



L-Università
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20th ERVO Annual Meeting

June 12th - 14th, 2018 – La Valetta, Malta

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The 20th ERVO (European Research Vessels Operators) Annual Meeting was organized by the University of Malta, La Valetta (Malta) from Tuesday the 12th to Thursday the 14th of June 2018.

Tuesday 12th June 2018

14:00 - 16:30 – Regional focus: To foster more regional cooperation among ERVO members regarding the western and central Mediterranean Sea

This was the third time that a half-day meeting was organized before the annual ERVO meeting concerning the region where the meeting was organized. The objective is to foster more regional cooperation among ERVO members and to discuss issues and opportunities.

Agenda:

Introduction to research vessels (incl. homeport), fleet schedules, willingness of sharing vessels and equipment, research objectives.

- Maltese Marine Research – A. Micallef (University of Malta)
- Spanish Research Vessels – J. Sorribas/J. Prades (CISC)

- Italian Research Vessels & Infrastructure – L. Evangelista (CNR)
- French Research Vessels – P. Morin (Ifremer)

After an introduction by the ERVO Chair Klas Lackshewitz (GEOMAR) and the presentation of the 22 participants to the regional focus session, Aaron Micallef gave an introduction to the University of Malta. Since the University of Malta doesn't own a research vessel, they are actively searching for available RVs and equipment to support their marine research activities which are performed mainly around the Island of Malta. The University of Malta has connections in Israel (University of Haifa) and Lebanon. The Lebanese colleagues own an RV & ROV and are interested to cooperate and work in the central Mediterranean Sea.

The Spanish RV fleet was presented by Jordi Sorribas (CSIC). The Spanish oceanographic fleet consist of 10 RVs that are owned and managed by different institutions (e.g. CSIC, IEO, etc.). Ship time is provided via an open competitive access procedure. The Spanish RV fleet is operated by private, public and naval operators. In the future a system with public & private operators will be proposed to allow more flexibility and security. Spain is planning to replace some of their RVs. The idea has been put forward to replace the RV Garcia el Cid and the RV Hesperides by one Polar RV, that can perform science activities in Antarctica during the Austral summers and be active around Spain during the Boreal summers.

An overview of the Italian/CNR RV fleet and associated technologies was given by Lorenza Evangelista (CNR). CNR is the largest research organization in Italy and spent c. 3600 days at sea during the last 10 years. The main vessels used are RV Minerva Uno and RV G. Dallaporta. The latter was upgraded with among others a hybrid propulsion system. The CNR MRI web portal (incl. the ship-time application system & the RV schedule) has been restyled and new tools have been added. A 7th RV was added to the local/coastal CNR RV Fleet: RV Rosanna (28.45 m), a refitted fast cargo vessel. Besides RVs, CNR also operates the Italian Fixed-Point Observatory Network (IFON).

An overview of the activities of the French Oceanographic Fleet in the Mediterranean Sea (2011-2017) was presented by Pascal Morin (Ifremer). The French RV fleet is active in the Mediterranean Sea for 17% of its total capacity; this includes all RV classes (from Global to Local RVs). A detailed overview of the science days in the Mediterranean Sea for the different RV classes can be consulted in the presentation. The French RV fleet is operated by different operators (Genavir, CNRS, etc.). In France, there is one ship-time application system for the whole fleet.

After the specific presentation, some general topics have been discussed, e.g. cooperation with African Countries, working in the EEZ of African countries, etc. France has some cooperation with Morocco (Atlantic), Tunisia and Algeria. Italy had some connection to African countries in the past, but no formal agreements have been setup. In the Mediterranean Sea, there are several areas where it is difficult to receive diplomatic clearances (African waters, Spanish waters, Greek & Turkish waters, etc.). This is often in relation to seismic research activities and the protection of marine mammals or due to local geopolitical issues.

For more details, see the presentations at <http://www.ervo-group.eu/np4/np4/43.html>

19:30 – 21:00 – Icebreaker cocktail at the Valetta Campus of the University of Malta
Wednesday 13th June 2018

09:00 – ERVO General Assembly

After some practical arrangements, the 20th ERVO meeting started with the welcome address of Dr. Axel Steuwer (Administrative Director, Research Support Services, University of Malta). Dr. Steuwer gave an overview of the University of Malta and focused on the ocean research at the university which is mainly concentrated on physical oceanography (e.g. jelly fish observations), marine biology, engineering, energy, archeology (ship wrecks), etc. The University of Malta has been trying to get a RV in Malta as part of an ESFRI or EU ERIC. An MoU exists with OGS and other institutes that operate RVs for some ad hoc ship-time exchange.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

09:40 – Opening of the 20th ERVO meeting – Klas Lackschewitz (GEOMAR, Germany)

The 20th ERVO meeting was officially opened by the ERVO Chair, Klas Lackschewitz, and subsequently he presented the introduction to the 20th ERVO meeting.

In the introduction Klas gave an overview of:

- The ERVO Group
- The objectives
- The meetings
- The main achievements
- The 2018 actions
- The 2018-2019 upcoming actions (e.g. EMB/ERVO position paper)

Giuseppe Magnifico (CNR, Italy) presented a list of possible ERVO ambassadors. This list should be completed by the ERVO ExCom.

The ERVO 2017 minutes were revised and approved with comments from SLU. The adapted minutes have been put on the ERVO website by EurOcean.

A short overview of the regional focus session was reported to the complete ERVO group.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

Theme 4: RV technology

10:05 – Marine and underwater technology products and systems: MacArtney DK – Ole Mikkelsen (MacArtney, Denmark)

Ole Mikkelsen gave an overview of the marine and underwater products, systems and services of MacArtney. MacArtney is worldwide active via sales representatives in 24 locations and with 400 employees. It is a marine systems solution provider active in all marine and maritime branches. Ole gave an overview of the needs RVs have and how MacArtney could fill in these needs via its products (e.g. winches, LARS, A-frames, etc.).

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

Theme 1: Delegates Reports of Activity

10:10 – New member introductory presentation – University of Malta – Aaron Micallef (University of Malta, Malta)

Aaron Micallef give an introductory presentation to the Marine Geology & Seafloor Surveying group of the University of Malta. The group is part of the Department of Geosciences and was setup in 2015. The group focusses on the study of the Messinian Salinity Crisis, carbonate escarpments, marine geomorphometry and habitat mapping, etc. Aaron was able to perform his first cruise as a PI via the Eurofleets2 project. He was also involved in another Eurofleets cruise on RV OGS Explora. The Eurofleets cruises were followed by other cruises (cfr. cooperation with Geomar). Money for the rental of RVs comes from ERC and other projects. A vessel that is often used is the privately-owned RV Hercules that is equipped with a dedicated ROV. Ideas exist to map the EEZ of Malta, but for the moment (political) support to obtain the needed 4 M€ is missing.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

10:30 – Coffee break and national update posters

The following posters were presented during the meeting:

Belgium - RV Belgica activity 2017

Belgium - RV Simon Stevin

France - Genavir Report

Germany - German Research Vessels

Spain - Spanish Institute of Oceanography (IEO) - Cruise Activities

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

11:00 – New member introductory presentation – IPMA – Mafalda Carapuço (IPMA, Portugal)

Mafalda Carapuço presented the Portuguese Institute of the Ocean and Atmosphere (IPMA) that was founded 6 years ago. IPMA fills in the research part of the Ministry of the Sea. The mission of IPMA is to provide technical and scientific support to national policy definition, to operate and maintain scientific infrastructures and national scientific databases on its areas of competence and to promote scientific research and technological development in its areas of expertise. IPMA research focusses on fishery management, fish farming, monitoring seafood safety, marine biotechnology, contaminants and marine litter, deep-water ecosystems, etc. IPMA operates 2 local RVs (RV Diplodus & Tellina), the regional RV Noruega and the refitted ocean RV Mar Portugal.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

Theme 5: Common issues around research vessels

11:15 – Status of the EurOcean RID 2.0 development – Ned Dwyer (EurOcean, Portugal)

Ned Dwyer presented EurOcean and the status of the new research infrastructure database (RID 2.0). EurOcean has 13 members in 10 EU countries. The first research vessel database was developed in 2006. In the meanwhile a large exchangeable RV instrument (LEXI) database and aquaculture infrastructure database have been setup. In the last 1.5 years EurOcean has been developing one consistent database for all research infrastructure. The goal is to make cross connections to projects and other initiative by tagging the listed infrastructures. The launch of the new database is foreseen in autumn 2018.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

Theme 6: Cooperation and Outreach

11:35 – EMB/ERVO position paper on future European RV fleet – Lieven Naudts (RBINS-OD Nature, Belgium)

Lieven Naudts presented the ongoing work on the EMB/ERVO position paper on RVs, LEXI, RV management, EOOS, etc. The position paper will be the follow-up of the EMB position paper 10 on the European Ocean research fleets that was published in 2007. The initiative to publish a new RV position paper was requested by ERVO and granted by EMB (European Marine Board). The working group that will write the position paper consists mainly of EU RV operators/managers (mostly ERVO members) and is chaired by Per Nieuwejaar and co-chaired by Valérie Mazauric. The position paper will be written based on 7 different work packages (RV & LEXI status/evolution, deep sea, polar, training, EOOS, management & outreach). Launch and dissemination of the new position paper is foreseen in June 2019.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

11:55 – EMB/ERVO position paper questionnaire WP4 & WP6 – Erica Koning (NIOZ, Netherlands) & Giuseppe Magnifico (CNR, Italy)

Erica Koning and Giuseppe Magnifico presented the EMB/ERVO position paper questionnaire on RV training and management to explain and to get feedback from the ERVO group on the questionnaire that will be send to EU RV operators in the coming weeks. The received input/feedback will be used as a basis for the chapters on training and RV management in the new EMB/ERVO position paper.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

12:20 Lunch at Malta University & Group Photo

Theme 2: RV builds, Modifications and performance

13:20 – Rebuilt RV ARANDA – Juha Flinkman (SYKE, Finland)

Juha Flinkman presented the rebuilt of RV Aranda. The ship was cut in two and lengthened from 59.8 m to 66.7 m. A lot of rust was found but not to the structure of the hull. The old auxiliary generators were replaced by silent, smaller and more efficient generators. The rebuilt of the stern resulted in 50 m² more deck space. Another major modification was the installation of a drop keel which includes an EK 60 echosounder system, a chirp and multibeam system. A side door for ice and work boat operations and an observatory was added. The propellers were renewed for lower sound emission and more power. The ice class was changed to DNV-GL PC-6. In the future, fuel cell and a hydrogen container will be added to supply the battery packs.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

13:40 – New Faroer Research Vessel – Leon Smith (Faroer Marine Research Institute, Faroer Islands)

Leon Smith presented the new Faroer research vessel that will replace the current RV Magnus Heinason which was built in 1978. The project time line for the new vessel started in 2007 and will result in the delivery of the new RV in 2020. The new RV will be 54 m long and 13.6 m wide. It will be silent (DNV-GL Silent-R), have a drop keel and dynamic positioning. There will be place onboard for 13 crew and 12 researchers. During the design a lot of effort was invested in the trawling capabilities of the new vessel. The vessel will be built by the yard P/F MEST, Tórshavn, Faroer Islands in cooperation with WBS, Klaipėda, Lithuania.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

14:00 – New Portuguese RV MAR PORTUGAL – Mafalda Carapuço (IPMAR, Portugal)

Mafalda Carapuço presented the new Portuguese research vessel Mar Portugal. The acquisition and the refit of the vessel is the result of a cooperation between Portugal (IPMA) and Norway (IMR). The total project budget is c. 12.9 M€. During the first phase of the project the 75 m vessel (RV Kommandor Calum) was acquired via an international tender process. During the second phase an international tender was organized for the refit of the vessel. After two rounds the refit contract was awarded in March 2017. During the refit, the following items will be addressed: the A-Frame, the trawl & Gilson winches, the cranes, the net drums, the lab spaces, the false deck for ROV operations and two deck extensions. The refit was performed by staleiros Navais de Peniche (A-frame, net drum and HPU installation & laboratories) (Portugal) and Metalships (hull maintenance and painting, propeller maintenance & trawl winch fitting) (Vigo). In the future, hull-mounted acoustic equipment will be added to the vessel.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

14:15 – New coastal vessel Norway – Johnny Ytreland (IMR, Norway)

Johnny Ytreland presented the status of the new coastal research vessel for Norway. Based on a functional specification quotes were received for design and build in 2017. All quotes were above budget. Main reasons were the high prices for the engine and propulsion (redundancy

and hybrid), the underwater noise requirement (yards risk, priced high), the scientific equipment (in particular acoustic equipment). For the second round the design and build quotation request was split in two. The goal is to start building in 2019.

In addition, Johnny also showed a movie of the successful sea trials of the new Kronprins Haakon icebreaker.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

14:20 – New Swedish vessel SVEA – Lasse Thorell (SLU, Sweden) & Gunnar Söderström (SMHI, Sweden)

Lasse Thorell and Gunnar Söderström present the new Swedish research vessel Svea. SLU has experience with science and education, but didn't have any experience with building and operating a research vessel. Therefore a consultant to start up and organize the project was acquired, as well as a ship unit was created to handle the administration. The project was split in two phases, a procurement for design (Skipsteknisk) and a procurement for build (Armon shipyard, Vigo). Up till now, all timelines are on schedule and launching is planned within a month. The ship will be used by SMHI for 50% of the time. The ship is mainly build for monitoring of the Baltic Sea and less for research. The delivery of the ship is foreseen in May 2019 and the vessel should be fully operational from October 2019.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

14:55 – New Irish coastal boats, drones and inshore operations – Sean Cullen (Geological Survey, Ireland)

Sean Cullen gave an overview of the GSI projects and activities. The new RV Mallet that was built in Cork was presented. This local RV is mainly used for hydrographic and geophysical work. The RV Keary is used for diving, has a free fall winch and an A-frame for coring. GSI has 4 vessels. Sean also presented the project in which topographic and bathymetric data acquired by drones and vessels is compared. Results showed limited differences of 5 cm between the different datasets.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

15:15 – Coffee break and national update posters

The following posters were presented during the meeting:

Belgium - RV Belgica activity 2017

Belgium - RV Simon Stevin

France - Genavir Report

Germany - German Research Vessels

Spain - Spanish Institute of Oceanography (IEO) - Cruise Activities

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

15:45 – New POLARSTERN II – Tobias Boebel (AWI, Germany)

Tobias Boebel gave an overview of 32 years RV Polarstern and an update of the status of the new Polarstern II project. The current RV Polarstern was built in Kiel and delivered in 1982. It is operated as an icebreaker, supply vessel and research vessel. It has sailed over 1.5 M nautical miles and hosted more than 10,000 scientists. The ship is built to survive for 7 months and has an emergency shelter in the officer's mess. The new RV Polarstern II project started in 2012. Until present the shipyard tendering process is ongoing. The new PC-2 ship will be able to handle a total payload of 1,000 ton and will have a double bridge (for navigation and science). The goal is to obtain ICES209 in open waters.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

16:10 – Replacement of RV BELGICA (NewRV) – Lieven Naudts (RBINS-OD Nature, Belgium)

Lieven Naudts presented the RV Belgica replacement. The replacement process that started in 2005 finally led to the selection of a shipyard (Freire Shipyard, Vigo) and a designer (Rolls-Royce Marine AS) in 2018 after a one phase tender process for build and design. In total 7 yards sent in an offer for the project. Lieven gave an overview of all selection and evaluation criteria which ensured that a shipyard with experience in RV building was selected. The new Belgian DP2 RV will be multidisciplinary, silent (DNV-GL Silent R), ice-strengthened (DNV-GL ICE-1C) and will be able to deploy all large EU marine infrastructures (MeBo70, BGS RD2, ROVs, AUVs, seismic systems, etc.). The delivery of the vessel is foreseen in autumn 2020.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

Theme 3: Manning, Safety and training

16:30 – Update: Impact of MLC – Aodhán FitzGerald (Marine Institute, Ireland)

Aodhán FitzGerald gave a presentation on the impacts of the Maritime Labour convention on RV operations. One of the problems discussed is the medical examination and training of crew and scientists. Aodhan also gave an overview of the conditions of employment for the seafarers. It is important to note the limits for carrying passengers (e.g. scientists missing certain certification) on RVs is often limited to 12. Having a Special Purpose Ship (SPS) can solve a lot of the certification/training problems for scientists and marine technicians (not crew).

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

16:50 – EU rules on state aid to companies – André Cattrijsse (VLIZ, Belgium)

André Cattrijsse gave an overview of the EU rules on state aid to companies based on a case study made for the Flanders Marine Institute. The EU rules have been put in place to avoid any competition falsification within the EU, so that no private companies get a selective economic advantage by receiving extra state aid. It is very important to know what a company is; even if

the activities of an organization are only partially economic the entity will be regarded as a company. State aid can be given via subsidies, free use of infrastructure or use under market price, provision of free data, etc. A research organization can only allow companies to use/rent/charter their infrastructure for max. 20% of its total capacity to maintain 100% funding. Separate accounting should be foreseen. Funding provided directly by the EU is not state aid (e.g. EU framework program), unless it is given indirectly via the research organization.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

Theme 4: RV technology

17:10 – A new particle filter on RV HEINCKE – Lothar Meinders (Briese Schiffahrts GmbH & Co KG, Germany)

Lothar Meinders presented the experience with the exhaust after treatment of the soot filter on RV Heincke. Three years of operation with a combined filter SCR and soot was successful. More than 13 ton of nitrogen oxide was reduced and black carbon was filtered for nearly 100 %. The soot filter was never blocked. The exhaust system is a significant extra work for crew. It is important to check leakages of urea. The supply of working air should not be underdimensioned. Lothar advises to get a manufacturer that does all (engine & exhaust treatment), this way it is easier to get the complete system classified.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

17:40 – Biofuel – Jussi Mälkiä (VG-Shipping / Meriaura Group, Finland)

Jussi Mälkiä gave a presentation on bio oils in marine use. VG-Shipping is the leading Finnish shipping company in sustainable logistics and it has been the vessel operator for RV Aranda for 10 years. On RV Aranda recycled and waste-based bio oils have been used since August 2015. During the refit of RV Aranda, the following modifications have been implemented: bio-oil tank arrangements, fuel consumption monitoring system, bio oil fuel separator and injection system.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

18.00 – End of day 1

19:30 – ERVO Social Dinner – Restaurant La Giara, Valletta

Thursday 14th June 2018

Theme 4: RV technology

08:45 – Dynema solutions for lifting and data cables - David Waage (Hampiðjan, Lithuania)

David Waage gave an overview of the Dynema solutions for lifting and data cables. The Hampiðjan group is a consortium of 27 companies with 36 service stations on 4 continents. The

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group is focused on net, ropes, fishing gear, etc. David presented the DynIce cable which gets stronger when the water gets colder. The DynIce is stronger than steel and almost doesn't react to different kinds of chemicals. The DynIce cables are also available with internal fibre optic cables. Hampiðjan delivered cables for some Japanese and Chinese research vessels.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

Theme 5: Common issues around research vessels

09:00 – Marine Facilities Program – Erica Koning (NIOZ, Netherlands)

Erica Koning gave an overview of the Marine Facilities Program. It is a modular cloud-based marine facility management program developed by a professional software engineering company for NERC and NIOZ. MFP manages the entire process from the scientists application until reporting after the cruise. It also has a module to trace the status of equipment and a mobile app has been launched as well.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

Theme 4: RV technology

09:25 – Current status on European research fleet broadband – Aodhan FitzGerald (Marine Institute, Ireland)

Aodhan FitzGerald presented the current status of the fleet broadband installed on the European research fleet. The topic is also included in the new Eurofleets+ project. Most of the EF+ vessels have KU band installations. Most EF+ vessels have an uplink/downlink of minimum 500 kbps. There is a big spread in the ratio of internet service speed to cost, from less than 1000 euro per month up to more than 6000 euro per month for similar service speeds. A lot of end users are not happy with the received broadband service and would like to take part in a combined (e.g. ERVO) service. Aodhan also discussed the differences between KU and KA band.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

Theme 6: Cooperation and Outreach

09:50 – Eurofleets+ project – Aodhan FitzGerald (Marine Institute, Ireland)

Aodhan FitzGerald presented the new Eurofleets+ project that was submitted on the 22nd of March 2018. It is the follow-up project of Eurofleets and Eurofleets2. Aodhan will be the coordinator of the new 4 year project. The EF+ project will have 42 partners with new participants providing transnational access including New Zealand, Canada, USA, Bermuda, Finland and many new industry partners including SMEs. The EF+ project will give open

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access to an advanced research vessel fleet with 27 research vessels, 7 ROVs, 5 AUVs, and a telepresence unit.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

10:05 – EuroGOOS, EOOS and links to Global initiatives – Patrick Gorringer (EuroGOOS, Brussels)

Patrick Gorringer gave an introduction to EuroGOOS and European Ocean Observing System (EOOS) including the link to Global initiatives. EuroGOOS is an association promoting and implementing Operational Oceanography to ensure sustained observations and models which are made in European seas by underpinning a suite of fit-for-purpose products and services for marine and maritime end-users. EuroGOOS has 41 members and 50 additional Regional Operational Oceanographic Systems (ROOS) members. Patrick gave an overview of the objectives, structure of EuroGOOS and the link to other marine data initiatives. Secondly, Patrick introduced EOOS which is a new flexible coordination network that aims to unite the dispersed community of ocean observing systems within Europe and to assess the different gaps (spatial, temporal, parameters, etc.) in the existing marine observations in Europe.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

10:25 – Coffee break and national update posters

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11:00 – ERVO's reply to the EOOS consultation – André Cattrijsse (VLIZ, Belgium)

André Cattrijsse presented the ERVO's reply to the EOOS consultation. Based on a consultation EOOS will setup a strategy and an implementation plan. The main objective of EOOS is to form one single framework connecting the full diversity of the European ocean observation/monitoring landscape wherein observation system serve user requirements & needs, supplying key datasets for drivers & stakeholders. ERVO reacted positively on the EOOS consultation and agreed with the EOOS strategy plan as was presented by André

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

11:15 – The EU framework for sustainable RIs: possible actions for the European Research Fleet – Giuseppe Magnifico (CNR, Italy)

Giuseppe Magnifico presented the EU framework for sustainable research infrastructure and the actions for the EU RV fleet. Since research infrastructures are a key policy priority on European level, it is important that we try to include the European research fleet. This topic will also be included as a work package in the EF+ project. The goal should be to propose a business plan for a long-term sustainable Transnational Access (TA) system for research vessels, to provide an operational proposal toward a sustainable coordination platform for European research vessel fleets and to provide a strategic roadmap and guidelines for the sustainability of the Eurofleets+ platform beyond project lifetime. Giuseppe emphasized that ERVO should play an important role in this and should become a more structural/formal entity.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

11:25 – IRSO update – Erica Koning (NIOZ, the Netherlands)

Erica Koning gave an update for IRSO. The upcoming IRSO meeting will take place in Barcelona from 01-04 October 2018 and will be organized by CSIC.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

11:35 – OFEG update – Klas Lackschewitz (GEOMAR, Germany)

Klas Lackschewitz gave an update for OFEG. OFEG, the Ocean Facilities Exchange Group, allows its members for no-cost exchanges of ship time and major marine equipment. It promotes the efficient and cost-effective use of each country's resources by giving the scientific communities access to a wider range of marine facilities and geographical areas. If you, as a non-member, want to use OFEG capabilities a bilateral agreement with a OFEG member can provide you access.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

11:45 – Topics, date & place ERVO 2019 – Klas Lackschewitz (GEOMAR, Germany)

Klas Lackschewitz introduced the 2019 meeting in Hamburg. The meeting will be hosted by the Control Station of German Research Vessels at the University of Hamburg and will take place from the 11th - 13th of June 2019.

For more details, see the presentation at <http://www.ervo-group.eu/np4/np4/np4/43.html>

11:55 – Closing 19th ERVO meeting – Klas Lackschewitz (GEOMAR, Germany)

Klas Lackschewitz thanked all meeting participants for the good job done during this meeting and the team of the University of Malta for the excellent organization.

12.00 – End 2018 ERVO meeting

