

Integrated Marine and Coastal Management - PT02

Outcome#2 - Improve monitoring of marine waters

Call Title: 4 - R&D smart sensors and development of monitoring platforms and interoperability test cases

Final Results

Project Code	Title	Project Promoter	Partner	Donor partner	Budget			Description	Final Score (points)	Rank Position	Recommendation of the Selection Committee	PO Approval
					Total cost	Total Eligible Cost	EEA Grant					
Type I PT02_Aviso4_0017	MarinEye - A prototype for multitrophic oceanic monitoring	CIIMAR - Centro Interdisciplinar de Investigação Marinha e Ambiental	Instituto Português do Mar e da Atmosfera, I.P. (IPMA) Instituto Politécnico de Leiria (IPL) INESC TEC - Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência		373.867 €	373.722 €	317.664 €	MarinEye will develop an innovative multitrophic autonomous system with adequate sensors and sufficient autonomy and robustness to improve integrated physical-chemical and biological monitoring of the marine environment. MarinEye is expected to provide information that could not be obtained by satellites or aircrafts, by increasing the monitoring capacities carried out by vessels, AUVs, oceanic and coastal platforms (fixed or mobile), and observatories. Furthermore this system will contribute to the assessment of the national marine environmental status of coastal waters and remote oceanic areas (e.g. deep sea ecosystems). When operational the multitrophic autonomous system will be installed and used in several marine observatories, namely the Cascais Watch station (in a coastal upwelling area, <a href="http://www.st.mfm.noaa.gov/plankton/time-series/site_...berlin-portugal-cascais/">http://www.st.mfm.noaa.gov/plankton/time-series/site_...berlin-portugal-cascais/</a> ), the Berlings Watch station (in a marine protected area), in the platform buoys of the RIAA oceanic observatory (offshore the North West Iberian Atlantic margin). Once operational, data collected by the MarinEye system will be disseminated through the National Information Sharing Environment (NISE) contributing to the Integrated Maritime Surveillance and Monitoring (NIPIM@R).	4,070	1 <sup>o</sup>	Selected	30-07-2015
Type I PT02_Aviso4_0004	Monitoring of Marine Protected Areas (MoMPa)	WavEC Offshore Renewables (WavEC)	UAVision - Engenharia de Sistemas, Lda	Runde Environmental Centre AS (REC) - Norway	364.192 €	364.192 €	309.563 €	Monitoring of the marine environment is an essential task, but due to the large area to be covered, the use of traditional techniques has proven to be a time consuming and expensive task. Therefore, monitoring of the marine environment evolves in the direction of developing tools for long term monitoring capabilities, providing data for a balanced and timely management of resources. These actions are increasingly encouraged and supported in several legal frameworks and conventions (e.g. OSPAR Convention and the Marine Strategy Framework Directive). This proposal aims to develop and install three pilot-networks to monitor 3 Marine Protected Areas and test their integration through the development of a common protocol that allows the dissemination of information across the common national maritime information sharing environment. The platforms installed will be able to collect information, operate for long-periods of time in the Atlantic area, and to increase the capacity to monitor the marine environment in an integrated way. The target group of the project are the DGPM and DGRM and other institutions that can need long-term data information.  The project will be promoted by WavEC in partnership with UAVision and Runde Environmental Centre (REC). WavEC and UAVision have been involved in the development of a monitoring tool for the KIC-OTS project funded by KIC-InnoEnergy. REC has a large experience and know-how on the monitoring of the marine environment. This partnership allows the improvement and development of a monitoring plan for Marine Protected Areas in a balanced and integrative way. Also, will promote the share of know-how between the partners and strengthen bilateral relationships.	3,688	2 <sup>o</sup>	Not selected for funding (Financial allocation not available)	
Type I PT02_Aviso4_0008	DIPMAR - Desenvolvimento e Interoperabilidade de Plataformas Flutuantes e submersas de observação MARinha	Instituto de Ciência e Inovação em Engenharia Mecânica e Engenharia Industrial			273.309 €	273.309 €	232.313 €	The presented project aims to test and develop technology to be implemented in a marine observation network that gathers information which is expected to enable effective reaction against issues related to the climate change, to the ecosystem preservation and management, to the quality of coastal waters, to the maritime operations, and to the coastal and national security risks. It is intended to implement a low-cost and high-resolution observation structure to ensure the maximization of space-time coverage in the collection of oceanographic data, helping thus the improvement of the current observation systems. Also, the following initiative will emphasize the importance of the marine observation systems in Portugal. In summary DIPMAR is intended to increase the performance, availability and flexibility of the equipment and structures that give the effective capacity to monitor and manage the marine environment, disposing also of the collected data and structures for all the parties interested in utilization of the maritime space.	3,453	3 <sup>o</sup>	Not selected for funding (Financial allocation not available)	
Type I PT02_Aviso4_0012	PORTUM - Sistema de monitorização das condições marítimas para zonas costeiras	Composite Solutions LDA	Universidade de Aveiro		365.252 €	346.774 €	294.758 €	PORTUM will be a new information platform of sea conditions near the coastal zone, developed by Composite Solutions, scientifically supported by the University of Aveiro and with logistical support from the Administration of the Port of Aveiro and the Port of Figueira da Foz and Peniche City Hall. The main objective of PORTUM is to work as a delivery platform of coastal maritime data, identifying himself as a capital scientific and technological gain and as a driver of economic dynamism of the region at port, fishing and tourism level. To ensure the acquisition of information and real-time transmission of coastal sea data, the PORTUM project aims to develop innovative and competitive maritime monitoring devices which efficiently monitor in situ the physical aspects of the ocean state, contributing for a simplification of the means used in the acquisition, transmission and dissemination of data. The data will be integrated within the national environment of maritime information sharing (IPMA, IH, Research Institutes and Universities) and access will be available through customized web and mobile interfaces for different end-users, such as surfers / fishermen, port management entities and for the scientific community. PORTUM will help to strengthen the monitoring of the Portuguese aquatic environment, particularly in the coastal strip of the NUT II - Centro, and represent a significant added value to the region of Aveiro, Figueira da Foz and Peniche, locations for which there isn't currently any device for monitoring and where it is planned to install buoys in the context of this project.	2,773	4 <sup>o</sup>	Not selected for funding (Financial allocation not available)	
Type I PT02_Aviso4_0014	M@RNET - plataforma de monitorização e partilha de dados de redes de observação do mar	INESC Porto - Instituto de Engenharia de Sistemas e Computadores do Porto	Instituto Hidrográfico		317.844 €	317.844 €	270.167 €	M@RNET meets one of the main objectives of the National Common Data Sharing Environment for Marine Data (NIPIM@R) by increasing ocean monitoring capacity, and implementing an infrastructure of services for the dissemination of semantically rich observation and prediction data. These data are provided by a growing structure of heterogeneous observation networks and forecast models at Instituto Hidrográfico (Hidrográfico). It involves a comprehensive strategy: 1)Expansion of established observation networks; 2)Development of interoperable services; 3)Development of community-targeted client software accessing (near) real time data; 4) knowledge and Technology transfer to an exploitation environment at Hidrográfico for long term operation; and 5)Public awareness to outreach main stakeholders. Outcome monitoring will be available through the interoperability tests and the applications usage. Bilateral relations are strengthened through knowledge transfer and joint development.  M@RNET aims to enhance a marine operational monitoring network and enable the dissemination of observation and prediction data. M@RNET will install: - 1 new observation site with instruments made available by other project and a buoy acquired by one of the project partners; - 1 360° camera system for monitoring vessel traffic in an existing buoy; - 2 services providing access to, respectively, observation and prediction data from 3 observation networks and a numerical model; - 2 client targeted applications to demonstrate access to observation and prediction data.	2,305	5 <sup>o</sup>	Not selected (score under 2,5 points)	
Type II PT02_Aviso4_0011	SOCO - DRONE - Sistema de Observação Costeira e Oceânica baseada em Drones	UAVISION - Engenharia de Sistemas Lda	DEIMOS Engenharia, SA Instituto Hidrográfico		371.281 €	371.281 €	315.589 €	The main objective of the project is to improve the national environmental maritime monitoring capacity in remote ocean areas by deploying a low-cost system comprising unmanned vehicles (UAVs) and sensors (deployable water glider smart sensor, GNSS-Reflectometry altimetry, Optical Camera and AIS) and a dedicated ground station. The project shall design, develop, test and demonstrate in the Gorrige bank (150 miles WSW of Cape St. Vicente, proposed as a marine protected area) the use of 2 high endurance UAV fixed-wing platforms base on UAVISION existing platform adapted to remote ocean monitoring. UAVs will fly in a collaborative and complementary way in a network to collect and relay data (telemetry, sensors, etc) to and from land-based station, allowing gathering of human activity and environmental data to be disseminated in open databases to entities via national NIPIMAR initiative. The project is aligned with Portuguese National Ocean Strategy embraced by IH as well industrial strategies of UAVISION and DEIMOS, targeting a near future implementation on higher scale and TRL with significant impact on Portuguese maritime operators in terms of capability, cost and efficiency.	4,160	1 <sup>o</sup>	Selected	17-07-2015
Type II PT02_Aviso4_0013	MEDUSA_DS - OPENING THE DEEP SEA FRONTIER	CEIIA - CENTRO PARA A EXCELENCIA E INOVAÇÃO NA INDUSTRIA AUTOMÓVEL	Instituto Superior Técnico Instituto do Mar - IMAR Instituto Português do Mar e da Atmosfera, I.P. (IPMA) Estrutura de Missão para a Extensão da Plataforma Continental	Argus Remote Systems AS (Norway)	377.387 €	377.387 €	320.779 €	Knowledge and technological development are considered as the main pillars of the National Marine Strategy. To implement this strategy and to achieve and maintain Good Environmental Status (GES) it will be instrumental to increase the operational capacity in the deep-sea domain in a cost effective manner so as to complement existing deep-sea exploration and monitoring tools. The MEDUSA_DS project aims at affording national science and technology stakeholders a system of autonomous cooperative vehicles capable of carrying operators at water depths of up to 3,000 m in remote oceanic areas, with light logistic requirements. The system will support decision-making processes related to marine management and conservation policies in the context of the exploration and sustainable exploitation of the extensive sea floor under national jurisdiction. The envisioned system will build on a field-proven existing shallow water system of cooperative AUVs previously developed by the partner IST, involving all partners in the knowledge extension process to reach the deep-sea. The project will benefit from the proven expertise of partner ARGUS (NO) on deep-sea remotely operated vehicles.	4,150	2 <sup>o</sup>	Selected	11-09-2015
Type II PT02_Aviso4_0003	GradRun - Implementation of a gradient monitoring with a multi-robot system	Instituto Português do Mar e da Atmosfera, I.P. (IPMA)	CIIMAR - Centro Interdisciplinar de Investigação Marinha e Ambiental INESC TEC - Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência Instituto Politécnico de Leiria (IPL)		412.058 €	377.385 €	320.777 €	The objective of this project is to develop an autonomous multi-robot system capable of detecting and mapping important marine gradients such as upwelling fronts and river plumes. For the study of marine ecosystems, an improved knowledge on the nature and extent of these structures is of key importance to resolve the oceanographic dynamics controlling these processes. Moreover, to allow a proper modelling and forecasting in physical/biophysical studies, to explain fishery production and regime shifts, it is necessary, not only to map the occurrence, but also to analyse and monitor these oceanic fronts. Thus, the proposed project would allow the collection of physical, chemical and biological data sets relevant to consolidate the current knowledge on oceanic fronts. In the framework of the Marine Strategy Framework Directive (MSFD) implementation, Portugal proposes a monitoring program for the continuous assessment of the environmental status of marine waters and periodic updating of the environmental targets. These actions intend to contribute to the preservation of Portugal's natural patrimony and the economic activities linked to the marine environment. In this sense the project fulfills the EEA PT02 Objective - Call no. 4 by contributing to the development of innovative marine environment monitoring capabilities that will improve the knowledge of critical domains fundamental to the development of marine strategies leading to the MSFD implementation in Portuguese marine waters.	3,960	3 <sup>o</sup>	Not selected for funding (Financial allocation not available)	
Type II PT02_Aviso4_0007	ARTOS - Na advanced Networked Robotic System Tool for Ocean Tele-Science	Faculdade de Engenharia da Universidade do Porto	Instituto Superior Técnico IMAR - Instituto do Mar		376.615 €	376.615 €	320.123 €	This proposal concerns the development, implementation, and demonstration (TRL 6 level) of an advanced networked robotic system tool for ocean tele-science. To this end, a user-friendly software tool chain module - the Tele-Science Workstation - will be developed with the capabilities of collecting and disseminating through the national marine information sharing environment (NIPIM@R) important information in near real-time for marine monitoring and management applications. The final demonstration will take place in Azores involving a number of autonomous robotic vehicles (aerial, surface and underwater) capable of collecting autonomously and cooperatively sensor data (visible and infrared video, high-resolution multi-beam, side-scan, and CTD data). The tele-science operator will have the capability of constructing the mission plans for the robotic vehicles using high-level primitives and also change the mission scenario on-the-fly according to specific events that he/she perceives.	3,815	4 <sup>o</sup>	Not selected for funding (Financial allocation not available)	

Type II PT02_Aviso4_0006	SEA CARE - Sea maritime Awareness based on Collaborative UAV monitoring Team	TEKEVER AUTONOMOUS SYSTEMS LDA	Secretaria Regional do Mar, Ciência e Tecnologia - Inspeção Regional das pescas		377.304 €	377.304 €	320.708 €	SEACARE proposes to address by making precise and more frequently information available to different stakeholders and by providing resources to monitor unpredictable events. SEACARE positions itself as a proof-of-concept demonstrator for the use of autonomous systems as agile, flexible and self-coordinating operational resources in the described context. The project thus proposes to develop innovative sensors and algorithms to provide UAVs with functionalities that will allow them to monitor protected maritime areas and collect information from resources that are currently already deployed over the Atlantic Ocean, as well as provide data collected by the UAVs themselves during their mission. SEACARE builds upon TEKEVER's UAV capability (TEKEVER is the project promoter) together with the deep knowledge and sensitivity possessed by Secretaria Regional das Açores toward this subject. This project thus focuses on UAVs developed and owned by TEKEVER regarding the aforementioned technical developments and goals.	3.095	5 <sup>a</sup>	Not selected for funding (Financial allocation not available)	
Type III PT02_Aviso4_0005	BLUECOM+ - Connecting Humans and Systems at Remote Ocean Areas using Cost-effective Broadband Communications	INESC TEC - Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência	Instituto Português do Mar e da Atmosfera, I.P. (IPMA)	MARLO, AS (Norway)	309.348 €	309.318 €	262.920 €	The ocean and the Blue Economy are top priorities in Portugal and in the European Union, as stated by the Marine Strategy Framework Directive (MSFD), National Ocean Strategy (2013), and Commission's Action Plan for a Maritime Strategy in the Atlantic Area (2013). Portugal's immense ocean territory and its Blue Economy potential is envisioned to increase activity at the ocean. The support of this activity will demand wireless and mobile communications to connect humans and systems at remote ocean areas to the Internet, in alternative to HF/VHF and Satellite communications. The BLUECOM+ project aims at developing an innovative communications solution that will enable broadband, cost-effective Internet access at remote ocean areas to regular devices using standard wireless access technologies. The project will include the specification, implementation, and laboratory testing of the communications solution to achieve a proof-of-concept prototype to be demonstrated in a remote ocean area. The BLUECOM+ target groups include: Scientists and Researchers; Public employees/Public Administration; Coastal and Marine Water Management System; Fisheries, Aquaculture and Fishing Industry; Marine Biotechnology; marine mineral and energy resources. The partnership with IPMA and MARLO (Norwegian partner) will bring in the end-users communications requirements, the means for the sea trials, the knowledge about the sea environment, and the expertise for exploitation planning and impact assessment. MARLO will play a key role in establishing and promoting a bridge between the Portuguese reality and the Donor State reality (Norway) and will contribute to strengthen the bilateral relations.	4.595	1 <sup>a</sup>	Selected	17-07-2015
Type III PT02_Aviso4_0016	Networked Ocean - Networked ocean and vehicles for communications and data collection in remote oceanic areas	Faculdade de Engenharia da Universidade do Porto	Instituto Português do Mar e da Atmosfera, I.P. (IPMA) Centro de Investigação Naval - CINAV		372.321 €	372.297 €	316.452 €	The project concerns the development and demonstration at sea of a networked vehicle system for persistent communications and data collection in remote oceanic areas. The system is composed of a long endurance autonomous surface vehicle (ASV), long endurance autonomous underwater vehicles (AUV), long range unmanned air vehicles (UAV), helicopters, and control stations. The ASV is both a communications hotspot and a docking base (for AUVs), operating 24/7 in remote ocean areas. The ASV supports smart routing protocols for direct communications, via persistent UAV relays, or delayed data transfer to control stations. The control stations provide advanced planning and execution control capabilities, as well as dissemination of data. The system supports inter-operability protocols to allow expansion to vehicles from third parties. The project is organized into 6 work-packages: 1: Project management and systems engineering; 2: Communications and inter-operability; 3: Unmanned vehicle systems; 4: Land/ship control stations; 5: System integration and testing; and, 6: Demonstration at sea. The project builds on technological, scientific and operational experience of a consortium of FEUP (leader), IPMA, and Portuguese Navy from Portugal, and AMOS from Norway.	4.325	2 <sup>a</sup>	Selected	11-09-2015
Type III PT02_Aviso4_0009	Surveying Human Activities in Remote Marine Environment (SHARE)	Instituto Português do Mar e da Atmosfera, I.P. (IPMA)	Direção-Geral de Recursos Naturais, Segurança e Serviços Marítimos (DGRM)	Xsealence- Sea Technologies S.A.	375.588 €	374.930 €	318.691 €	The project fulfills the Objective PT02 of EEA Grants - Call 4, contributing to improve the national capacity for monitoring the marine environment, by supporting the VMS ("Vessel Monitoring System") system which in Portugal is known as the MONICAP - Contínua das Atividades da Pesca). The VMS consists of the Continuous Monitoring Equipment (CME) installed on fishing vessels, which records and transmits the information to a Control and Surveillance Centre for Fisheries (CSCF). The CME consists of a "Blue Box" module that registers the data obtained by GPS, a transmission module and all antennas and interconnecting cables required to enable either the capture or data transmission. The information provided by CME includes at least the vessel geographical position, course and speed. For legal obligations, the CME has to report its position in real time, every two hours, so one of its components is a satellite transmission module, which allows it to fulfil this legal obligation, whatever its location in the world. This feature makes the operation of the CME independent of the distance from the boat to shore, thus immune to the lack of coverage of small and mid-range communications preventing this real-time transmission obligation. On the other hand it makes the CME dependent on satellite communication, typically of fairly high cost.	3.238	3 <sup>a</sup>	Not selected for funding (Financial allocation not available)	
Type III PT02_Aviso4_0001	AtlanticLink	QUARKSON, LDA			377.388 €	377.388 €	320.780 €	The AtlanticLink project approaches the development, construction and testing of a communications system, using an unmanned aerial platform with increased autonomy and off-the-shelf communication equipment. At a glance, Quarkson intends to reach the following technological and scientific objectives: 1. Develop/Optimize a high altitude unmanned aerial platform, capable of flying for long periods of time, covering great lengths over the Atlantic area; 2. Create a communications system for long-haul aerial platforms composed by Off The Shelf communication equipment; 3. Ensure communication between AtlanticLink, communication devices and data platform (coastline, or sea-based); 4. Using ad-hoc communication, UHF, VHF or microwave radio to ensure excellent communication efficiency; Additionally, with this project, the company aims at becoming competitive in producing high-altitude platforms and delivering it to the European market.	3.053	4 <sup>a</sup>	Not selected for funding (Financial allocation not available)	
Type IV PT02_Aviso4_0015	ENDURE - Enabling Long Term Deployments of Underwater Robotic Platforms in Remote Oceanic Locations	INESC TEC - Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência	Instituto Português do Mar e da Atmosfera, I.P. (IPMA)	MARLO, AS (Norway)	256.680 €	256.655 €	218.157 €	The PT02 programme aims to achieve a good environmental status, in accordance with the marine strategy framework Directive and one of the expected outputs consists in the strengthening of the capacity of mobile remote monitoring ocean through the introduction of innovative supporting platforms. Such platforms in remote ocean areas comprise various challenges, particularly as regards the availability of energy. ENDURE aims at projecting, constructing and testing a cost-effective solution that allows for autonomous underwater vehicles (AUV) to wirelessly recharge their batteries near an underwater charging station, used in remote oceanic areas including deep-sea deployments. By avoiding complex mechanical docking, the proposed solution requires minimal maintenance being therefore cost-effective, and will enable long-term operation in remote oceanic locations. The proposed solution consists in an underwater charging station moored to the seabed and also connected to a surface platform that generates energy through renewable energy sources. The consortium lead by INESC TEC, involves IPMA (PT), who will provide input on user requirements and specifications. Composite Solutions (PT), who will develop the surface platform and mooring system and MARLO (NO) who will provide input on the identification of potential end-users and development of exploitation business scenarios as well as dissemination and promotion of the project results.	4.523	1 <sup>a</sup>	Selected	17-07-2015
Type IV PT02_Aviso4_0002	POWERS - Platform for Offshore Wind Energy and Remote Surveillance	Omnidea Lda	Instituto Português do Mar e da Atmosfera, I.P. (IPMA)	Norut Tromsø, (Northern Research Institute Tromsø)	312.414 €	312.046 €	265.239 €	The project will produce an autonomous smart prototype platform with capabilities of energy services as well as monitoring and surveillance facilities for supporting marine and coastal management in Portugal, contributing to the goal of the Marine Directive to achieve Good Environmental Status of EU marine waters by 2020 according to the Marine Strategy Framework Directive. The goal of the project is to adapt the Omnidea wind energy system and to demonstrate at TR6 the supply of energy for the benefit of IPMA's aquaculture farms and with Norut, to observe and monitor wave regimes, algal blooms and measure meteorological parameters from about 250 metres above in order to better understand and improve conditions to enable aquaculture operations to be carried out offshore. The partnership fosters synergies and transfer of knowledge across disciplines in a strategic activity contributing significantly to maintaining local economies, wealth generation and employment on the coast.	3.743	2 <sup>a</sup>	Not selected for funding (Financial allocation not available)	
Type IV PT02_Aviso4_0010	TIED24-7 - Transmissão Inteligente de Energia elétrica e Dados 24-7 para veículos autónomos submarinos	Instituto de Ciência e Inovação em Engenharia Mecânica e Engenharia Industrial			237.291 €	237.291 €	201.697 €	The TIED24-7 project aims at the improvement of the national capacity to monitor the marine environment in remote areas, by increasing the capability of unmanned mobile oceanic monitoring systems. This particular project frames with projects' typology Type IV, of Call 4: "R&D smart sensors and development of monitoring platforms and interoperability test cases", under the EEA GRANTS - European Economic Area Financial Mechanism - PT02 - Integrated Marine and Coastal Waters Management, which are intended to implement the capability of supporting systems of smart platforms deployed in remote oceanic areas for collecting marine environment and human activities data, by providing them energy services to increase their autonomy, thus contributing to their overall efficiency and effectiveness. In a nutshell, the TIED24-7 project aims at providing an energy service to support intelligent platforms in the collection and dissemination of marine data and human activities in remote ocean areas, which will be demonstrated in relevant environment (TRL 6) and should enable intelligent platforms of the AUV type, among other things, to: - Operate in the Atlantic - Operate for long-time periods - Generate enough energy to provide to the intelligent platforms - Collect data from intelligent platforms and ground stations - Disseminate data to ground stations or intelligent platforms	3.128	3 <sup>a</sup>	Not selected for funding (Financial allocation not available)	
<b>Total - Selected for funding</b>					<b>2.060.884 €</b>	<b>2.060.660 €</b>	<b>1.751.561 €</b>					
<b>Total - Not Selected for funding</b>					<b>3.789.255 €</b>	<b>3.735.078 €</b>	<b>3.174.816 €</b>					
<b>Total</b>					<b>5.850.139 €</b>	<b>5.795.738 €</b>	<b>4.926.377 €</b>					