D4.6 Report on networking and community building v2

WP4 – Outreach & Sustainability

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EO4wildlife Project Overview

EO4wildlife main objective is to bring large number of multidisciplinary scientists such as biologists, ecologists and ornithologists around the world to collaborate closely together while using European Sentinel Copernicus Earth Observation more heavily and efficiently.

In order to reach such important objective, an open service platform and interoperable toolbox will be designed and developed. It will offer high level services that can be accessed by scientists to perform their respective research. The platform front end will be easy-to-use, access and offer dedicated services that will enable them process their geospatial environmental stimulations using Sentinel Earth Observation data that are intelligently combined with other observation sources.

Specifically, the EO4wildlife platform will enable the integration of Sentinel data, ARGOS archive databases and real time thematic databank portals, including Wildlifetracking.org, Seabirdtracking.org, and other Earth Observation and MetOcean databases; locally or remotely, and simultaneously.

EO4wildlife research specialises in the intelligent management big data, processing, advanced analytics and a Knowledge Base for wildlife migratory behaviour and trends forecast. The research will lead to the development of web-enabled open services using OGC standards for sensor observation and measurements and data processing of heterogeneous geospatial observation data and uncertainties.

EO4wildlife will design, implement and validate various scenarios based on real operational use case requirements in the field of wildlife migrations, habitats and behaviour. These include:

- Management tools for regulatory authorities to achieve real-time advanced decision-making on the protection of protect seabird species;
- Enhancing scientific knowledge of pelagic fish migrations routes, reproduction and feeding behaviours for better species management;
- Enable researchers better understand the movement behaviour of sea turtle populations; and
- Setting up tools to assist marine protected areas and management.

Abbreviations and Glossary

A common glossary of terms for all EO4wildlife deliverables, as well as a list of abbreviations, can be found in the public document "EO4wildlife Glossary" available at EO4wildlife.eu.

Executive Summary

This document describes the strategies undertaken to establish the user community by facilitating networking activities towards professional and scientific groups and networks. It provides detailed descriptions of other EU-funded projects liaison activities, advisory board activities and standardization activities. These activities, by involving the wildlife tracking community in the development process, will ensure that the final product(s) is widely applicable across many domains.

This deliverable is complementary to D4.3 "Dissemination and communication report and materials v2", which goal is to raise awareness of the project activities in order to make EO4wildlife a successful and sustainable product.

The second version of this report on networking and community building, details the Advisory Board activities in 2017. This includes detailed information of the second Advisory Board workshop which took place in June. In addition, the document also includes the activities carried out in 2017 with the Ecopotential project. To conclude, the planning of future activities has been updated in order to present the expected plan for 2018.

1 Introduction

1.2 Aims and objectives

The interaction with the community fulfils two main aims. EO4wildlife actively seeks to involve researchers and professionals by informing them about the opportunities of the EO4wildlife Platform for their research. On the other hand, the tasks gathers feedback from the target audience for to the development team ensuring that the final product(s) is widely applicable across many domains. Involving the communities in the development process will pave the way to a broad uptake.

These activities are complemented by the External Advisory Board, who plays an essential role for the final validation and potential extension of EO4wildlife requirements, and composed by a number of relevant stakeholders closely related to the case studies proposed in the project, and supported by recognised experts. In addition, in order to open the EO4wildlife platform to a large community of scientists, we need to use accepted standards within the wildlife tracking community to ensure the consistency of the information (i.e. metadata and vocabulary) and use the potential of the interoperability.

1.3 Related documents

As mentioned previously, this deliverable is complementary to D4.3 "Dissemination and communication report and materials" [3] which goal is to raise awareness of the project activities in order to make EO4wildlife a successful and sustainable product.

A detailed description of the methodology followed to ensure the consistency of the information (i.e. metadata and vocabulary) and use the potential of the interoperability is provided in D3.4 "Big Data Connectors and Catalogue Service"[4].

2 Networking and community building strategies

2.1 Liaison strategies

EO4wildlife actively seeks to involve researchers and professionals by informing them about the opportunities of the EO4wildlife Platform for their research by:

- identifying the community for collaboration
- gathering feedback from target audience in order to ensure that the final product(s) is widely applicable across many domains

2.2 Advisory board

EO4wildlife Advisory Board plays an essential role for the final validation and potential extension of use cases requirements set up by the project's partners (ATOS, CLS, IT Innovation/University of Southampton, Birdlife International, Agence Française pour la Biodiversité and University of Exeter). The Advisory Board is also involved in the Overall evaluation process that will provide a general assessment of the project's outputs. This evaluation is done against the end-users needs and the objectives of the project.

2.2.1 Role of the Advisory Board committee

The main activities of the Advisory Board are to:

- Prepare for and attend EO4wildlife project workshops (at the moment, 3 workshops are planned during the project)
- Answer questions on EO4wildlife scenarios
- Actively participate in overall evaluation through consultations

Most inputs required from the Advisory Board members take place during the annual workshops, for which preparatory documents are sent in advance for study. When attendance is not possible, other options are studied, like participating through video conference or sending written comments for those who are not able to attend.

A minimum quorum of 5 members is needed for the workshop to take place.

2.2.2 Composition

The Advisory Board committee is composed by 7 external scientific experts. The list of Advisory Board members and the institutions that they represent is provided below.

Name	Institution	Position/Role
Dr. Gemma Quilez-Badia	Great Tuna Race, Spain	Scientific Director
Dr. Cécile Gaspar	President of "Te mana o te moana" – "Ocean's spirit" NGO	Member of IUCN Marine Turtle Specialist Group
Pr. Vincent Ridoux	CNRS/University of La Rochelle, France Director of PELAGIS observatory for the conservation of marine mammals and seabirds	Member of IUCN Marine Mammals Protected Areas Task Force
Dr. Lars Boehme	Sea Mammals Research Unit University of St Andrews, UK	Chair of EuroGOOS marine mammal observation task team

Dr. Yann Tremblay	IRD - MARBEC MARine Biodiversity, Exploitation and Conservation, Sète, France	Theme leader for MARBEC in the population and habitat section
Dr. Richard Philips	British Antarctic Survey, UK	Leader of the higher predators and conservation group
Dr. Lea-Anne Henry	University of Edinburgh, UK	Co-ordinator of SIORC Program, the Scottish shark tagging program

Table 1: EO4wildlife Advisory Board members

Short profiles describing in more details the area of expertise of each member of the EO4wildlife Advisory Board are provided in Annex I.

3 Networking and community building activities

3.1 Other EU-funded projects liaison activities

This section identifies the community for collaboration, i.e. projects, clusters and related initiatives, paying special attention to the other H2020 projects funded under same objective EO-2-2015 (Stimulating wider research use of Copernicus Sentinel Data), but looking also to the others under same EO umbrella (Earth Observation applications and services) in general. Focus was put on the technology side and therefore on Space related projects, taking into account that thematic aspects will be well covered by the profile of the people involved through the External Advisory Board.

3.1.1 H2020 Earth Observation Projects

More specifically, the research of potential projects for the purpose of this Task/Deliverable D4.5, and which could be interesting to follow up and possibly start a relation for exchange or collaboration with EO4wildlife, was done on the ones funded under H2020 in the Programme LEIT-SPACE and for the topics EO-1, EO-2, and EO-3, of the Calls from 2014 to 2016[1]. This corresponds to the projects in the green box of the figure below, depicting the building blocks of the Space Work Programme in H2020.
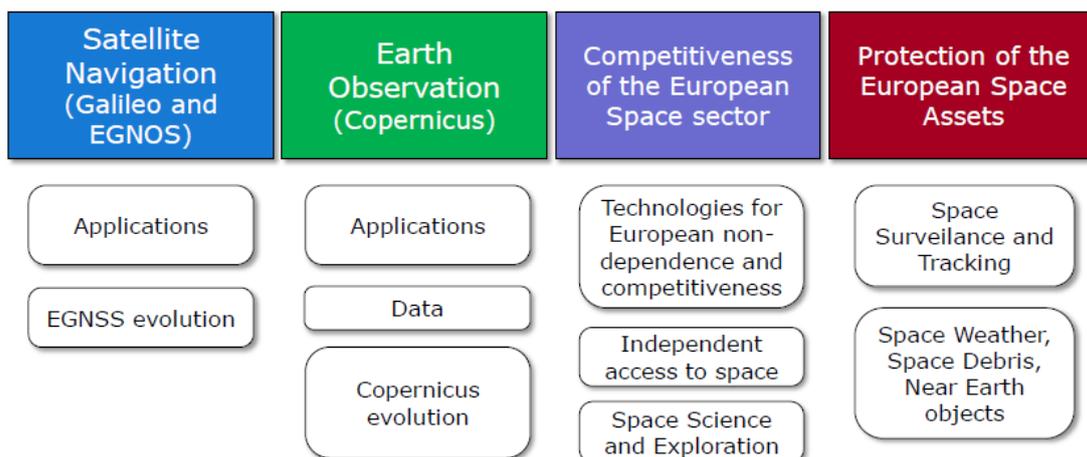
Figure 1: Horizon 2020 Space WP structure and building blocks

The following table collects this list of Projects, including in the last column a first level of interest looking at the overall description of these projects in their respective websites and from the documentation available, using a simple ranking scale: 0 = neutral, + = limited, ++ = fair, +++ = strong.

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[1] http://cordis.europa.eu/search/result_en?q=(programme/code%3D%27H2020-EU.2.1.6.*%27)%20AND%20/project/relations/associations/relatedSubProgramme/programme/code%3D%27EO-1-2014,EO-1-2015,EO-1-2016,EO-2-2014,EO-2-2015,EO-3-2014,EO-3-2015,EO-3-2016%27%20AND%20contenttype%3D%27project%27&searchType=advanced; visited on 2016-11-02

Acronym	Project title	Type[2]	From	To	Short description	Website[3]	Level
URBANFLUXES	*URBan ANthrpogenic heat FLUX from Earth observation Satellites*	RIA	01/01/2015	31/12/2017	The main goal of the proposed project URBANFLUXES is to investigate the potential of Earth Observation to retrieve anthropogenic heat fluxes. URBANFLUXES will investigate the potential of EO to retrieve the anthropogenic heat flux, as a key component in the urban energy budget and by developing a method capable of deriving it from space.	http://urbanfluxes.eu	
EGSIEM	*European Gravity Service for Improved Emergency Management*	RIA	01/01/2015	31/12/2017	Timeliness and reliability of information is the primary concern for any early-warning system. EGSIEM aims to increase the temporal resolution from one month, typical for GRACE (Gravity Recovery and Climate Experiment) products, to one day and to provide gravity field information within 5 days (near real-time).	http://www.egsiem.eu	
EUSTACE	*EU Surface Temperature for All Corners of Earth*	RIA	01/01/2015	30/06/2018	EUSTACE utilises Europe's capacity for gathering space-borne observations of the skin temperature, of all components of Earth's surface, by extracting data relevant to providing estimates of surface air temperature, a primary Essential Climate Variable (ECV), conventionally measured at (often sparse) meteorological stations.	https://www.eustaceproject.eu	+

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[2] IA - Innovation action; RIA - Research and Innovation action
[3] When dedicated website is not yet available (N/A), the link to the project profile in CORDIS is provided

Acronym	Project title	Type[2]	From	To	Short description	Website[3]	Level
BACI	*Towards a Biosphere Atmosphere Change Index*	RIA	01/04/2015	31/03/2019	Yet, it remains largely unclear how space and ground-based observations can be optimally integrated to generate products required by end user communities. By fusing extensive expertise on optical and radar remote sensing, ground data on ecosystem state and function, "big data" scientists, and active participation of user groups, BACI will advance this integration.	http://baci-h2020.eu	+
SPICES	*Space-borne observations for detecting and forecasting sea ice cover extremes*	RIA	01/06/2015	31/05/2018	The main objective is to develop new methods to retrieve sea ice parameters from existing (and imminent) satellite sensors to provide enhanced products for polar operators and prediction systems, specifically addressing extreme and unexpected conditions, and focusing on detection of sea ice extremes and automatic production of "sea ice warnings" products.	http://www.h2020-spices.eu	+
BASE-platform	*Bathymetry Service Platform*	IA	01/12/2015	30/11/2017	BASE-platform provides an innovative service for satellite derived bathymetric data for a broad range of users through a commercial service platform. Bathymetry is the measure of the water depth similar to underwater topography. BASE-platform has the ambition to establish a commercial service platform for bathymetric data.	http://www.base-platform.com	+

Acronym	Project title	Type[2]	From	To	Short description	Website[3]	Level
EOMonDis	*Bringing Earth Observation Services for Monitoring Dynamic Forest Disturbances to the Users EOMonDis*	IA	01/02/2016	31/01/2019	The EOMonDis Project aims to improve the operationality of tropical forest products/services in order to better access the funding for the UNFCCC REDD+ policy which is a large market segment for the EO-industry in Europe. The methods developed will be tested on study sites selected to represent the wide range of variety in the tropical biomes, in Malawi, Cameroon, Gabon and Vietnam.	https://www.eomondis.info	
EONav	*Earth Observation for Maritime Navigation*	IA	01/05/2016	30/04/2019	EONav presents an entirely new concept of combining space-based remote sensing observations which are offered by Copernicus with local maritime ship observations to aid maritime sail planning for fuel, emission and fatigue optimization.	N/A[4]	+
APOLLO	*Advisory platform for small farms based on earth observation*	IA	01/05/2016	28/02/2019	The overall objective of APOLLO is to develop a commercial platform that will provide a suite of farm management advisory services specifically designed to address the needs of small farmers. Especially for the calculation of soil moisture, SAR images will be used for the first time with Sentinel-1. Based on the agricultural parameters calculated, a suite of farm management services (tillage scheduling, irrigation scheduling, crop growth monitoring, and crop yield estimation) will be developed.	http://apollo-h2020.eu	

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[4] http://www.copernicus.eu/projects/eonav

Acronym	Project title	Type[2]	From	To	Short description	Website[3]	Level
EUGENIUS	*European Group of Enterprises for a Network of Information Using Space*	IA	01/10/2016	30/09/2018	A group of five SMEs (TerraNIS, Spacebel, Planetek, Terraspatium and Sertit), supported by a consulting firm specialized in Space market innovation and organization (Cap High Tech), are proposing to provide the regional institutional and commercial users with operational information services. These services will take the highest benefit from Copernicus outputs, for territory monitoring and management.	N/A[5]	
EOMORES	*Earth Observation based services for Monitoring and Reporting of Ecological Status*	IA	01/12/2016	30/11/2019	EOMORES aims to develop new highly efficient commercial services for operational inland and coastal ecological water quality monitoring. Three service concepts are envisaged: 1) operational water quality monitoring and forecasting for operational water management, 2) implementation of validated EO-based water quality indicators for WFD and other reporting and 3) historic compilation of data for specific ecological analysis.	N/A[6]	+
DIANA	*Detection and Integrated Assessment of Non-authorised water Abstractions using EO*	IA	01/01/2017	31/12/2019	DIANA is aimed at co-designing and openly demonstrating a commercial service platform that will empower water managers and authorities to optimise the identification and inspection of non-authorised water abstractions for irrigation as well as improve their water management policies and practices, especially in extreme conditions such as drought.	N/A[7]	

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[5] http://cordis.europa.eu/project/rcn/206009_en.html
[6] http://cordis.europa.eu/project/rcn/206072_en.html
[7] http://cordis.europa.eu/project/rcn/206073_en.html

Acronym	Project title	Type[2]	From	To	Short description	Website[3]	Level
FIDUCEO	*Fidelity and Uncertainty in Climate data records from Earth Observations*	RIA	01/03/2015	28/02/2019	FIDUCEO will create new climate datasets from Earth Observations with rigorous treatment of uncertainty informed by the discipline of metrology. This responds to the need for enhanced credibility for climate data, to support rigorous science, decision-making and climate services.	http://www.fiduceo.eu	+
MULTIPLY	*MULTIscale SENTINEL land surface information retrieval PLatform*	RIA	01/01/2016	31/12/2019	MULTIPY proposes a solution to integrate observations from different sensors in order to obtain the best possible estimate of the land surface state. MULTIPLY is based on the EO-LDAS concepts developed within several ESA-funded projects, which have shown the feasibility of producing estimates of the land surface parameters by combining different sets of observations through the use of radiative transfer models.	http://www.multiply-h2020.eu	
Co-ReSyF	*Coastal Waters Research Synergy Framework*	RIA	01/01/2016	31/12/2018	The main objective is to facilitate the access to Earth Observation data and pre-processing tools to the research community, towards the future provision of future Coastal Waters services based on EO data.	http://co-resyf.eu	+
EO4wildlife	*Platform for wildlife monitoring integrating Copernicus and ARGOS data*	RIA	01/01/2016	31/12/2018	*NOTE: provided for sake of completeness.* EO4wildlife platform will enable the integration of Sentinel data, ARGOS archive databases and real time thematic databank portals, including Wildlifetracking.org, Seabirdtracking.org, and other Earth Observation and MetOcean databases; locally or remotely, and simultaneously.	http://www.eo4wildlife.eu	N/A

Acronym	Project title	Type[2]	From	To	Short description	Website[3]	Level
AURORA	*Advanced Ultraviolet Radiation and Ozone Retrieval for Applications*	RIA	01/02/2016	31/01/2019	The S-5P, S-4 and S-5 instruments aboard the Copernicus atmospheric Sentinel missions can be exploited to monitor the profile of ozone concentration in the Earth's atmosphere with unprecedented accuracy and timeliness. This cannot be done by a single instrument due to the limited capability of remote sounding in an assigned spectral region and observation geometry.	http://www.aurora-copernicus.eu	
GAIA-CLIM	*Gap Analysis for Integrated Atmospheric ECV CLImate Monitoring*	RIA	01/03/2015	28/02/2018	The aim of the GAIA-CLIM project is to improve the ability to use ground-based and sub-orbital observations to characterise satellite observations for a number of atmospheric Essential Climate Variables (ECVs) including to better quantify the impacts of inevitable measurement mismatches between satellite observations and the non-satellite measurements.	http://www.gaia-clim.eu	
ONION	*Operational Network of Individual Observation Nodes*	RIA	01/01/2016	31/12/2017	Two trends have recently emerged in space systems and could even further strengthen in the future: small satellites, with the development of key modularisation and miniaturisation technologies, and the deployment of constellations and distributed networks of satellites. ONION investigates the distribution of spacecraft functionalities into multiple cooperating nodes, leveraging on the emerging fractionated and federated satellite system concepts.	N/A[8]	

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[8] http://cordis.europa.eu/project/rcn/199272_en.html

Acronym	Project title	Type[2]	From	To	Short description	Website[3]	Level
S3NET	*Satellite Swarm Sensor NETwork*	RIA	01/05/2016	31/10/2018	Through the enhancement and efficient use of on-board resources (computing power, communications and fuel) the improvements in performance of Earth observations (EO) using fractionated or single sensors aboard "swarms" of satellites will be shown.	http://s3net-h2020.eu	
CEASELESS	*Copernicus Evolution and Applications with Sentinel Enhancements and Land Effluents for Shores and Seas*	RIA	01/11/2016	31/10/2019	The CEASELESS project will demonstrate how the new Sentinel measurements can support the development of a coastal dimension in Copernicus by providing an unprecedented level of resolution/ accuracy/continuity with respect to present products. The project will address the multiple scales coexisting in littoral areas by developing new shallow water parameterizations, introducing them into coupled model suites (wind-wave-surge-current-land discharge) and producing new standards for coastal simulations and analyses.	N/A[9]	+

Table 2: Potential Projects of interest for EO4wildlife

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[9] http://cordis.europa.eu/project/rcn/206104_en.html

3.1.2 Projects Timeline and Landscape

Figure 2 compares EO4wildlife's timeframe with the timeline of projects introduced in the previous section. A different colour in the figure relates to the different grouping corresponding with their topic (EO-1, EO-2, and EO-3).

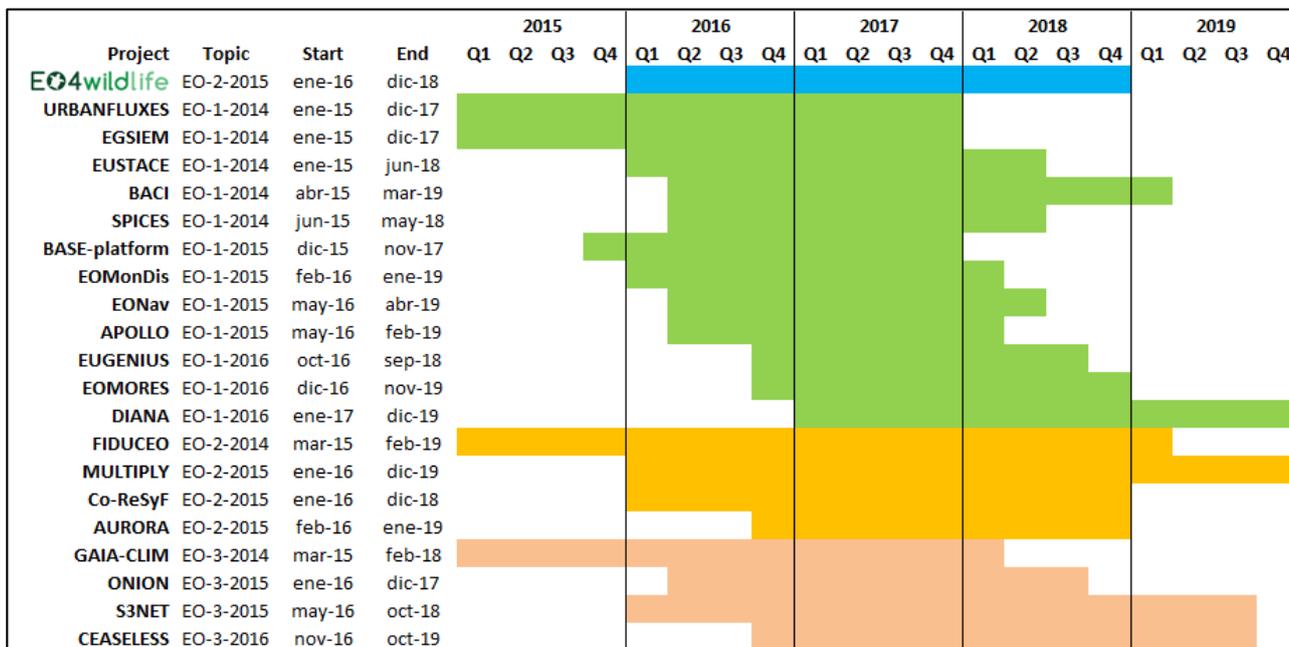| Project	Topic	Start	End	2015				2016				2017				2018				2019			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
EO4wildlife	EO-2-2015	ene-16	dic-18																				
URBANFLUXES	EO-1-2014	ene-15	dic-17																				
EGSIEM	EO-1-2014	ene-15	dic-17																				
EUSTACE	EO-1-2014	ene-15	jun-18																				
BACI	EO-1-2014	abr-15	mar-19																				
SPICES	EO-1-2014	jun-15	may-18																				
BASE-platform	EO-1-2015	dic-15	nov-17																				
EOMonDis	EO-1-2015	feb-16	ene-19																				
EONav	EO-1-2015	may-16	abr-19																				
APOLLO	EO-1-2015	may-16	feb-19																				
EUGENIUS	EO-1-2016	oct-16	sep-18																				
EOMORES	EO-1-2016	dic-16	nov-19																				
DIANA	EO-1-2016	ene-17	dic-19																				
FIDUCEO	EO-2-2014	mar-15	feb-19																				
MULTIPLY	EO-2-2015	ene-16	dic-19																				
Co-ReSyF	EO-2-2015	ene-16	dic-18																				
AURORA	EO-2-2015	feb-16	ene-19																				
GAIA-CLIM	EO-3-2014	mar-15	feb-18																				
ONION	EO-3-2015	ene-16	dic-17																				
S3NET	EO-3-2015	may-16	oct-18																				
CEASELESS	EO-3-2016	nov-16	oct-19																				

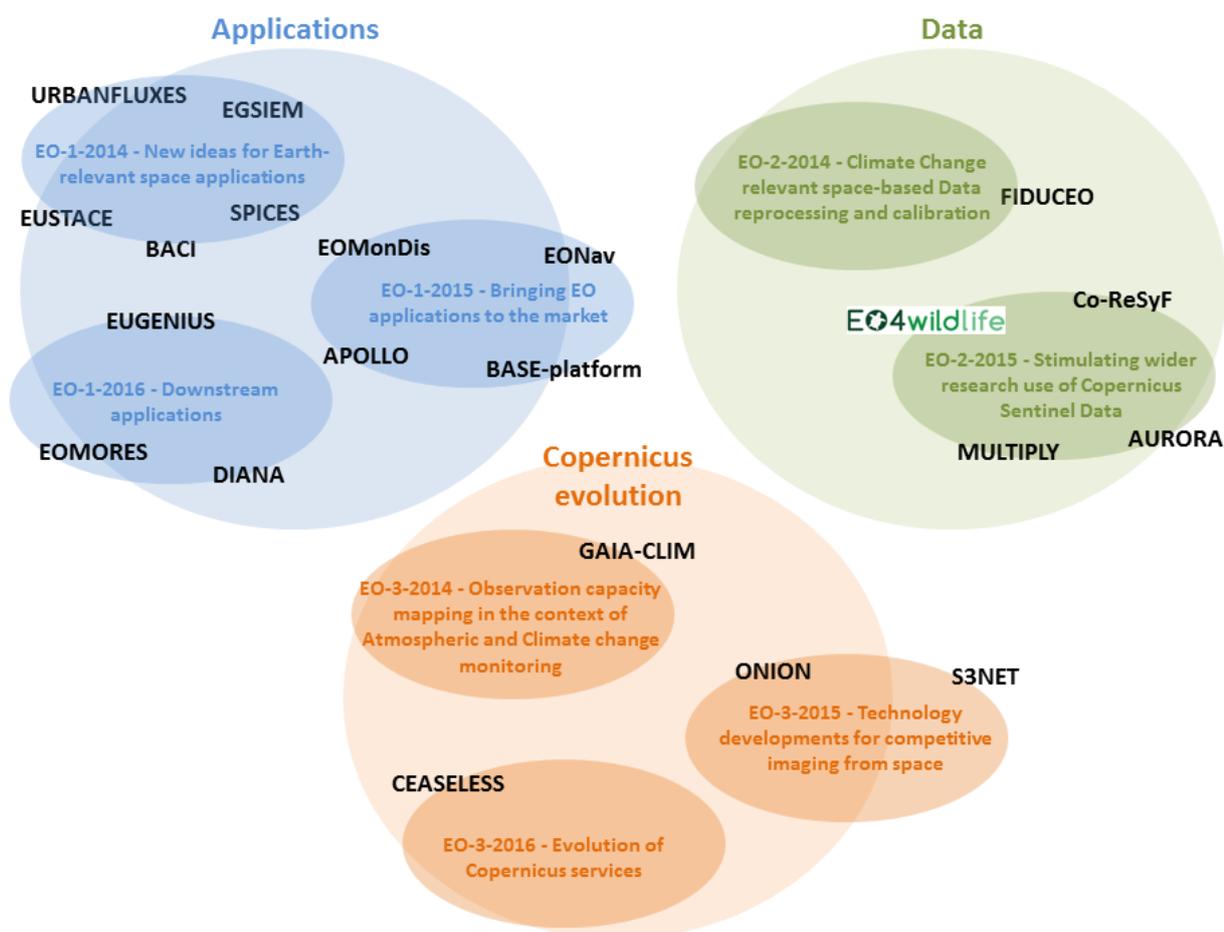**Figure 2:** Projects Timeline vs. EO4wildlife

Figure 3: H2020 EO Projects Landscape

3.1.3   Ecopotential project

During the first review meeting, the external reviewers noticed that it would have been very useful for EO4wildlife to establish links with another H2020 project, called 'Ecopotential' (see also related information in D4.3 [3]). Ecopotential is a large European-funded H2020 project that focuses its activities on a targeted set of internationally recognized Protected Areas, blending Earth Observations from remote sensing and field measurements, data analysis and modelling of current and future ecosystem conditions and services http://www.ecopotential-project.eu. This project is looking, inter alia, at possibilities to detect whales from high resolution satellite images, as EO4wildlife is planning to do in the near future, to better address the marine mammals scenario.

Since early 2017, EO4wildlife partners have been in contact with some researchers involved with Ecopotential to investigate how we could share/merge resources and expertise between the two H2020 projects. See Table 3 for a more detailed list of meetings carried out in 2017.

Date	Event	Participants
03/02/2017	Meeting at UBO (Université de Bretagne Occidentale) in Brest, France	Linwood Pendleton (Ecopotential), Susan Gallon (EO4wildlife, AFB)
21/03/2017	Meeting at BAS (British Antarctic Survey) in Cambridge, UK	Peter Fretwell (Ecopotential), Hannah Cubaynes (Ecopotential), Susan Gallon (AFB)
26/04/2017	Telco conference call	Peter Fretwell (Ecopotential), Susan Gallon (EO4wildlife, AFB), Gianluca Correndo (EO4wildlife, ITinnovation), Zoheir Sabeur (EO4wildlife, ITinnovation)

| 10/07/2017 | Meeting at the SCAR (Scientific Committee of Antarctic Research) conference in Leuven, Belgium | Peter Fretwell (Ecopotential), Hannah Cubaynes (Ecopotential), Susan Gallon (AFB) |
| Since July 2017 | Monthly meeting at UBO (Université de Bretagne Occidentale) in Brest, France | Linwood Pendleton (Ecopotential), Bénédicte Madon (Ecopotential), Susan Gallon (EO4wildlife, AFB) and guests |

Table 3: List of meetings carried out in 2017

These meetings led to the co-organization of two big events in 2017:

- September 2017- Co-organization of an international workshop at the IMPAC4 (4th International Marine Protected Area Congress) in Chile on "The automated detection of marine megafauna: remote monitoring in vast and isolated spaces". See Annex II for more details.

- October 2017- Co-organization of a challenge for the 2017 Ocean Hackaton http://www.campus-mondial-de-la-mer.fr/Ocean-Hackathon-2739-0-0-0.html#FR that was held in Brest.

3.2 Advisory board activities

During the first year of the EO4wildlife project, the Advisory Board members were asked to provide feedback and recommendations regarding their understanding of the platform and the project use cases via answering a questionnaire and attending a workshop.

3.2.1 Evaluation

Project public deliverables were made available in the repository set up in the Atos ownCloud to exchange the information related to the Advisory Board activities (credentials were sent individually to each member):

EO4wildlife\Advisory-Board (public)\Supporting Material

Del. No.	Deliverable name	Comments
D1.1	Use Case scenarios v1	D1.1 is an exhaustive transcription of Use Case Leaders feedbacks in terms of requirements for the EO4wildlife platform
D1.3	Validation & Evaluation Plan v1	This document presents the integration and test plan of the application. It covers the validation of the whole system according to the scenarios described in D1.1 Use case scenarios V1
D2.1	System architecture and operational scenarios v1	This document describes the platform architecture, its components and their interaction. A section of this document is dedicated to the front-end prototype
D2.3	External interface for data discovery and processing	D2.3 describes the mechanism and the protocol used to exchange data and to orchestrate processes between EO4wildlife platform and other external platforms or providers
D5.6	Data Management Plan v1	First version of the DMP whose purpose is to provide an analysis of the main elements of the data management policy that will be used by the project. The DMP will evolve during the lifespan of the project with more elaborated versions

Table 4: List of public deliverables accessible to Advisory Board members[10]

Following getting access to these public deliverables, all board members had to answer a short questionnaire (Figure 4) related to the EO4wildlife project and their understanding of the usability of the future platform.

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[10] During 2017 all deliverables were published in the project website

EO4wildife Advisory Board Questionnaire

Toulouse AB-Workshop 05-10-2016

Aim: Provide feedback to first outcomes of the project:

Project use cases and Platform architecture

Name:

Occupation:

Field of expertise:

		Poor	Fair	Satisfactory	Good	Excellent	Supporting comments
		1	2	3	4	5	
1	Overall reaction to the EO4wildife project	....	....	....	....	....	
2	The project/platform identity is clear and unique	....	....	....	....	....	
3	The project/platform usability is easily understood:						
	a- What the platform will perform and its purpose	....	....	....	....	....	
	b- The intended users of the platform	....	....	....	....	....	
4	Relevance of the project use cases:						
	a- Bird Scenario	....	....	....	....	....	
	b- Fish scenario	....	....	....	....	....	
	c- Turtle scenario	....	....	....	....	....	
	d- Marine mammals scenario	....	....	....	....	....	
5	Platform architecture:						
	a- Understandability	....	....	....	....	....	
	b- Documentation	....	....	....	....	....	
6	Can you list any similar and/or complementary project/platform we should consider for the EO4wildife platform						
7	Other comments						

Questionnaire to be sent back to susan.gallon@aires-marines.fr

Figure 4: First questionnaire sent to Advisory Board members

Six questionnaires were received back; details about the scoring are available in Table 5.

Questions		Reviewers' scores (1 : poor – 5 : excellent)						Scores' statistic		
		1	2	3	4	5	6	Mean	Lowest	Highest
1		5	5	4	4	5	2	4.17	2	5
2		4	4	4	5	4	2	3.83	2	5
3	3a	3	5	3	5	4	2	3.67	2	5
	3b	3	5	3	5	4	2	3.67	2	5
4	4a	3	5	4	4	5	3	4.00	3	5
	4b	5	5	4	4	5	3	4.33	3	5
	4c	3	5	4	4	5	3	4.00	3	5
	4d	3	5	4	4	5	3	4.00	3	5
5	5a	4	4	3		3	2	3.20	2	4
	5b	3	3	3		4	2	3.00	2	4

Table 5: First Advisory Board questionnaire's scores and statistic

The overall feedback to the EO4wildlife project was good with an average score of 4.17/5. The lowest scores were obtained for the platform architecture and understandability which will become clearer once the first version of the platform is released. The Advisory Board members also suggested providing a quick starter guide for future users of the platform and making a short introductory video on what the platform can perform.

3.2.2 Workshop

The first Advisory Board workshop was held on the 5th of October 2016 at the CLS premises in Toulouse. Five advisory board members were able to attend this first workshop. Table 6 includes the complete list of attendees.

#	Name	Institution (Advisory Board)
1	Gemma Quilez-Badia	Great Tuna Race
2	Cécile Gaspar	"Te mana o te moana" - "Ocean's spirit" NGO
3	Vincent Ridoux	CNRS/University of La Rochelle
4	Lars Boehme	University of St Andrews, Sea Mammals Research Unit
5	Richard Philips	British Antarctic Survey
#	Name	Institution (Partner)
1	Jose Lorenzo	ATOS Spain
2	Juan Andrés Alonso	ATOS Spain
3	Daniel Rodera	ATOS Spain
4	Tarek Habib	ATOS France
5	Garance Weller	CLS
6	Jean Michel Zigna	CLS
7	Marion Sutton	CLS
8	Benjamin Guichard	AAMP
9	Susan Gallon	AAMP
10	Maria Dias	BirdLife
11	Ana Carneiro	BirdLife
12	Gianluca Correndo	University of Southampton (IT Innovation)
13	Alan F. Rees	University of Exeter

Table 6: Attendees (1st AB workshop)

The main topics of the event were to:

- Introduce the project and its consortium

- Introduce members of the EO4wildlife Advisory Board (AB)

- Provide feedback to the first outcomes of the EO4wildlife project, i.e. project use cases and platform architecture

- Planning about further actions and activities

	Advisory Board workshop 5th October 2016	**Person (Partner)**
9.00-9.30	Arrival - Coffee	
9.30-10.15	Welcome and review of the agenda. Round table presentation. Project overview	Jose Lorenzo (ATOS ES)
10.15-10.55	Reference scenarios presentations (2x20min)	BirdLife, CLS
10.55-11.10	Break	
11:10-11.50	Reference scenarios presentations (2x20min)	UNEXE, AAMP
11.50-12.20	End to end use case workflows (IT innovation)	IT Innovation
12.20-13.30	Lunch break	
13.30-14.00	SparkInData (platform) presentation	ATOS FR
14.00-15.00	Interactive Discussion around the scenarios	All
15.00-15.30	Questionnaire feedback and discussion	All
15.30-15.50	Break	
15.50-16.40	Interactive Discussion around how the AB will be involved in the evaluation process	All
16.40-17.00	Planning and agreement of future activities	All

Table 7: Agenda - Detailed planning (1st AB workshop)

All presentations were made available for Advisory Board members in the repository set up in the Atos ownCloud:

EO4wildlife\Advisory-Board (public)\20161005 1st AB workshop Toulouse\Presentations

Minutes of this first Advisory Board workshop are available in Table 7. This document summarises and highlights the main recommendations that we received from the Advisory Board members (#2 and #5, Table 8).

#	Topic	Person (Partner)
01	Reception of attendees, overview presentation of EO4wildlife and round table presentations	José Lorenzo (ATOS ES)
02	**Reference scenario presentations:** **Seabird scenario presentation** Questions around the capabilities of the platform and the workflow input. Recommend using it as a tool for explanatory analyses and need to be cautious with the modelling capabilities: AB members expressed the necessity of having an interactive tool, where scientists could be validating and checking the data throughout the way with the capacity of running a set of models (i.e. GAMMs, GAMs, GLMs, etc.). Shared concerns about validating the tools if it is aimed to the scientific community. AB members asked if it was aimed at scientists and/or managers. They also mention about the importance of background data! Not only important to have data for tracking locations, but also data regarding availability, so models can be performed. Background data could be obtained via correlated random walks created using a bounding box around all tracking locations, or using random points extracted from a bounding box, or 100% minimum convex polygon, around all locations. Answers: Scenarios are aimed to be final products that show the capabilities that can be customized later by end-users. Platform is mainly aimed at scientists **Underwater geo location for migration studies of pelagic species** Questions about the localization and timing of deployments. Questions also regarding the free use of the algorithms used in the fish scenario and the language of the programming. Recommendations regarding names and descriptors of the data. Answers: CLS algorithms will be free and will work in different coding languages (R, python, etc.) allowing scientists to upload their own codes. These algorithms might be extended to other species work-flow in the future. **Sea turtle use case scenario: What and Why** Questions about the similarities between scenarios and how closely we work together. Recommendations about using both tracking and diving data for the ARS models and using published models. Also recommend developing basic functionalities. Answers: The plan is to detect targets and work-flow for each scenario. Each box of these work-flows can be re-usable between scenarios and are open to expansion. **Marine mammals scenario(s) – work in progress** Recommendations to use the scenario that use aerial surveys data (i.e. transect data) as more and more drones will be used in the future. Analyses developed for the aerial survey data will be useful to analyze data from drones as they have similar geo-localized formats and meta data associated. In addition, it will also be applicable to boat transect surveys and for other species surveyed via transects or drones (i.e. seabirds, sea turtles, etc.). Regarding the use of additional dataset of high resolution satellite images, the detection of seals only works for elephant seals that are big enough but not for smaller species so far. High resolution images do work for breeding whales in some part of the world. Summary • Importance of easy access to Earth Observation data • Importance to develop exploratory tools	Maria Dias & Ana Carneiro (Birdlife UK) Garance Weller (CLS FR) Alan Rees (UNEXE UK) Susan Gallon (AAMP, FR)

#	Topic	Person (Partner)
	• Importance to be able to customize the functionalities in work flow • Modelling analyses: need to be careful, use published methods and communicate between use case scenarios tools developed. • Run models in an interactive way, where scientists can see results for subsets of environmental variables (results including or excluding environmental information). • Capacity to extract relevant Earth Observation data to run your own models All presentations are available on ownCloud	
03	End to end use case workflows Recommendations about identifying similarities between scenarios in order to develop generic routines whilst taking into account differences between dataset. Concerns about replacing the researcher and fixing some functionality that might evolve quickly. Recommendations about being careful of correlated EO data (for example chlorophyll and primary production that are both extracted from color satellite data). Recommendations about making meta-data mandatory when uploading data on the platform. Answers: The idea is to develop a general statistical tool that is aimed to support the scientist. Tools developed will be transparent so the end user understands each step of the work-flow. Presentation is available on ownCloud	Gianluca Correndo (IT innovation UK)
	Lunch break	
04	**SparkInData (platform) presentation** Question about the ability to create user groups and make the PI name visible for the tracks displayed. Answers: Different user group levels will be available (visualization only, editing, downloading, etc.). No problem to make PI names visible. Presentation is available on ownCloud	Tarek Habib (ATOS FR)
05	**Interactive Discussion around the scenarios** Recommendations/suggestions: • Keep discussion going between scenarios – tools are often generic between some species – need to develop generic routines • Develop platform's ability to display error messages when data are not appropriate for the analysis selected • Do not waste time in developing unnecessary/wrong tools • Making a video on what the platform will provide • Need to provide a quick starter guide to the platform • Contact other group to get the vocabulary/definition on metadata right	All
06	**Questionnaire feedback and discussion** • All AB members agree that the platform is clearer after this first meeting. • All questionnaires are available on ownCloud	Susan Gallon (AAMP, FR), All
07	Interactive Discussion around how the AB will be involved in the evaluation process	All

#	Topic	Person (Partner)
	• Both continuous and end evaluation • Need clear criteria: usability of the platform at the end of the project	
08	**Planning and agreement of future activities** • 2nd workshop to be held after the release of the platform v1 • AB members need some time to have a look at the platform before 2nd workshop • 2nd workshop may be held during consortium meeting in June 2017 • Writing a paper journal, white paper on AB activities? • Getting students involve in testing the platform • Organization of a hackaton in the future?	All

Table 8: Minutes of the first Advisory Board workshop

All Advisory Board members that attended this first workshop agreed that the EO4wildlife project was now clearer to them. We had some very positive feedback:

- "The meeting clarified the framework and objectives of the project. It is still early days and I look forward to seeing how the project develops." *Richard Philips, British Antarctic Survey*

- "Excellent workshop in Toulouse, perfectly organised and help understanding in clear detail the overall concept." *Cécile Gaspar, President te mana o te moana*

- "Partners and resources involved in this project means that easy-access to relevant earth observation data for scientists might be reach." *Lars Boehme, University of St Andrews*

Second Advisory Board workshop, June 22nd Brest, France

The objectives of the 2nd advisory board workshop, hold on the 22nd of June 2017, were:

- Introduce a new EO4wildlife Advisory Board member

- Project update & platform presentation

- Discuss on-going & future developments

- Gather feedback on available services

19 attendees gathered in Brest (Brittany, France) at the Agence Française pour la Biodiversité for this second advisory board workshop: 4 advisory board members and 15 members of the consortium (see Table 9). Board members were shown the first version of the platform and were asked to provide direct feedback on services available. Two members followed the meeting via skype: 1 AB member and 1 consortium member.

#	Name	Institution (Advisory Board)
1	Gemma Quilez-Badia*	Great Tuna Race
2	Cécile Gaspar	"Te mana o te moana" - "Ocean's spirit" NGO
3	Vincent Ridoux	CNRS/University of La Rochelle
4	Yann Tremblay	IRD - MARBEC MARine Biodiversity, Exploitation and Conservation, Sète, France
5	Richard Philips	British Antarctic Survey
#	Name	Institution (Partner)
1	Jose Lorenzo	ATOS Spain
2	Juan Andrés Alonso	ATOS Spain
3	Daniel Rodera	ATOS Spain
4	Fabien Castel	ATOS France
5	Cécile Lacombe	ATOS France
6	Garance Weller	CLS
7	Jean Michel Zigna	CLS
8	Marion Sutton	CLS
9	Susan Gallon	AFB
10	Benjamin Guichard	AFB
11	Ana Carneiro	BirdLife
12	Maria Dias	BirdLife
13	Gianluca Correndo	University of Southampton (IT Innovation)
14	Banafshe Arbab-Zavar	University of Southampton (IT Innovation)
15	Zoheir Sabeur	University of Southampton (IT Innovation)
16	Alan F. Rees*	University of Exeter

Table 9: List of attendees to second AB workshop

*indicates that this member join the conference via Skype

	Advisory Board workshop 22nd June 2017	Person (Partner)
08:40	Reception of attendees, welcome (20')	AFB – DMM Director
09:00	Welcome and review of the agenda. Project update (15')	Atos ES

09:15	Platform presentation (1h)
	
	    o Project overview
	
	    o Overview of use case scenarios (workflows) & scenario updates (MM & VHR images)
	
	    o On-going & future developments
	
	    o Standardisation activities
	
	    o Platform
		All

	Platform feedback and discussion (30'+ 1h):	All
10:15	o Platform demonstration (Generic)	
	o Workflows & services	
	o EO data avail able	
10:45	Coffee Break	
	Platform feedback and discussion (2nd part)	
11:15	o Platform demonstration (Specific Turtle scenario)	All
	o Workflows – services – visualisation of test use case	
13:00	Lunch Break	
	Platform evaluation from AB members (1h)	
14:15	o Questionnaire	AFB/All
	o Planning of End evaluation: online? Target students?	
15:15	Coffee Break	
15:45	Business plan update – Future of the platform (30')	Atos ES
	Other activities (15')	
16:15	o Ocean hackaton (October 2017)	All
	o Publication: dedicated workshop during last AB workshop	
	o Planning future AB meetings	
16:30	Close of the day	

Table 10: Agenda - Detailed planning 2nd AB workshop

The main discussion points were:

- workflows and services
- standardisation activities
- interoperability
- business plan

We also agreed on a questionnaire that will be sent with the release of the 3rd version of the platform to all advisory board members to test updated and new services available.

All presentations were made available for Advisory Board members in the repository set up in the Atos ownCloud:

https://repository.atosresearch.eu/owncloud/index.php/apps/files?dir=%2FEO4wildlife%2FAdvisory-Board%20(public)%2F20170622%20AB%20workshop%20Brest%2FPresentations

Minutes of this second Advisory Board workshop are available in Table 11. This document summarises and highlights the main recommendations that we received from the Advisory Board members (Item #2 and #3).

#	Topic	Person (Partner)
01	Welcome and review of the agenda. Project overview & update Roundtable presentations	Jose Lorenzo (ATOS ES)
02	**Platform presentation** o **Platform** Introduction o **Scenarios presentation by work-flows** ▪ *what about missing steps in the workflows* ▪ *how the current workflows were selected and how generic they are* ▪ *first aim is (should be) to provide access to the EO data* ▪ *together with the process it is needed to report on the references so it is possible to replicate the experiment: no one will be able to publish the results if this is not clear and therefore will not use the platform* ▪ *how many people has been contacted to decide on current workflows?* ▪ *how flexible will be for the user to specify the temporal dimension of the environmental data associated to the track?* ▪ *needed tools to pre-process the EO data too (i.e. gradient, mean, SD of EO data should be implemented)* ▪ *where we should focus is on the "linking" of the tracking data with the environmental data, and on the selection of the appropriate data* ▪ *we should not try to compete with pre-processing or habitat modelling tools* ▪ *do we keep track of the "errors" in the data, depending on the source?* ▪ *at first CMENS will be the first source of metocean data* o **On-going & future developments** **Next steps:** ▪ *version available v2.1* ▪ *intermediate version v2.2 : CMENS data integration, service metadata catalogue, visualization of tracking data, external platform interoperability, e.g. Seaturtle.org* ▪ *at the end of 2017 v3: workflow dynamic building, other EO data integration (AVISO, CLS), visualization of metocean data fused with tracking data* **More discussion:** ▪ *how far we are on the habitat modelling? Depending on the scenario. A lot of research in this domain, as much as possible much better. Priority still is to get the environmental data related more than have many models implemented* ▪ *how far we will go on visualization? We will start by the tracking file, added as multi-layer in a map. Visualizing tracks is hot discussion >> to think on something more than lines* **Standardisation activities** – enable the user for discovering data in the platform – we have defined a data model for animal tracking data ▪ *compliant with scientific needs to process the data on the platform* ▪ *to facilitate export of existing scientific databases into such data model*	José Lorenzo (ATOS ES), Fabien Castel (ATOS FR), Ana Carneiro (Birdlife), Garance Weller (CLS), Banafshe Arbab-Zavar (IT Innovation), Susan Gallon (AFB)

#	Topic	Person (Partner)
	• *check the validity of input data*	
	• *merged the input for different databases*	
	• *leads to an XSD schema which formalizes EO4wildlife XML content as a standard to validate data to process on the platform in NetCDF*	
	• *comments? in the semantics, in the definition… On sensors: e.g. calibration info. Add an empty field to be used as for any unforeseen value?*	
	• *Data management and services overview : cache mechanism?*	
	Summary	
	Importance of easy access to Earth Observation data	
	Importance to provide source information (i.e. reference to published paper, software, package)	
	Importance to be able to customize the functionalities in work flow and for functionalities to evolve – No black boxes.	
	Modelling analyses: need to be careful, need to keep it generic.	
	All presentations are available on ownCloud	

#	Topic	Person (Partner)
03	**Platform feedback and discussion** ▪ *Quality check of EO data? Should check for cloud cover and availability of EO data. Could provide an index of precision of EO data. SST & chlorophyll quality data available: could provide a colour code map of quality of data for these parameters* ▪ *Batch process services* ▪ *Present services in a list and not boxes where you can select steps and order them.* ▪ *Include a possible lag (i.e. day, week, etc.) when selecting EO data (want to be able to sample before the animal was there)* ▪ *When sampling at position: all the position are not the same, need to handle uncertainty of position. Need to be able to extract area of interest around the position. This area can be selected from uncertainty of position (Argos quality code, curve for GLS, etc.). Visualize error around probable position.* ▪ *Track eddies in time – From SSH calculate frontal probabilities – Kernel codes to identify animals that stay & corridors used by many individuals (Y. Tremblay to provide publications)* ▪ *Include moon phase/level?* **Summary** **+ EO data / + visualization / - filtering**	All
	Lunch break	
04	**Platform evaluation** ▪ *summary from previous workshop recommendations* ▪ *intro to the questionnaire to be submitted together with the platform* ▪ *Need clear criteria: usability of the platform at the end of the project*	Susan Gallon (AFB)
05	**Business plan update** ▪ *Obis Seamap? Contact is made by CLS* ▪ *really focus on get access to oceanographic area, less on trajectometry* ▪ *need to finish the job* ▪ *What services will be available?* ▪ *Interoperability with Movebank?*	José Lorenzo (ATOS ES), Garance Weller (CLS), All
06	**Other activities** ▪ *Writing a paper journal, white paper on AB activities* ▪ *Platform to be released to AB members in the autumn 2017 with a starter guide & questionnaire.* ▪ *Ocean Hackathon – 13-15 October 2017, Brest. Challenge proposed: sat4whales – EO4wildlife will provide satellite images* ▪ *Plan platform demo along conferences?*	Susan Gallon (AFB), All

Table 11: Minutes of the second Advisory Board workshop

3.3 Standardisation activities

Within the EO4wildlife project, there is a wide variety of data to deal with that can be a blocking factor in the development of services if no standardization is set in place. A detail description of the data federation facilities for organising and accessing large distributed datasets (e.g. ARGOS datasets and Sentinel datasets) in order to serve high-level exploratory and predictive analytics in the future EO4wildife platform is presented in D3.4 Big Data Connectors and Catalogue Service [4].

Whilst standards exist for environmental data sources (see D3.4 Big Data Connectors and Catalogue Service for more details), there are no standardized format for animal tracking data. To be able to open the EO4wildlife platform to a larger community of scientists, however, standards need to be set in place to ensure the consistency of the information and use the potential of the interoperability. For the purpose of this task/deliverable, EO4wildlife partners have actively seek out feedback from the wildlife tracking communities to select appropriate standards through suggestions from the advisory board and contacting the wider tracking community. Standards used for the EO4wildlife platform will be shared with the organizations listed below.

Acronym	Title	Short description	website
IOOS	Integrated Ocean Observing System	The Integrated Ocean Observing System is an organization of systems that routinely and continuously provides quality controlled data and information on current and future states of the oceans and Great Lakes from the global scale of ocean basins to local scales of coastal ecosystems.	https://ioos.noaa.gov/
OTN	Ocean Tracking Network	The Ocean Tracking Network is a global research, technology development, and partnership platform. OTN and its partners are using electronic tags to track keystone, commercially important, and endangered species in 20 countries and 16 ocean regions.	http://oceantrackingnetwork.org/
OBIS-SEAMAP	Ocean Biogeographic Information System -Spatial Ecological Analysis of Megavertebrate Populations	OBIS-SEAMAP is a spatially referenced online database, aggregating marine mammal, seabird, sea turtle and ray and shark observation data from across the globe.	http://seamap.env.duke.edu/
BLS	International Bio-Logging Society	Members of the bio-logging community that uses animal-borne sensors for advancing the frontiers of ecology.	http://www.bio-logging.net/Society/

Table 12: Organizations of interest for EO4wildlife standardization activities

4 Planning of future activities

The third advisory board workshop will be hosted by the Agence Française pour la Biodiversité (AFB) in Paris (France) in May 2018. The primary aim of that third workshop will be to gather feedback following the release of the version of the platform to AB members. Another important objective of that third workshop is to finalise the overall design of the evaluation process of the EO4wildlife platform.

Liaison activities will continue throughout 2018 via EO4wildlife partners' networks, the AB workshop and networking/presentations at international conferences (see D4.3 "Dissemination and communication report and material" [3] for more details).

5   Conclusion

The D4.6 task/delivery for the second year of the project was achieved by:

- Informing worldwide researchers and professionals about the opportunities of the EO4wildlife Platform for their research through EO4wildlife partners' networks and the Advisory Board workshop

- Gathering direct feedback from the Advisory Board members during the second workshop

- Liaising with the H2020 ECOPOTENTIAL project

Networking and community building activities will carry on in 2018 in order to pave the way to a broad uptake by the researcher and professional communities and to ensure the quality of the final product(s).

6 References

[1] CORDIS. Projects & Results Service, one stop for information on EU-funded research projects and project results: http://cordis.europa.eu/projects/home_en.html

[2] Presentation by Hector Guerrero, DG GROW/I1 - Space Policy and Research Unit. InfoDay H2020 Space, CDTI, Madrid, 20/10/2015

[3] J. Alonso 'D4.3 Dissemination and communication report and material v2', Deliverable of the EO4wildlife project, 2017

[4] JM Zigna 'D3.4 Big Data Connectors and Catalogue Service v2', Deliverable of the EO4wildlife project, 2017

Annex I: Advisory Board members' profiles

Lars Boehme

Lars Boehme is a physical oceanographer and ecologist. His research has led to a more strategic view of how to combine a range of observational approaches to achieve a cost-effective observation system linking physical observations to the range of trophic levels they drive. Clear examples of his work are the successful and widely-publicized SEaOS (Southern Elephant Seals as Oceanographic Samplers), SAVEX (South Atlantic Variability Experiment), MEOP (Marine Mammals Exploring the Oceans Pole to Pole) and related projects that are based on animal-borne technology. Lars Boehme is currently a lecturer at the University of St Andrews (UK), convener of the MASTS Technology, Platforms and Sensors forum and chair of the EuroGOOS animal-borne instrument task team.

Cécile Gaspar

Cécile Gaspar is a founder member of te mana o te moana (French NGO dedicated to marine environment), and the President, since its creation. After a veterinary degree and a MBA, she completed a PhD in marine ecology in French Polynesia where she moved in 1994. Deeply involved with the protection of the marine environment and its fauna, Cécile has specialized in marine mammals first and then in sea turtle conservation and education programs. She is regularly providing lectures on these topics. She also takes part in many international conferences on marine environment and is a member of the IUCN Marine Turtle Specialist Group.

Lea-Anne Henry

Lea-Anne Henry is a marine ecologist with broad interests in biodiversity, biogeography, and habitat function. Overarching themes include elasmobranch habitat use, the role of marine protected areas, and changes in marine communities caused by human activities and climate change. She is Joint Co-ordinator of the MASTS-funded SIORC project (Sharks, skates and rays in the offshore region and coastal zone of Scotland) and Co-PI on the EU Horizon 2020 Project ATLAS (A trans-Atlantic assessment and deep-water ecosystem-based spatial management plan for Europe). She is also a member of the Deep Water Ecology Working Group for the International Council for the Exploration of the Sea. Lea-Anne Henry is currently a Chancellor's Fellow at the University of Edinburgh (UK).

Richard Philips

Richard Philips is the leader of the Higher Predators and Conservation group within the British Antarctic Survey (BAS) Core Science Ecosystems programme, and an Honorary Professor at the College of Life and Environmental Sciences, University of Exeter. He is also involved with the Agreement on the Conservation of Albatrosses and Petrels (ACAP), including as convener of the ACAP Populations and Conservation Status working group, and is a member of the Expert Group on Birds and Marine Mammals of the Scientific Committee on Antarctic Research (SCAR). These international agreements develop strategies to improve knowledge of seabirds and other marine taxa, and their conservation.

Gemma Quilez-Badia

Dr. Gemma Quilez-Badia is since April 2016 the Scientific Director of the Great Tuna Race (GTR, http://www.greatunarace.org/), a unique tagging event, which combines Science, Research and Sport. The GTR is organized by the Catalan Association for Responsible Fisheries (ACPR, http://www.acpr.cat/), which promotes recreational fishing in a responsible way to improve the state of the sea and its natural resources. Previously, she was working as a Fisheries Officer for the Mediterranean Programme of WWF (World Wildlife Fund for Nature) in Barcelona, where, among other responsibilities, she was coordinating its Bluefin tuna tagging project. Gemma also worked as a postdoctoral fellow at the Smithsonian Environmental Research Center with marine invasive species, as a lecturer for the IES (Institute of European Studies) Abroad program and for the Polytechnic University of Catalonia (UPC) in its international course on

Sustainable Technologies, and owns an extensive curriculum on oral presentations and publications in the areas of Marine Science, Environmental Sustainability or Marine Bioinvasions.

Vincent Ridoux

Vincent Ridoux is a Professor at the University of La Rochelle (France) and researcher at CEBC (Centre d'Etudes Biologiques de Chizé). Besides he is head of PELAGIS observatory for the conservation of marine mammals and seabirds. His work mainly focuses in assessing the conservation status of marine mammal populations, understanding the processes involved in the interactions between these species, the marine environment and human activities, and identifying important sites or maritime regions to protect in order to maintain or improve the conservation status of these species. Vincent Ridoux is also the lead expert for the French Ministry of Environment, Energy and the Sea on matters relating to marine mammal conservation.

Yann Tremblay

Yann Tremblay is a researcher at the Institute of Research for Development in Sète (France) and theme leader for MARBEC (MARine Biodiversity, Exploitation and Conservation) in the population and habitat section. Yann's research focuses on the understanding of the foraging adaptations of marine predators to the cryptic nature and dynamic distribution of their prey. He uses bio-logging technologies such as VHF, TDR, GLS, ARGOS, GPS or CAMERA tags as well as RADAR techonology, in order to record the foraging behavior of free-ranging predators such as seals, albatrosses, boobies, gannets, penguins, turtles and cormorants.

Annex II: IMPAC4 Workshop – La Serena, Chile - 2017

The automated detection of marine megafauna:

remote monitoring in vast and isolated spaces

How can it help MPA managers & management?

Organized by Hannah Cubaynes (British Antarctic Survey, UK), Susan Gallon (French Agency for Biodiversity, France) and Linwood Pendleton (WWF & European Institute for Marine Studies)

GOAL: To catalyze networks to help MPA managers make better use of remote sensing technologies.

OUTPUT: White paper to advise the GEO Blue Planet Initiative and other Earth Observation platforms.

DATE & Time: Tuesday 5th of September – 4.30 till 6.30 pm

LOCATION: Salon Bahia 2

Time Table

Item	Minutes	Topic
#1	0-10	Introduction
#2	10-40	Identifying Manager Needs
#3	40-70	Technologies - 2 slides presentation
#4	70-105	Working groups
#5	105-120	Reporting
#6		Sign-up to join network

Topic

Large and isolated MPAs are challenging to efficiently manage and remote sensing may be a crucial tool to getting long-term global coverage. The workshop will provide an overview of the needs and feasibility of using remote sensing technologies in MPAs to monitor the marine megafauna. An automated system of population assessment by remote sensing would be especially valuable to MPA managers in order to monitor IMMA (Important Marine Mammal Areas) such as whales breeding grounds and migration corridors.

We want to set-up a network of interested MPA managers, scientists and practitioners in using remote sensing for biodiversity monitoring to share ideas and solutions to develop new tools and implement a global monitoring strategy of marine megafauna.

Organizational structure

There will be 5 short presentations (5 min) to introduce current innovative technologies but the focus will be giving participants the opportunity to share their experiences/hopes/concerns with these emerging technologies.

Specific topics will include:

- potential and limitations of image processing for biodiversity monitoring
- how to efficiently involve citizen in the process
- developing a global monitoring strategy for IMMA
- challenges and future improvements

List of short presentations on technologies available – 5 min each
- Satellite VHR – Hannah Cubaynes/BAS
- AIS/Radar – Marion Sutton/CLS
- Drones – Duke University
- Citizen science – Michelle La Rue

List of confirmed participants
- Michelle LaRue - Research ecologist at the University of Minnesota, US
- Giuseppe Notarbartolo di Sciara - Tethys Institute, Italy
- Alain Barcelo - National Park of Port-Cros, France, Pelagos Sanctuary
- Maria Purificació Canals i Ventín – Medpan, France
- David Curnick - Zoological Society of London, UK
- Cristina Torres Trujillo – WWF, Chile
- Marion Sutton – CLS, France

Associated projects:
- ECOPOTENTIAL http://www.ecopotential-project.eu/
- EO4wildlife http://eo4wildlife.eu