
15:00	10. Argo floats as a part of the Baltic Sea monitoring	Laura TUOMI <i>FMI - Finland</i>
<b>15:20</b>	<b>Poster session</b> <b>Coffee Break</b>	<b>60 min</b>
16:20	11. Evaluation of the first baroclinic Rossby radius in the Black Sea using reanalysis data and in-situ Argo profiles	Greta GEORGIEVA <i>Sofia University "St.Kliment Ohridski" - Bulgaria</i>
16:40	12. Investigating the impacts of a strong Medicane on the upper layers of the Eastern Mediterranean Sea	Dimitris KASSIS <i>HCMR - Greece</i>
17:00	13. Levantine Intermediate and Levantine Deep Water Formation: An Argo float study from 2001 to 2017	Elisabeth KUBIN <i>OGS - Italy</i>
17:20	14. Hydrographic changes and Argo activities in the Nordic Seas and Arctic	Kjell Arne MORCK <i>IMR - Norway</i>
<b>17:40</b>	<b>Poster session</b> <b>Cocktail in the Hall of the Conference Room</b>	

<b>Wednesday 23 October 2019</b>		
<b>Session 3: EXTENSION OF ARGO TO BIOGEOCHEMISTRY</b>		
<i>Chair: Emanuele ORGANELLI, LOV/CNRS</i>		
<b>09:00</b>	<b>The future of BGC-Argo</b>	<b>Keynote speaker:</b> <b>Ken JOHNSON</b> <b>MBARI - USA</b>
09:20	15. Atmospheric and in-water radiative transfer model validation with BGC-Argo float data in the Mediterranean Sea	Elena TERZIC <i>OGS - Italy</i>
09:40	16. How multivariate BGC-Argo data assimilation can improve the biogeochemical component of the CMEMS Mediterranean operational forecast system	Gianpiero COSSARINI <i>OGS - Italy</i>
10:00	17. Dynamics of deep phytoplankton biomass maxima in the global ocean: a Biogeochemical Argo floats approach	Fabrizio D'ORTENZIO <i>LOV/CNRS – France</i>
<b>10:20</b>	<b>Poster session</b> <b>Coffee Break in the Hall of the Conference Room</b>	<b>20 min</b>
<b>Session 4: NEW DATASETS, ANALYSIS METHODS AND SERVICES TO USERS</b>		
<i>Chair: Diarmuid O' CONCHUBHAIR, Marine Institute</i>		
<b>10:40</b>	<b>The BIOPTIMOD Project: Integration Of Novel Satellite And BGC-Argo Optical Observations In CMEMS Biogeochemical Models</b>	<b>Keynote speaker:</b> <b>Paolo LAZZARI</b> <b>OGS - Italy</b>
11:00	18. The need for ocean data in near real time in ocean and coastal management	Stig FALK-PETERSEN <i>Akvaplan-niva - Norway</i>
11:20	19. Delayed Mode Quality Control of Argo floats in the Nordic Seas	Ingrid M. ANGEL-BENAVIDES <i>BSH - Germany</i>
11:40	20. The BGC-Argo floats: a new tool to validate ocean biogeochemical models	Alexandre MIGNOT <i>Mercator Ocean International - France</i>
12:00	21. Multi-scale products from Argo float deployments during regional cruises	Ignasi VALLES CASANOVA <i>Marine Science Institute of Barcelona - Spain</i>
<b>12:20</b>	<b>Lunch break</b>	<b>60 min</b>

<b>Session 5: TECHNOLOGICAL INNOVATIONS: PRESENT &amp; FUTURE</b> <i>Chair: Guillaume MAZE, Ifremer</i>		
<b>13:20</b>	<b>Technological innovations: challenging profiling floats capabilities</b>	<b>Keynote speaker:</b> <b>Xavier ANDRE</b> <i>Ifremer - France</i>
13:40	22. Assessment of long-term salinity stability of the RBRargo CTD	Mark HALVERSON <i>RBR Ltd - Canada</i>
14:00	23. Satellite services for ocean observation programs	Solène ROUTABOUL <i>CLS - France</i>
<b>14:20</b>	<b>Poster session</b> <b>Coffee Break in the Hall of the Conference Room</b>	<b>60 min</b>
15:20	24. Past and new technological developments at LOV for core and new BGC applications	Edouard LEYMARIE <i>LOV/CNRS - France</i>
15:40	25. NKE recent float evolutions	Jérôme SAGOT <i>NKE Instrumentation - France</i>
16:00	26. Observing the ocean with Deep APEX floats	Brian KING <i>NOC - UK</i>
<b>16:20</b>	<b>Best poster and best talk: AWARDS</b>	

## Posters

TITLE	AUTHORS
<b>Session 1: MESO TO LARGE SCALE OCEAN STRUCTURE AND VARIABILITY</b>	
1. Temporal variability of the Nordic Seas intermediate and deep water properties based on Argo floats data in 2008-2017 period.	Małgorzata MERCHEL <i>IOPAN - Poland</i>
2. Rekindling the debate on the far reaching European continental slope current and its influence on subpolar northeast North Atlantic dynamics – Argo and model output data perspectives	Angelina SMILENOVA <i>NUIG - Ireland</i>
3. Interannual variability of upper ocean water masses as inferred from Argo Array	Nicolas KOLDOZIEJCZYK <i>University of Brest/LOPS - France</i>
4. North-Atlantic Ocean Subtropical Gyre: New observations and mechanisms of low-frequency Variability	Guillaume MAZE <i>Ifremer/LOPS - France</i>
<b>Session 2: MARGINAL SEAS WITH A FOCUS ON THE MEDITERRANEAN &amp; BLACK SEAS</b>	
5. Climate change and regional ocean water mass disappearance in the Black Sea	Boriana CHTIRKOVA <i>Sofia University - Bulgaria</i>
6. A neural network approach to estimate water-column nutrient concentrations and carbonate system parameters in the Mediterranean Sea: CANYON-MED	Marine FOURRIER <i>LOV/CNRS - France</i>
7. Long-term variability of the Black Sea cold intermediate layer properties	Nadezhda VALCHEVA <i>IOBAS - Bulgaria</i>
8. MOCCA project	Romain CANCOUËT <i>Euro-Argo ERIC - France</i>
9. Argo missions and synergies with other platforms in marginal seas: The north Aegean and south Ionian test cases	Dimitris KASSIS <i>HCMR - Greece</i>
10. <i>Synechococcus</i> in the Black Sea – an alternative explanation of the deep red fluorescence signal	Nadezhda VALCHEVA <i>IOBAS - Bulgaria</i>
11. High-frequency variability of temperature and salinity profiles in the Mediterranean Sea as revealed by Argo floats	Pierre-Marie POULAIN <i>OGS/CMRE - Italy</i>
12. Adapting Argo floats to the Baltic Sea: Lessons learned	Simo SIIRIÄ <i>FMI - Finland</i>

Session 3: EXTENSION OF ARGO TO BIOGEOCHEMISTRY	
13. Is it possible to detect <i>Emiliana huxleyi</i> blooms with Biogeochemical-Argo floats?	Louis TERRATS <i>LOV/CNRS - France</i>
Session 4: NEW DATASETS, ANALYSIS METHODS AND SERVICES TO USERS	
14. OSnet: Ocean State Neural Network	Sean TOKUNAGA <i>Ifremer/LOPS - France</i>
15. Development of ice sensing algorithms for Argo float deployments in polar regions	Ingrid M. ANGEL-BENAVIDES <i>BSH - Germany</i>
<i>Live demo</i>	Anthonin LIZE <i>JCOMMOPS - France</i>
16. JCOMMOPS 3D visualisation tool and monitoring system	<i>JCOMMOPS - France</i>
Session 5: TECHNOLOGICAL INNOVATIONS: PRESENT & FUTURE	
17. Advancing hyperspectral radiometric observations on ARGO floats	Ahlem JEMAI <i>Univ. Oldenburg -Germany</i>
18. Towards a new phase for Euro-Argo Programme: Euro-Argo RISE Project	Estérine EVRARD <i>Euro-Argo ERIC - France</i>
<i>Live demo</i>	Romain CANCOUËT <i>Euro-Argo ERIC - France</i>
19. Presentation of the Euro-Argo monitoring tool website developed during the MOCCA project	<i>Euro-Argo ERIC - France</i>
20. Impact of waves in Arvor floats behavior (GPS positioning, Iridium transmission and surface grounding)	Andrea GARCIA-JUAN <i>Euro-Argo ERIC - France</i>
21. Compact Light-weight camera system for ARGO extension applications.	Manos PETTAS <i>HCMR - Greece</i>
22. Deep-Arvor profiling float	Xavier ANDRE <i>Ifremer - France</i>





## Instructions to speakers and participants

[Access to Divani Palace Acropolis Hotel](#) is restricted to people pre-registered using the online workshop registration system.

**Registration:** The registration desk will be open at **08:30 am** on Tuesday 22 October 2019. You will be issued with **the official workshop badge** valid for the duration of the event.

**Our meeting takes place in the Aristotelis plenary room.**

**POSTERS:** Posters will be displayed **in the Aristotelis poster room**

ORIENTATION: PORTRAIT (AO format max)

Height: 150cm

Width: 80cm

**ORAL PRESENTATIONS:** Bring your visual supports on a USB stick and make sure that your presentation will be uploaded ahead of your session.

**Votes:** Participants are invited to vote for the best talk and the best poster. Ballot papers will be distributed at the registration desk and winners will be awarded at the end of the second day.

**Coffee breaks and lunches offered every day.**

**Phone point during the meeting for urgent messages:**

+33 (0)6 73 54 72 76 (Euro-Argo ERIC secretary)



This meeting has received fundings from:

- the European Union's Horizon 2020 research and innovation programme under grant agreement No 824131 (Call INFRADEV-03-2018-2019: Individual support to ESFRI and other world-class research infrastructures) for the Euro-Argo RISE project, and
- the European Maritime and Fisheries Fund (EMFF) under grant agreement No EASME/EMFF/2015/1.2.1.1/SI2.709624 for the MOCCA project.



## Annex 2: Slido polls results - users' profiles

### Multiple-choice poll (Multiple answers)



#### Euro-Argo users' profile (1/10)

0 2 3

### 1. Who are you? (1/2)

A student



A scientist



A project manager



A manufacturer of Argo components (float or sensor)



A private company



An engineer



Other



### Multiple-choice poll (Multiple answers)



#### Euro-Argo users' profile (3/10)

0 2 3

### 2. What is your main science community?

Research/Scientific community



Operational oceanography



Weather forecasting



Instrumentation/sensor



Other



## Multiple-choice poll (Multiple answers)

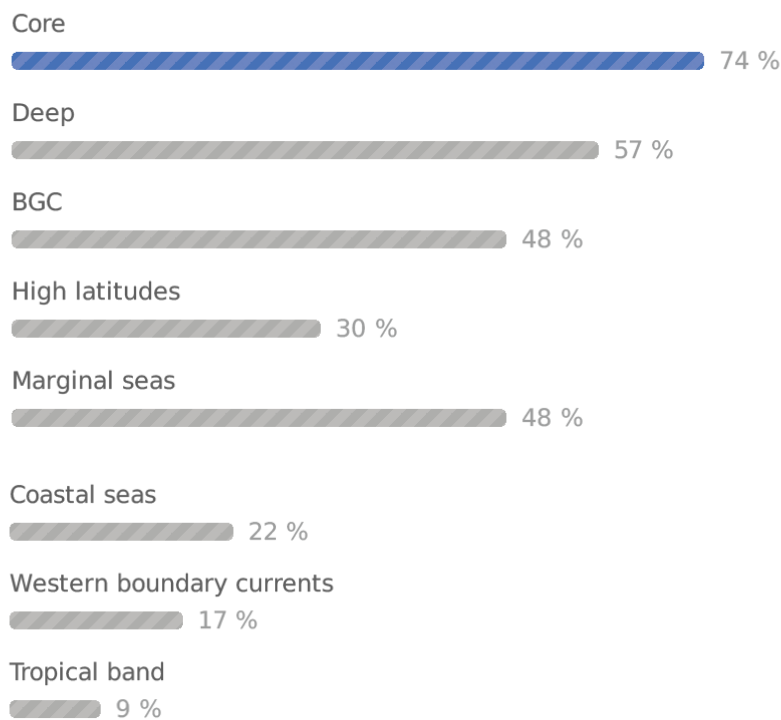


Euro-Argo users' profile (5/10)

0 2 3

**3. Which Argo mission are you most interested in?**

(1/2)

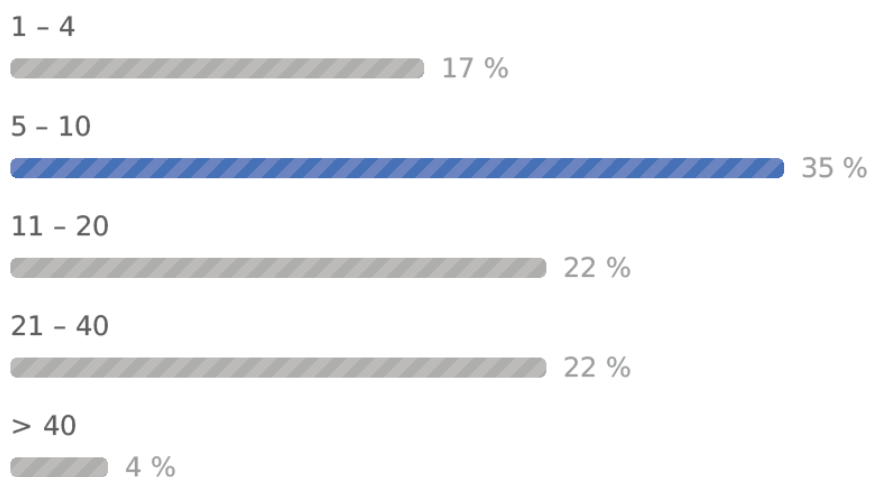


## Multiple-choice poll



Euro-Argo users' profile (6/10)

0 2 3

**4. How many years of professional experience do you have?**

## Multiple-choice poll (Multiple answers)



Euro-Argo users' profile (7/10)

0 2 3

**5. What are your main topics of interest?**

(1/2)

Sensor use and development



Systems design



Operations of observing platforms (e.g. ships, gliders, floats, moorings etc.)



Argo Data management



Analysis and models



Project Management



Applications of ocean information



Other



Euro-Argo users' profile (8/10)

0 0 1

**Other. Please specify:**

- Optical and biogeochemical oceanography

## Multiple-choice poll



Euro-Argo users' profile (9/10)

0 2 2

**6. How did you hear about this meeting?**  
(1/2)

Euro-Argo website



Euro-Argo News Briefs



Euro-Argo twitter account



Euro-Argo mailing list



With colleagues in my Lab



Other



## Open text poll



Euro-Argo users' profile (10/10)

0 0 6

**Other. Please specify:**

- I can't remember!
- Plus Euro-Argo website.
- Through my involvement in the Euro-Argo ERIC activities
- Invitation
- Almost all of the
- I am one of the conveners

## Annex 3: Slido Poll results - feedback from attendees

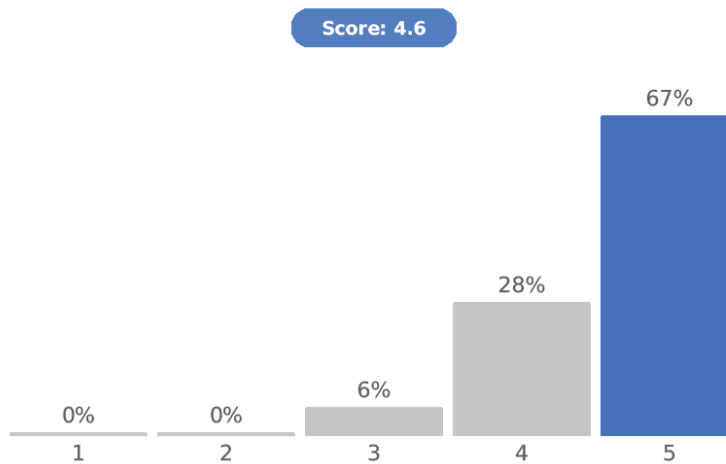
### Rating poll



Attendees feedback on Science Meeting (1/21)

018

#### 1. Did you find the 5 sessions topics relevant?



### Open text poll



Attendees feedback on Science Meeting (2/21)

006

#### 2. What would you recommend for the next meeting? Please specify: (1/2)

- Discussion session may be useful.
- Allow more time for discussions. Include some training courses on specific topics
- I'd recommend to continue as you did, it was very well organised. Maybe...a bit more of scientific presentations
- try to attract people from outside the Argo community.
- Perhaps a session where researchers and personnel responsible for Argo deployments from different institutions could get together to discuss coordinated deployment of floats, which could be more beneficial to

the larger research community.  
Such coordination of  
deployments may already be  
happening. I do not know how  
different institutions/countries  
decide/choose floats  
deployment.

- More relevant sessions More interactions

Rating poll

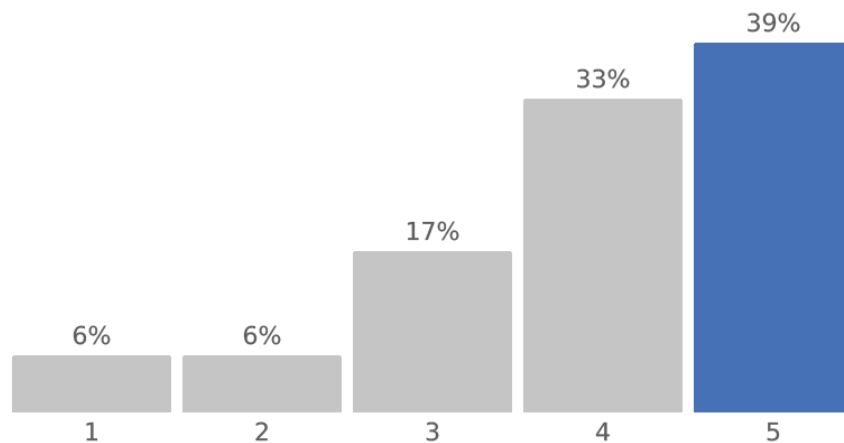


Attendees feedback on Science Meeting (3/21)

018

**3. Would you be interested in a data management session that would remind the Argo Data mgt principles?**

Score: 3.9





Rating poll

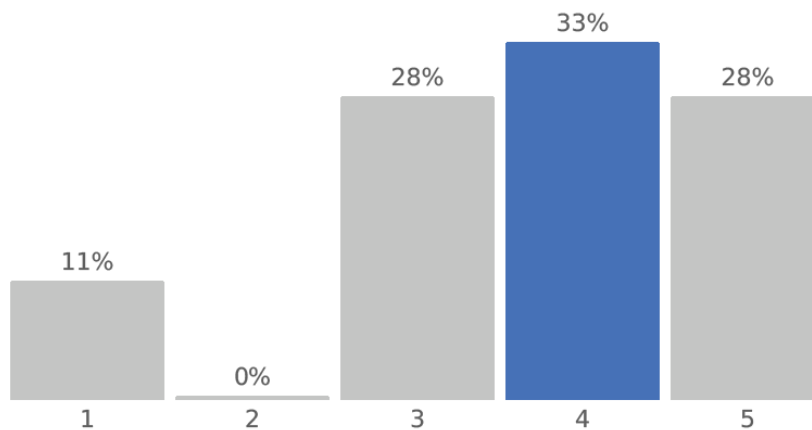


Attendees feedback on Science Meeting (4/21)

018

**4. Would you like to have a dedicated session to interact with the manufacturers?**

Score: 3.7



Open text poll



Attendees feedback on Science Meeting (5/21)

006

**5. What additional topics would you like to be addressed next time? Please specify:**  
(1/2)

- Connection between science and end-user service
- If there was a dedicated session for interaction with the manufacturers, the purpose would need to be very clear, and it may need extra time. We had a full agenda in Athens, so an extra quarter or half day with manufacturers could not easily be fitted into 2 days.
- Role and possibilities of Argo in relation with the changing climate
- more linkages with the bigger programs which will be happening soon. I.e. how is Euro-Argo feeding in to Decade, or GOOS activities. Tangible recommendations / conclusions.
- Perhaps it could be useful to discuss the accessibility of quality-controlled data - the

Open text poll



Attendees feedback on Science Meeting (5/21)

006

**5. What additional topics would you like to be addressed next time? Please specify:**  
(2/2)

- sites, the frequency at which they are uploaded, the protocol used, and perhaps point out some inconsistencies in the occasional QC flags. I gather that could facilitate the utilization of Argo data. Some roundtables considering that issues might also be helpful.
- environmental impact, float recovery, acoustics on floats for positioning and biology

Rating poll

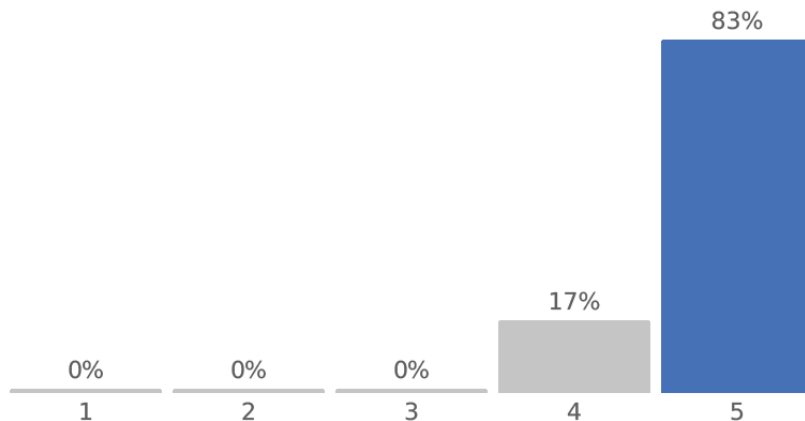


Attendees feedback on Science Meeting (6/21)

018

**6. What did you think about the meeting's location in Athens?**

Score: 4.8



Rating poll

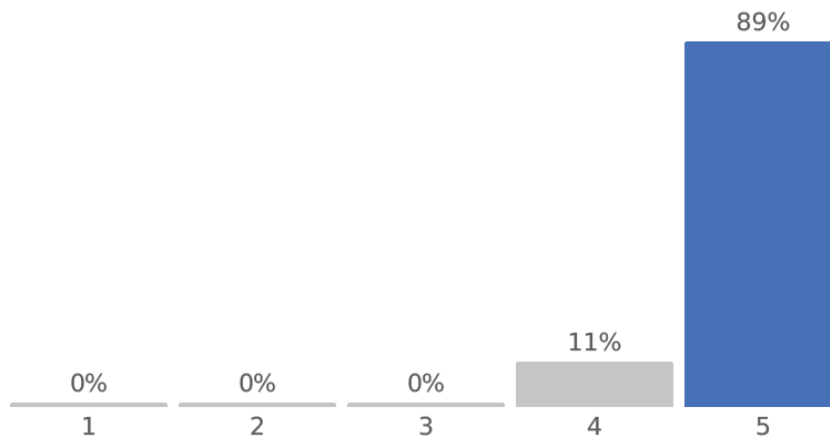


Attendees feedback on Science Meeting (7/21)

018

**7. What did you think about the meeting's location in Divani Palace Acropolis hotel?**

Score: 4.9



Rating poll

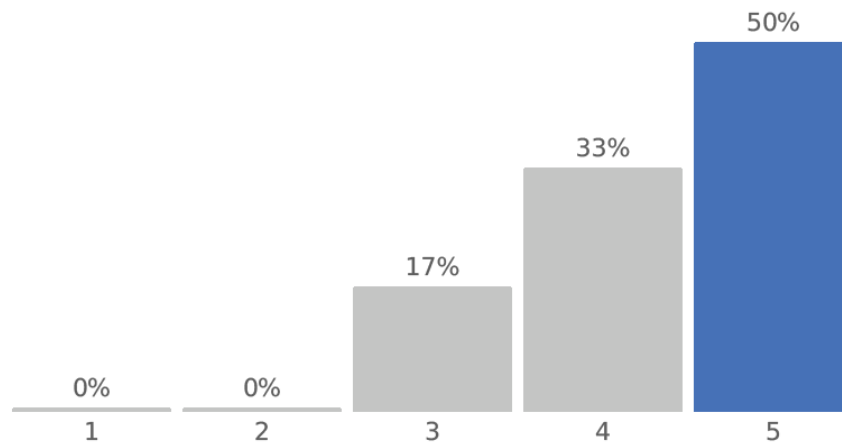


Attendees feedback on Science Meeting (8/21)

018

**8. Do you like the two-day format for this meeting?**

Score: 4.3



Multiple-choice poll



Attendees feedback on Science Meeting (9/21)

018

**9. Do you think it is too long?**

Yes

0 %

No

100 %

Multiple-choice poll



Attendees feedback on Science Meeting (10/21)

018

**10. Do you think it is too short?**

Yes

28 %

No

72 %

Rating poll

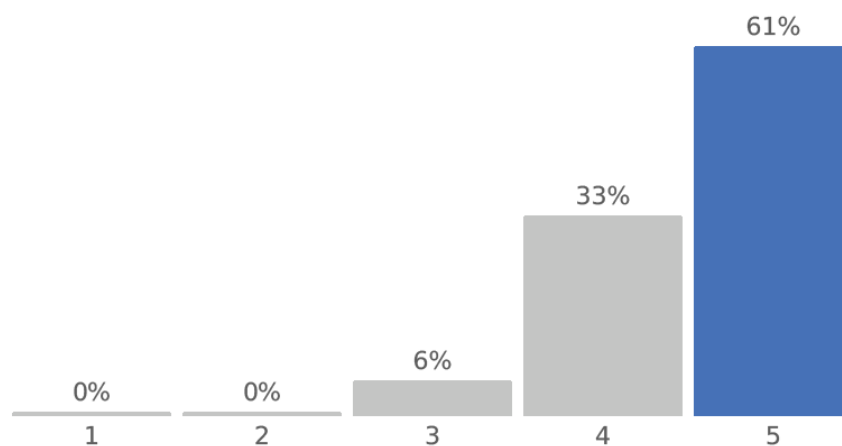


Attendees feedback on Science Meeting (11/21)

018

**11. Is the dedicated time for presentations long enough?**

Score: 4.6



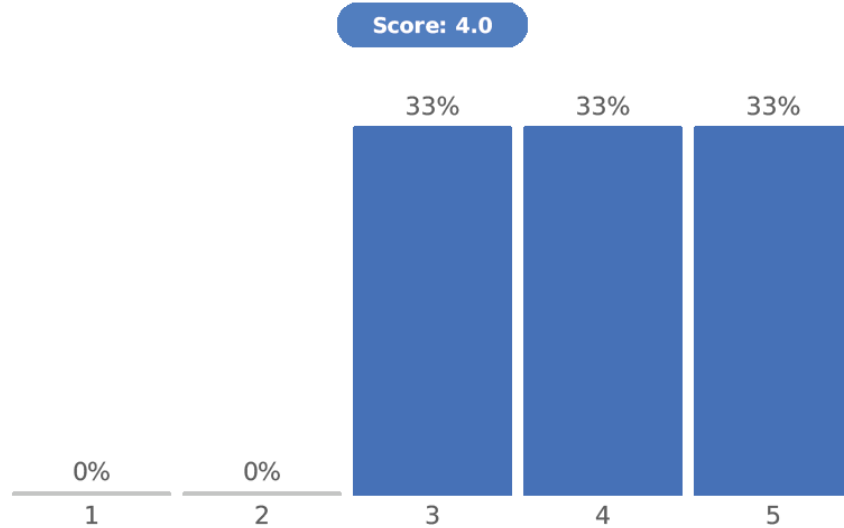
Rating poll



Attendees feedback on Science Meeting (12/21)

018

**12. Is the dedicated time for questions long enough?**



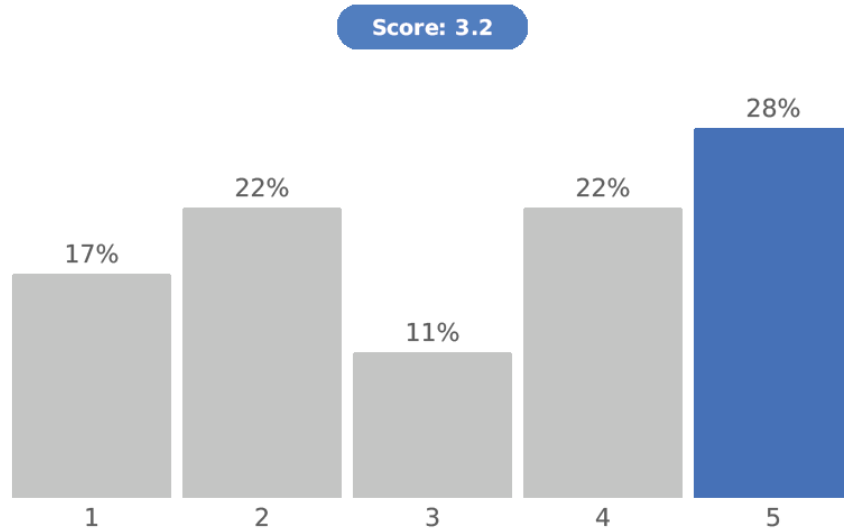
Rating poll



Attendees feedback on Science Meeting (13/21)

018

**13. Is the dedicated time for posters sessions long enough?**



## Multiple-choice poll



Attendees feedback on Science Meeting (14/21)

017

**14. Would you like some Euro-Argo Science Meeting be organized as a side event of a bigger conference?**

Yes



No



## Open text poll



Attendees feedback on Science Meeting (15/21)

004

**15. If yes, which other meeting? Please specify:**

- I suggest a way should be found to encourage the Euro Argo participants to be part of a full international meeting; eg hold an international science meeting in Europe, and make that the next meeting in the cycle of Euro Argo meetings.
  - Side event of EGU perhaps? It would save travelling in a given year.
  - Perhaps on EGU? As a side event on a global
- Argo meeting, if there exists one? I'm not sure ...
- Egu

## Multiple-choice poll



Attendees feedback on Science Meeting (16/21)

010

**16. Would you like Euro-Argo Science meeting being organized:**

More frequently



Less frequently



Multiple-choice poll (Multiple answers)



Attendees feedback on Science Meeting (18/21)

015

17. Would you like more:

Demonstrations



Roundtables



Rating poll

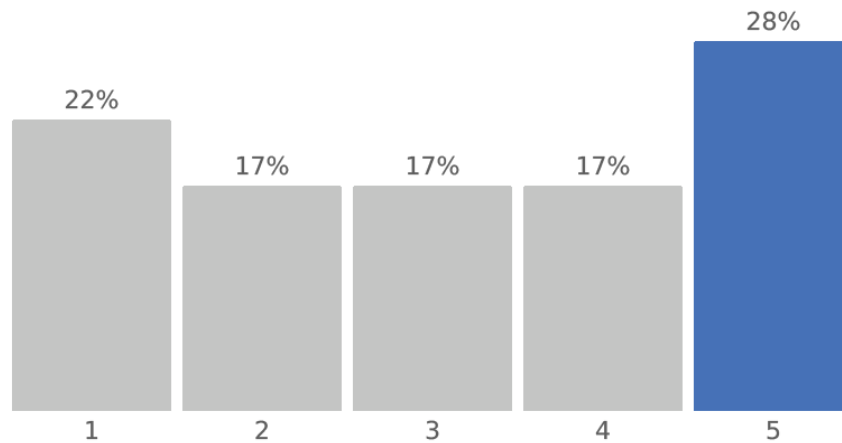


Attendees feedback on Science Meeting (19/21)

018

18. Was sli.do useful?

Score: 3.1



## Multiple-choice poll



Attendees feedback on Science Meeting (20/21)

016

**19. Would you have any recommendations for the next meeting?**

Yes



No



## Open text poll



Attendees feedback on Science Meeting (21/21)

007

**If yes, please specify:**  
(1/3)

- We did not really have time to look at the posters. It was the same in Paris, 2 years ago.
- Try to organize a school, such as the glider school, with practical demonstration of floats and use of data.
- Please see above. Thank you very much for a great meeting!
- Peut-être une liste de questions de la communauté qui utilise de près ou de loin les profileurs, envoyées à l'avance aux fabricants pour donner le temps d'une préparation et donner des réponses à un public plus large et ainsi, encore mieux répondre au besoin d'information de la communauté sur la technologie. Jérôme (nke)
- I found the meeting really nice as it was - one of the nicest I've attended so far. Very friendly



## Open text poll



Attendees feedback on Science Meeting (21/21)

007

**If yes, please specify:**  
(2/3)

atmosphere and interesting sessions. And just the right amount of people. It was good to see how Argo floats can be used and what are the research topics of fellow scientists. Perhaps it would be even nicer to have a few days more in order to interact and discuss with fellow institutes in Europe about the possible joint programmes and missions, as well as to reduce the number of sessions per day? Maybe

a field (technical or even cultural) trip could be also nice, be it in a national institute in the country where the meeting is organized? Anyway, it was excellent as it was and I'd like to thank the organizers for a very, very nice event - cozy atmosphere, excellent location and organization! Very kind and friendly team. Will look forward to the next edition!

- Make the posters more visible.

## Open text poll



Attendees feedback on Science Meeting (21/21)

007

**If yes, please specify:**  
(3/3)

- dedicated sessions with experts and users on each session topic