JOINT EUROPEAN RESEARCH INFRASTRUCTURE
NETWORK FOR COASTAL OBSERVATORIES

Periodic Activity Report

Grant Agreement n° 262584
Project Acronym: JERICO
Project Title: TOWARDS A JOINT EUROPEAN RESEARCH INFRASTRUCTURE NETWORK FOR COASTAL OBSERVATORIES
Start date of project: 1st May 2011 **Duration:** 48 months

Funding Scheme:

Date of latest version of Annex I against which the assessment will be made:

Periodic report: 0☐ 1st☐ 2nd☐ 3rd X

Period covered: from Month 37 to Month 48

Name, title and organisation of the scientific representative of the project's coordinator[1]: Patrick FARCY – coordinator - Ifremer

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SEVENTH FRAMEWORK PROGRAMME

Declaration by the scientific representative of the project coordinator

I, as scientific representative of the coordinator of this project and in line with the obligations as stated in Article II.2.3 of the Grant Agreement declare that:

- The attached periodic report represents an accurate description of the work carried out in this project for this reporting period;
- The project (tick as appropriate) [2]:

  ☐ has fully achieved its objectives and technical goals for the period;

  X has achieved most of its objectives and technical goals for the period with relatively minor deviations.

  ☐ has failed to achieve critical objectives and/or is not at all on schedule.

- The public website, if applicable

  X is up to date

  ☐ is not up to date

- To my best knowledge, the financial statements which are being submitted as part of this report are in line with the actual work carried out and are consistent with the report on the resources used for the project (section 3.4) and if applicable with the certificate on financial statement.
- All beneficiaries, in particular non-profit public bodies, secondary and higher education establishments, research organisations and SMEs, have declared to have verified their legal status. Any changes have been reported under section 3.2.3 (Project Management) in accordance with Article II.3.f of the Grant Agreement.

Name of scientific representative of the Coordinator: .....Patrick Farcy .....

Date: .....31...../ ....AUG...../ .2015....

For most of the projects, the signature of this declaration could be done directly via the IT reporting tool through an adapted IT mechanism.

[2] If either of these boxes below is ticked, the report should reflect these and any remedial actions taken.

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REFERENCES

Annex 1 to the Contract: Description of Work (DoW) version 2014-06-03

Document information	
Document Name	Second periodic report – Month 18 to 36
Document ID	*JERICO-WP11-PERIODIC-M48-300415-V2*
Revision	2
Revision Date	2015-07-20
Author	Ingrid Puillat, Patrick Farcy, Nolwenn Beaume, WP leaders
Security	

History			
Revision	**Date**	**Modification**	**Author**
1	30-04-2015	First version	P. Farcy WP leaders
2	20-07-2015	Second version	P. Farcy WP leaders
3	31-08-2015	Third version	P. Farcy WP leaders

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Diffusion list				
Consortium beneficiaries	X			
Third parties				
Associated Partners				

PUBLISHABLE EXECUTIVE SUMMARY

1 PROJECT OBJECTIVES AND MAJOR ACHIEVEMENTS DURING THE REPORTING PERIOD

1.1 Overview of general project objectives

This project has been conceived in the framework of the MarinERA ERANET (**A Marine RTD Infrastructure Strategy for Member States -** April 2009). JERICO is clearly a process aiming at bringing together the representative European coastal observatory operators, enhancing their coordination and promoting the cost-effective use of their facilities, in order to support the efficient provision of essential research and monitoring networks. The development of high-quality and comprehensive coastal observing systems has only recently moved forward, principally at national and regional level. In this overall context, the JERICO project aims at creating a solid and transparent organization towards an operational service for the timely, continuous and sustainable delivery of high quality environmental data and information products related to the marine environment in European coastal seas. It will promote joint research initiatives and standardisation, giving a boost to the industrial sector of coastal instrumentation and monitoring services.
Such a research infrastructure is innovative in the sense that, for the first time, there will be a common European organization that will consolidate and harmonize the currently fragmented coastal observing activities in a consistent, coherent framework to the benefit of data quality, availability and cost. This would in turn give generic support to monitoring the environment and biodiversity, to understanding climate change and to better prediction of related impacts, to facilitate the sustainable exploitation of marine resources and indirectly to increase employment through education, training and technological innovation. JERICO aims are:

Networking Activities	**Enhanced structure and integration**	• Define a **common strategic vision** for coastal observatories • Facilitate coordinated infrastructure access to European researchers to broaden services and facilities • Establish a **European Network Infrastructure**
	Enhanced sustainability	• Facilitate optimal use, and inter-operability, for existing equipment
	Sharing of knowledge	• Advance **training in modern equipment** • Intensify dialogue and interactions with industry and policy makers • Promote interactions with other infrastructures and European projects (EuroArgo, SeaDataNet, MyOcean)
	Cooperation	• To develop International cooperation
Trans National Access	**Wider access**	• To observatory infrastructure • To mobile coastal observing systems (gliders, …) • To added value data and services
Joint Research Activities	**Joint development**	• Study on optimization of the coastal observing system of systems • Innovative sensors or systems to enhance interoperability • Innovative software for a better exploitation of mobile systems

1.2 Objectives for the reporting period, work performed and the main achievements in the period

- **Objectives of the reporting period**

The main objectives of the 3rd period were mainly to finalise the deliverables as the "best practices handbooks" for fixed platform, but also the "Data management handbooks", an "Integrated pan European atlas", the final reports on OSE/OSSE and the final reports on RTD tasks activities of WP10. The Jerico label definition was also completed and will be upgraded in Jerico-Next with the incorporation of policy and strategy issues.
The project organised also workshops on fixed platforms (Lisbon in October 2014) for finalising the best practices, steering committee meetings in Oslo, Brussels and Brest and the final General Assembly in Brest from the 27 to the 30th of April.
JERICO also finalised the selected projects from the second and the third calls for Trans National Access.
All the submitted deliverables (except the consortium agreement) are available on the project web site: www.jerico-fp7.eu

- **Work performed and main achievements in period**

  - **WP11:** The management task was performed by the project management team of Ifremer, including the coordinator (Patrick Farcy), the deputy coordinator (Ingrid Puillat) helped by Nolwenn Beaume and Sylvie Pichereau.. HCMR and NIVA are associated to that WP for the Quality Assessment plan, delivered in October 2011, and the Identity set in January 2012.
    The management team organised the General Assembly in Oslo (May 2014), the 3rd and 4th steering Committees in Oslo (May 2014) and Brussels (February 2015), the 5th in Brest side by side with the final General Assembly in April 2015. The second general Assembly week was organised in Oslo with the support of NIVA which managed the on site organisation while the last one was managed by Ifremer. This last event was an opportunity to organise also the 5th Steering committee and a workshop on the future strategy of coastal observatories in the way to Jerico-next. A one day workshop was dedicated to the TNA project results.
    The management team provided the second period technical and financial reporting, and had prepared the 3rd one.

    WP1: The "JERICO label" has been completed and the deliverable finalised. The second JERICO FCT report (Forum for Coastal Technology), held in London during "Oceanology International" in March 2014, was completed. It was based dedicated on optical sensors, mainly for dissolved oxygen.
    A dedicated workshop on the future strategy of fixed platform was organised in Lisbon, in parallel with the Eurogoos conference. The task 1.4 on biodiversity, which will be a important input for Jerico-Next, is available on the Jerico website.
    The 3rd call for TNA has been lunched and the Selection panel positively evaluated the 7 submitted proposals. Totally, we have scheduled 19 users projects; all of them are completed now. (The 3rd call was extraordinary - it was not planned in Annex 1 Description of Work - and was planned in order for the residual budget to be used).

WP2: All the planned deliverables for the Work package were successfully completed:.In detail:

- the report on existing observation networks were to provide a review of the present status of the observation systems integrating the activies ongoing in the different regional Alliances of the European Global Ocean observing system (EuroGOOS).(D.2-1)
- the report on recommendations for future research and development for filling gaps in observations was to provide an overview of the main challenges the existing observational systems are facing to provide an integrated status of the marine environment and to identify knowledge gaps, that are recommended to fill within the upcoming years (D.2-2)
- the compilation of the pan European atlas of existing observing systems (D.2-3)
- the report on the demonstration of the feasibility of the trans-regional product production on transport as well as on E-HYPE were to provide evidence of the feasibility of transregional product production aiming to develop these products for the transport of Water masses and as well for the River runoff provided by the EHYPE model (D.2-4) has been delivered and Workpackage meeting were held in order to plan the activities and the remainder of efforts towards the end of the project.
- the compilation of a second report of an pan European atlas of existing observing systems (D.2-5)

o **WP3:** All The "best practices handbooks", deliverables of the Work Package, are now completed and available on the Jerico website, for each of the three platforms; ferrybox, glider and fixed platforms. These documents will be upgraded during JERICO NEXT to include new information and methodologies as well as other more important coastal platforms such as HF Radars.

o **WP4:** In the framework of the first task, two deliverables were completed; D4.1 Report on Existing Calibration Facilities & D4.2 Report on Calibration Best Practices. In the framework of the second task one more deliverable has been completed D4.3 Report on Biofouling Prevention Methods. In the framework of the third tasks, the two last deliverables have been completed: D4.4 Report on best practices in operation and maintenance and D4.5 Report on running costs. In particular the Best Practice in operation and maintenance report is considered a key dynamic document for coastal observatories. Thus it will be updated and enriched during JERICO NEXT.

o **WP5:** The Jerico data is flowing through two data streams: i) the GMES/EUROGOOS/MyOcean data stream for near real time data ii) the SeadataNet data stream for data flowing in delayed-mode. The last two deliverables on Real Time and Delayed Mode are completed:
i) Near real time data management handbook,
ii) Delayed Mode data management handbook.
The "Second Data Management Report" (D5.7) was submitted. The work to interface Jerico's partner data to MyOcean In-situ TAC and SeaDataNet are completed except for NERC infrastructure because the infrastructure is not running. Efforts were mainly directed towards assuring that the (near) real-time (NRT) data coming from Partners involved in WP7 (Services and Data Access).

WP6: All the web activities are still on going: website, Community hub (The Jerico Community Hub has been established since January 2012: www.jerico-fp7.eu), Oceanboard. All the deliverables are now on the website. The WP6 has organised the second summer school in Delft "From Data to decisions": the course covered the entire marine and coastal information cycle.

WP6 has links to Trans National Access, FCT, OceanBoard, Workshops, meeting documents and submitted deliverables. The Jerico Datatool is complete and can be accessed from the Community Hub. The Datatool gives users access to integrated Jerico data products and datasets from MyOcean via the user interface. These tools are used for the TOP1 in the WP7.

- **WP7:** All the data identified in the WP are now available in MyOcean In situ TAC database, except data to be provided by the NERC, and also SeaDataNet. The 2 years of data are now available on these database, and more because the flux is now permanent between the Jerico partners and these Data management systems. The TOP has been done during the 2014 year.

- **WP8:** The preparation of the TNA calls is one of the tasks of WP1. The 3rd call was published on September 19th 2013. Text of the call was completed in August 2013. 5 new proposals were submitted by new user groups and also 2 requests for extension of the access period by P.I. of user projects already running. The Selection Panel evaluated and approved both the new proposals and the requests for extension of access. The 3rd call was extraordinary (it was not planned in Annex 1 – Description of Work) and was planned to consume residual budget. At present all the user projects supported after the three calls have completed the planned work programs. Outcomes from these projects, including project reports have been published in a dedicated page in the JERICO Website (http://www.jerico-fp7.eu/tna/tna-outcomes) and some of them will be on the Journal of Marine Systems special issue.
  TNA webpage was regularly updated during the execution of the project.

- **WP9:** A dedicated final workshop on OSE and OSSE harmonised with WP2, WP3, WP4 and WP5 has been organised at the end of October during the Eurogoos conference. The 2 last deliverables, D9.4 and D9.5, are done.

- **WP10:** The main integrating activity in WP10 was the completion of all six RDT tasks with the presentation of the main results and the availability of tools and deliverables. These results will be implemented in some of the observatories around Europe and will be operationally validated within Jerico-Next.

- **final results**

JERICO is the very first attempt of a unified management scheme at the European level. Being built on the outcomes from previous studies and proposed programmes by EuroGOOS, the JERICO consortium has the ambition to contribute step by step, to the concepts arising from the European Research Area, which are defined in the European Marine and Maritime Research Strategy (COM 2008-534). The JERICO project is clearly the first step of a future pan-European coastal infrastructure, open to all providers and users, the model of which is not yet finalised but which will mature over the next decade. The long lasting legacy of JERICO

is therefore on going with the H2020project JERICO-NEXT, and JERICO will be committed to building bridges with other short term initiatives such as the SEASERA ERANET on marine research and the JPI OCEAN initiative, the various FP7 projects and other long lasting initiatives in the field of marine research infrastructures (e.g. EMBRC, EMSO, EuroARGO, EUROSITES (FIXO3), SeaDataNet and MyOcean) and research networking programmes.
These efforts will continue in JERICO-NEXT in the field proposed by the Jerico label.
Through the FCT (Forum for Coastal technology) JERICO has involved European SMEs to the construction of an European market of coastal sensors and systems. The JRA focused on the adaptation of new sensors for the coastal observatory platforms, and also on the use of ship of opportunity (as fishing vessel) as part of a coastal observatory network. The goal of Jerico to provide best practices for integrating these new sensors or systems in the operational observatories has been accomplished.
The overall activities of coastal observatories have to become sustainable and to be an important source of qualified data for the future European Observing System EOOS.

1.3 Comment on the most important problems during the period including the corrective actions taken

The main source of delays during this third period was due first to the delays from the second period and especially the change of WP leader for WP9. But now, everything is going back to the schedule.
All the deliverables planned in the third period, even if they were slightly shifted, were completed.

In WP1, the two main difficulties encountered in the previous reporting are now behind us: the task 1.2 “JERICO label definition” deliverable needed more efforts than expected but now the deliverable is completed and includes results of Best Practices defined all along the project duration.
Task 1.6 required 2 month of extra effort by CNR to organize and manage the evaluation of the 3rd extraordinary Call (it was not planned in Annex 1 – Description of Work) and to support user groups and facility operators in executing their access projects.

In WP3 and WP4, the main difficulty was the heterogeneity of the fixed platforms and the different ways of operation of the various communities. An extra activity, the “Biofouling Monitoring Program (BMP)”, was approved by the JERICO board, and has been executed under the direction of CNR. A report has been delivered by CNR on April 8th, 2015. This activity required a 1-month of extra effort by CNR and costs for production of monitoring boxes and delivery to the participating partners.

In WP9, the work package leader, Srdjan Dobricic, resigned from CMCC in 2013. It took 6 month to CMCC to nominate a new one: Dr Simona Massima helped by Nadia Pinardi. Accordingly the two last deliverables D9.5 and D9.6, with final reports on the status of OSE and OSSE experiments, previously planned for M36 were delivered in M47.

In WP10, the main difficulties were i) the Adriatic Sea deployments in RP2 but done in RP3 ii) the Ferrybox activities on open Atlantic trial because of the task leader retired and iii) the Celtic Sea FOOS who did not provide has much data has required: fortunately, we had access to ether FOOS data from French shipping vessels in the Ifremer RECOPESCA program.

2 WORK PACKAGE PROGRESS AND ACHIEVEMENTS DURING THE PERIOD

Work Package leaders - Primary contacts (PC) and substitutes (S)						
Beneficiary	Person			Activity Coordinators	Roles	
	First Name LASTNAME	Email Address	Work Package activities			
IFREMER	Patrick FARCY	Patrick.farcy@ifremer.fr	General coordination of the project	COORD	WP11	PC
	Ingrid PUILLAT	ingrid.puillat@ifremer.fr	GA organization, QAP, reporting			S
CNRS	Pascal MORIN	pmorin@sb-roscoff.fr	A common strategy	NA	WP1	PC
	Ingrid PUILLAT Dominique DURAND	ingrid.puillat@ifremer.fr dominique.durand@niva.no	Share a strategic view for the future, promote an open access to facilities and organize a FCT			S
IMR	Henning WEHDE	henning.wehde@imr.no	Strengthening regional and trans-regional activities,	NA	WP2	PC
	Patrick GORRINGE	Patrick.gorringe@smhi.se	State of the art in the ROOS and cross regional integration			S
HZG	Wilhelm PETERSEN	wilhelm.petersen@hzg.de	Observing system technologies	NA	WP3	PC
	Richard Lampitt	richard.lampitt@noc.ac.uk	Ferrybox, gliders and fixed platforms			S
HCMR	George PETIHAKIS	gpetihakis@hcmr.gr	Harmonization of operation and maintenance methods	NA	WP4	PC
	Manolis NTOUMAS	mntou@hcmr.gr	Calibration, bio-fouling prevention, end to end quality control			S
OGS	Caterina FANARA	cfanara@ogs.trieste.it	Data distribution	NA	WP5	PC
	Rajesh NAIR Gilbert MAUDIRE	rnair@ogs.trieste.it Gilbert.Maudire@ifremer.fr	Harmonization real time & delayed mode – SeaDataNet & MyOcean			S
CEFAS	David MILLS	david.mills@cefas.co.uk	Public outreach and education	NA	WP6	PC
	Aldo DRAGO	aldo.drago@um.edu.mt	End-user services, datatools, OceanBoard and summer schools			S
IFREMER	Loic Petit de la VILLEON	Loic.Petit.De.La.Villeon@ifremer.fr	Data access & targeted operational phases	TNA	WP7	PC
	Patrick FARCY	Patrick.farcy@ifremer.fr				S
CNR	Stefania SPARNOCCHIA	stefania.sparnocchia@ismar.cnr.it	Access to trans-national facilities	TNA	WP8	PC
	Margherita CAPPELLETTO	margherita.cappelletto@cnr.it	Fixed platforms, ferryboxes, gliders and calibration facilities			S
CMCC	Simona MASINA	simona.masina@cmcc.it	Observing system design	JRA	WP9	PC
	Ali AYDOGDU	ali.aydogdu@cmcc.it	OSE and OSSE			S
MI	Glenn NOLAN	Glenn.Nolan@marine.ie	Improve the system components	JRA	WP10	PC
	Antoine GREMARE	a.gremare@epoc.u-bordeaux1.fr	Biological processes, physico-chemical sensors, emerging technology, ship of opportunity and FerryBox quality control			S

• 2.1 WP 1 – A COMMON STRATEGY

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Institution name and Acronym: Centre National de la Recherche Scientifique/Institut National des Sciences de l'Univers, CNRS/INSU

• *2.1.1 Progress towards objectives – tasks worked on and achievements made*

Task 1.1 Set up the scene and implementation plan
The deliverable D1.2 "Rationale and definitions for a common strategy" has been submitted in month 21. The deliverable was accepted. The background, state of the art on best practices and the main challenges to be answered have been established for the different types of platforms. Implementation plans with expected outputs from the different workpackages have been proposed. Dedicated workshops on the future strategy are the first step towards the definition of the Roadmap for the future; the task has started after month 24 and three workshops have been held in Villefranche in October 2013, in Brussels in March 2014 and in Oslo in May 2014. The deliverable D1.11 "Future strategy for coastal observatory" will be delivered at the end of the project after the last General Assembly in April 2015 in Brest.

Task 1.2 JERICO Label
The deliverable D1.4 JERICO Label Definition proved to be a rather difficult task mainly due to the wide variability between the different platforms in terms of operations and requirements. Moreover during the various meetings it was decided that a crucial component of the deliverable would be the various reports on Best Practices within WP4, which are scheduled towards the end of the project. Thus it was not possible to be delivered on month 18 and was postponed for later. Finally the effort scheduled (2mm) was very low as numerous meetings had to be organized:

DATE	PLACE
15-18 May 2013	GALWAY
17-22 June 2013	PARIS
2-7 October 2013	MADRID
24-28 February 2014	BRUSSELS
10-14 March 2014	LONDON
4-9 May 2014	OSLO

Summarizing the document is in its final form and will be delivered soon composed by two major parts; mandatory rules and recommendations to be applied at different levels of the entire JERICO observatory network while the document will be updated with the other platforms used in the coastal observations and not included. It provides recommendations on sensing technologies for each platform, operating issues and deployment - installation. It highlights the importance of performing tests before any long-term deployment at the demanding coastal sea environment. It gives guidelines to define and implement a test plan. As mentioned JERICO deliverables on Operation Best Practices,

Biofouling and Calibration become a reference of the JERICO Label as soon as they are delivered. The document needs to be updated continuously with the evolution of technology, of gained experience and new needs. The deliverable "Label definition" has been submitted in March 2014.

Task 1.3 Forum for Coastal Technologies (FCT)
After the first organisation of a metrology experiment, jointly with WP4 held in October 2012, in Ifremer Brest, a second interactive workshop to identify the best practices about DO calibration procedure has been realized during the 2nd FCT at Oceanology International 2014 in London (13th March). During this workshop two sessions were organized with four presentations focussing on the scientific aspects (by Ifremer, HZG, CNRS and National Metrology Lab. and four presentations focussing on manufacturer aspects (by Anderaa, Rinko, Sea-Bird, NKE). The Session 2 was dedicated to a facilitated discussion about three themes: adapted calibration (coastal or open sea) and the essential calibration steps (good practices), calibration market (low cost sensors, training, certification, QC) and main field vs lab issues. The deliverable D1.8 "Second assessment of the FCT activity" has been submitted in November 2014.

Task 1.4 Definition strategy and interfaces with monitoring of marine biodiversity
Sander Wijnhoven from NIOZ took back this task, after the death of Mr Carlo Heip in February 2013. A study on the state and evolution of marine biodiversity in European coastal waters in regards of national and international legislation has been carried out to investigate the potential of existing coastal observatories to develop into observatories of biodiversity and to define interfaces with a future marine biodiversity network. Three types of potential strategies have been identified for JERICO: implementation of one or a few specific biodiversity related sensing techniques in existing and foreseen infrastructure of platforms to describe boundaries using semi-automated imaging techniques and passive acoustics, and promising genetic markers have been identified to have potentials for the future, linking JERICO to existing or developing pan-European initiatives of biodiversity observation and tune mutual activities (in terms of space and time resolutions) or finalize cooperation with initiatives such as EMBOS, ICES, and through optimization of biochemical sensors already present in the network to deliver explaining – or model parameters for biodiversity. The deliverable 1.9 "Proposed strategy for biodiversity" has been submitted in April 2014.

Task 1.5 Roadmap for the future
The task 1.5 has started since month 24. Dedicated workshops on the future strategy are the first step towards the definition of the Roadmap for the future. Two dedicated workshops have been held in Villefranche in October 2013 and in Brussels in March 2014. The Roadmap for the future will present key-environmental parameters which are measured in European coastal waters (primary and secondary parameters) and will identify emerging key-environmental parameters to be measured in European coastal waters. Sampling requirements in space and time will be proposed to address the needs of both the implementation of the EC Directives and the operational need of in situ data from the GMES marine services and to describe and quantify the ecosystems for understanding the dynamics, assessing the state and predicting natural and/or human induced changes. This task benefits from the inputs of the deliverables of the workpackages 2, 3 and 4. The deliverable will be delivered at the end of the project in April 2015.

Task 1.6 User modality access for the TNA
Two further calls were launched (2nd Call: January 14, 2013, 3rd Call: September 19, 2013).
2nd Call closed on March 27, 2013. Six proposals were received, five of them were approved.
3rd Call closed on November 25, 2013. Five proposals were received, all were approved.
We also received requests of extension of access period from CALL_1_6 and CALL_1_9, approved by the Selection Panel.
Following the procedure discussed at the First TNA Selection Panel meeting in Iraklion (October 1, 2012), the evaluation procedure was modified after the first Call: proposals have been first validated by the manager of the targeted facility (feasibility assessment) and then

evaluated by the Selection Panel. A Selection Panel meeting was held in Brussels on February 26, 2014 during which all the actions of the two last calls made by email were formally ratified.
Calls were widely publicized (Partners' webpages: CNR DTA and ISMAR, CEFAS, MI, IBW PAN, IMR, Puertos del Estado; other projects and organizations' webpages: Euroris-net, Euroceans; mailing lists: EUROFLEETS, PERSEUS, Marine Ripple Effect, MONGOOS, NEXOS).
TNA webpages were updated for the 2nd TNA Call (revision of selection procedure, text of 2nd Call, descriptions of available facilities) and the 3rd Call (call text and description of available facilities) and integrated with information on submitted and approved projects. These webpages are constantly updated including information on the on-going experiments in form of web-articles and summary of main results (project reports, presentations to conferences and publication in peer-reviewed papers).
Totally the three TNA Calls received 24 proposals, 20 of them were approved and 19 were scheduled. All the user projects have completed the planned work plans, one of them was unsuccessful because of failure of the installed user equipment. Outcomes from the user projects, including project reports have been published in a dedicated web page in the JERICO Website (http://www.jerico-fp7.eu/tna/tna-outcomes). The deliverable D1.10 "Second report of the access activity" has been submitted in March 2015.

- · ***Deliverables***

Del. no.	Deliverable name	WP n°	Date due proj.month	Actual/Forecast delivery date	Estimated indicative person-months *	Used indicative person-months *	Lead contractor
D1.1	First call for TNA proposals	1	M8	Submitted M9	5	6.75	CNR
D1.2	Definitions for a common strategy	1	M9	Submitted M21	6	2	INSU/CNRS
D1.3	Terms of reference of the FCT	1	M9	Submitted M14	3	1	MI
D1.4	Label definition	1	M18	Submitted M38	2	4	HCMR
D1.5	Second call for TNA proposals	1	M20	Submitted M21	5	3.5	CNR
D1.6	First report of the FCT activity	1	M24	submitted M27	3	3	MI
D1.7	First report of the access activity	1	M24	Submitted M25	5	6	CNR
D1.8	Second report of the FCT activity	1	M36	Submitted M47	3	0	IFREMER
D1.9	Proposed strategy for biodiversity	1	M36	Submitted M38	4	0	NIOZ

D1.10	Second report of the access activity	1	M42	Submited M47	5	0	CNR
D1.11	Final report	1	M48	Submitted M48			INSU/CNRS

- · ***Milestones list***

Del. no.	Milestones name	WP	Date due proj.month	Actual/Forecast delivery date	Lead contractor
MS5	First steering committee outputs	WP1	M9	Achieved M9	Ifremer
MS6	Infrastructure available for users (TNA)	WP1	M11	Achieved M9	CNR
MS7	First forum for coastal technology	WP1	M18	Achieved M18	MI
MS8	Second steering committee outputs	WP1	M18	Achieved M18	Ifremer
MS9	Third steering committee outputs	WP1	M27	Achieved M25	Ifremer
MS10	Second forum for coastal technology	WP1	M30	Achieved M35	MI
MS11	Fourth steering committee outputs	WP1	M36	Achieved M37	Ifremer
MS12	Fifth steering committee outputs	WP1	M45	Achieved M45	Ifremer
MS13	User reports of activities	WP1	M47	Achieved M47	CNR
MS14	Roadmap for the future	WP1	M48	Achieved M48	Ifremer INSU/CNRS

- ***2.1.2 Deviations from the project work programme, and corrective actions taken***

The main deviation was about the definition of the Jerico Label.

The task was much more difficult that we expected at the beginning of the project. We decided to create a dedicated working group, whom will organise meetings and workshops, and a document has been produced in March 2014. The final document has been submitted end of April 2015 at the end of the project.

• 2.2 WP 2 – STRENGTHENING REGIONAL AND TRANS-REGIONAL ACTIVITIES

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• *2.2.1 Progress towards objectives – tasks worked on and achievements made*

Task 2.1: State of the Art in Coastal observing systems

The focal point of work within this task was laid on the delivery of the planned deliverables D.2.1, D2.2, D2.33 and D.2.5. All deliverables were compiled and with the delivery of the last deliverable namely the second report of an pan European atlas of existing observing systems (D.2-5) are the duties for this task fulfilled.

The main aim for the first deliverable D.2.1 namely the report on existing observation networks were to provide a review of the present status of the observation systems integrating the activies ongoing in the different regional Alliances of the European Global Ocean observing system (EuroGOOS).
Part of this integrative approach is the observational systems implemented within the EuroGOOS regional alliances for the European waters. Over the last years several European wide projects has been conducted to integrate the in Situ observations towards a system that can serve all the need from the different users. Based on the EuroGOOS ROOSes these different projects such as the MyOcean project series for mostly Realtime data and the SeaDataNet for historical data are complemented by programmes like EMODnet.
The main aim for this report has been to provide an overview of the existing observational systems provided by the regional Alliances i.e. the Arctic ROOS, NOOS, BOOS, IBIROOS, MONGOOS and Black Sea GOOS.
The main aim for deliverable D.2.2 namely the report on recommendations for future research and development for filling gaps in observations was to provide an overview of the main challenges the existing observational systems are facing to provide an integrated status of the marine environment and to identify knowledge gaps, that are recommended to fill within the upcoming years.

An analysis has made with respect to developments in science and technology and future user needs at policy and operational (commercial) level in order to comment on the future research, gaps between present observational systems and user requirements

These recommendations are contributing to the roadmap for the improvement of an European Marine infrastructure based on components at National and International level and a shared

vision on an sustainable Regional basin wide integrated network and a common strategy to reach this at European level in an accessible and inter-operable way.

The JERICO-consortium represents the institutes, which have national responsibilities for operating and maintaining existing in situ monitoring networks as well as development of efficient data gathering to fulfil future information needs.
The main findings are summarised here and the report provide a more detailed description.
Common elements of the analysis from the overview of the Regional alliances (ROOS) leads to central issues gathered under Nutrients, Physical oceanology, Phytoplankton and zooplankton. More regional specific:

- Attention to functioning of present Artic Ocean ecosystem and with respect to climate change and expected change in productivity, human activities (Artic region)
- Attention to fresh water inflow and validation of forecasting models; sustainability of existing observational system and development towards to eco-system approach and MSFD-indicator needs and assessments (North Sea Region).
- Attention for the monitoring the climate variability, improvement of LT stability for T&S and oxygen along the water column (Baltic Sea Region)
- Attention to growth, and impact from extraction use of natural marine resources (Atlantic front of Europe IBIROOS–region)
- Attention to lack of data from African Coast, NRT biochemical data and integration of gliders in the common vision of the Mediterranean observations (Mediterranean Sea-MONGOOS)
- Attention to the overall lack of observation continues monitoring programs and system behavior studies. Building and maintaining a Basin scale in situ observing system based on best practices in other Regions has key priority (Black Sea GOOS region).

As results the focus can be Integration: Coastal observational systems are designed at National level based on state of the art in technology and knowledge of the coastal and marine processes.
A mechanism for international ‘agreements’ how these coastal observatories can be accepted as a node in an integrated system or a chain of systems at basis scale (ROOS-level) will create homogeneity and ease access to basin wide information. Relevant aspects are: long term perspective as data source, inter-operability.

The third main effort undertaken within the Task 2.1 was the compilation of the pan European atlas of existing observing systems. While this action was limited for the delivery of D2.3 to stations delivering Temperature, Salinity and Sealevel observations. The additional parameters are added within the Deliverable D2-5 compiled now for the end of the project. A web application of the atlas was developed and implemented.

Task 2.2 Cross regional integration and demonstration

The main aim for the deliverable D2.4 namely the report on the demonstration of the feasibility of the trans-regional product production on transport as well as on E-HYPE were to provide evidence of the feasibility of trans-regional product production aiming to develop these products for the transport of Water masses and as well for the River runoff provided by

the EHYPE model. This deliverable summarises the development and setup of an operational hydrological forecast tool for delivering high-resolution real-time and forecast fluxes of water and nutrients to European Seas and demonstrates a possible approach to a pan-European transport product. The deliverable has been submitted in Month 25.
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- · ***Deliverables***

Del. no.	Deliverable name	WP n°	Date due proj.month	Actual/Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D2.1	Report on existing observation network	2	M12	M21	6		IMR
D2.2	Report on recommendations	2	M12	M26	6		IMR
D2.3	Integrated Pan European Atlas first report	2	M18	M29	6		IMR
D2.4	Demonstration of the feasibility of Joint transregional production	2	M24	M26	9		SMHI
D2.5	Integrated Pan European Atlas / second report	2	M48	M48	6,25		IMR

- · ***Milestones list***

Del. no.	Milestones name	WP	Date due proj.month	Actual/Forecast delivery date	Lead contractor
MS27	Report on activities	WP2	M42	M48	IMR

2.2.2 Deviations from the project work programme, and corrective actions taken

No deviations from the project work programme

• 2.3 WP 3 – HARMONIZING TECHNOLOGICAL ASPECTS

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Task 3.1. FerryBox (FB) Seppo Kaitala (SYKE)

Task 3.2. Gliders Joaquin Tintore, CSIC_IMEDEA

Task 3.3. Fixed Platforms Rodney Forster, CEFAS

1. 2.3.1 Progress towards objectives – tasks worked on and achievements made

The FerryBox activities (Task 3.1) started first and later on with investigations on fixed platforms and gliders. Main focus was on collection of all the available information within the JERICO community regarding the different platforms in use and their technical equipment mainly done by questionnaires. On common workshops shared with WP4, the experiences of operation of these platforms were exchanged in order to work out best practices recommendations.

The first three workshops were dedicated to the three different platforms:

- First results of FerryBox questionnaires have been presented and discussed at a two-day JERICO FerryBox workshop, end of August 2011 in Hamburg-Geesthacht.
- A workshop for current status of Glider observations in Europe has been held in Palma de Mallorca in May 2012, together with GROOM project.
- The first results of a questionnaire about fixed platforms were discussed at the first workshop on fixed platforms in May 2012 in Rome.

Following the General Assembly in Crete in October 2012 a fourth workshop was organized on best practices for all platforms with focus on common measured parameters and exchange of experiences with different type of sensors.

Further short joint meetings between WP3 and WP4 on the status of the best practice reports for the different platforms were organized during several events (4th FerryBox workshop in Helsinki April 2013, General Assembly May 2014, FerryBox workshop in Tallin Sep 2014 and a final meeting during the EuroGOOS conference in October 2014.

The deliverables 3.1 to D3.3 about the current status of the different platforms in Europe including databases and maps have been completed in the first three years. The maps are based on databases which were compiled within the project and were periodically updated. In the case of FerryBoxes and Gliders well organized communities already existed while in the case of fixed platforms it turned out that there exist numerous platforms with quite heterogeneous infrastructure. It was quite difficult to get such information all together. The starting point was based on the former EU project EDIOS and already existing information from EMODnet Physics.

In the time period of M36 to M48, the deliverables D3.4 and D3.5 have been completed. D3.4 gives an overview of new developed and tested sensors for different platforms.

Thus, elements of these deliverables are summarized shortly in the following sections for Task 3.1, 3.2 and 3.3.

D3.5 has its focus on the conclusion of work done in JERICO concerning FerryBox systems. The results are shortly summarized in section Task3.1.

In WP3 it was generally perceived that harmonization and dissemination of best practices in operation, maintenance and calibration is an important task and so it was intensively addressed in WP3. It is, however, still on different levels depending on the platform type; further effort is necessary. The evaluation of the state-of-art of existing ocean observation systems has been the starting point of WP3. The development of new sensor types and the improvement of existing ones is closely related to best practice as sensors need to (and already getting) more robust and reliable to serve the need of expansion of automated observation to manifold parameters.

Task 3.1 FerryBox

Progress and achievements:

Towards the task "review current status of FerryBoxes (FB) activities" a questionnaire has been developed and distributed to the partners in June 2011. The results have been presented and discussed at a two-day JERICO FerryBox workshop, end of August 2011. The aim of the questionnaire was to gather information about FerryBox routes throughout Europe as well as to get details of measured parameters and used instruments. The questionnaire itself (Excel sheet) has been updated regularly. From the FB-workshop a report has been written. Access to detailed information on the Ferrybox systems is available at the FerryBox project web site (www.ferrybox.org) by the link http://www.ferrybox.org/routes/northern_europe/index.html.en. The completed questionnaires are also available both on Ferrybox.org and on the JERICO homepage.

Best technical practice has been also discussed more specifically in two FB workshops as well as in the common workshop for all platforms in Crete in October 2012.

A working group has been established for developing recommendations of best practice from installation to operation and maintenance for FerryBox systems (lead Kai Sørensen NIVA). Further meetings were organized during the FerryBox workshops from the FerryBox community in Helsinki (April 2013) and Tallin (2014) as well as at the general assembly in Oslo (May 2014).

The output of the workshops together with the results of the questionnaire was the basis of deliverable D 3.1. The report on current status of FerryBox was finalized August 2012.

Starting from the collected information of existing FerryBox installations, mechanisms which ensure a greater harmonization between FerryBox users are to be developed. A common equipment system for FerryBoxes is not a practical solution, as several aspects of monitoring onboard the ships of opportunity are different among the FerryBox users as well as the technical circumstances on each ship.

However, the exchange of information about operating experience should be enhanced for harmonization of scientific work with FerryBoxes. The deliverable report D3.1 serves also as a guideline for installing, maintaining and operating of a FerryBox. It lists in detail many advices for institutes what should be considered when a new FerryBox operating route is planned.

One major issue of JERICO in this context is the automatic data checking in real time. This is also an important requirement for data flow to MyOcean (and the assimilation into operational models). So, an appropriate quality flagging based on housekeeping parameters will are applied either already onboard (e.g. HZG) or after sending the data to the shore (e.g. NIVA). These realtime QC has to be further established at all FerryBox systems in the future.

An overview of the status of newly developed sensors for implementation on coastal observing systems has been given in deliverable D3.4 Report on new sensor developments. Many of the partners already test new or prototype instruments on a non-operational basis, yet the results of tests are often not widely known. So, the performance of new sensors has been assessed, as it is one of the main issues of sub-tasks 3.1.4 and 3.3.4 of JERICO WP3.

The mentioned sub-tasks of WP3 are tightly linked to WP10; however, this report was focused on sensors that are already in pre-operational mode. WP10 addresses on (potential) development of new physico-chemical and biological sensors, which are in test phase.

The main issues of each sensor presentation in this report are

- Scientific relevance
- Applied methods
- Implementation on platform
- Data quality control
- Outlook for possible improvements
-

For FerryBox systems, sensors have been discussed for the following parameters:

- Phytoplankton/Chlorophyll
- Phytoplankton/Phycocyanin fluorescence
- pH
- Total Alkalinity (A_T)
- pCO_2
- Passive Sampler

The JERICO deliverable D3.5 is a conclusion report of the documented work that has been done in the context of JERICO work package 3 and parts of work package 4 with the focus on FB activities. It summarizes several tasks that have been addressed in more detail in the following reports:

D3.1 Report on current status of Ferrybox

D3.4 Report on new sensor developments

D4.1 Report on existing calibration facilities

D4.2 Report on Calibration Best Practices

D4.4 Report on best practise in operation and maintenance

The main results of that report are:

1. The optimal operation practises and the maintenance routines are essential for a successful operating of a FerryBox system. There is considerable expertise among European partners who run FerryBox systems since more than a decade. Some useful advises have been brought together in the JERICO deliverables D3.1 and D4.4.
2. In D3.4, an overview has been given about the status of sensor developments for offshore observing platforms. Several new promising developments are deployed on platforms in a test mode; some sensors are already in pre-operational mode.
3. The main goal of JERICO work package 4 is the improvement of performance in regard to observatories and the overall quality of products, which are delivered by project partners. The first step consisted on a survey of the existing calibration

facilities amongst JERICO partners to evaluate common practises depending on measuring platforms, financial and personnel possibilities. Differences between the facilities are outlined and discussed as well as possible future steps. Close cooperation towards harmonisation between calibration facilities is needed even more, as calibration costs are a significant part of the regular platform maintenance.

4. Several calibration best practise advices have been formulated, partly depending on sensor type. Some advices are valid for all sensor types. These advices are documented in deliverable D4.2.

   The most important points of the calibration of sensors are in general:

- Experience of personnel
- Regular training of personnel
- Sensitive and careful handling of sensor calibration facilities
- Regular sensor calibration before (and after) deployment.

Task 3.2 Gliders

Progress and achievements:

This task started their main activities after the EU project GROOM (Gliders for Research,

Ocean Observation and Management) has been started as well. Together with GROOM a two days Glider workshop has been organized in Palma de Mallorca in May 2012.

As for FerryBoxes, Task 3.2 serves as an opportunity to gather information of the current status of glider operations in Europe. Details for each country have been presented. Main issues in Task 3.2 are

- Glider and sensor maintenance
- Key research topics addressed to glider operations
- Data management and issues regarding the planning of glider missions (e.g. risks of glider deployment)

Gliders were initially restricted to physical parameters (Temperature and Salinity), but soon started to be equipped with optical sensors delivering biogeochemical proxies.

Miniaturization and energy cost were and are still (and will probably remain) the main limiting factors for implementation of new sensors, in particular biological and chemical. However, with new technologies, these restrictions partly have been overcome. A less important factor, although crucial for long deployments, is the volume of collected data, which could prevent massive on board computation and, consequently, critically affects transmission time and costs.

All the present-day commercially available gliders enable the integration of sensors measuring physical, chemical and biological parameters of seawater. Consequently, recent years have seen an exponentially growing interest in new sensors for biological and biogeochemical applications on gliders.

The deliverable D3.2 (Report on current status of gliders observatories within Europe) was postponed from M15 to M24 in order to facilitate coordination with the GROOM project and to avoid any unnecessary duplication of efforts.

The D3.2 is structured in four main sections:

- Introduction to European Glider Observatories: in terms of staff, glider fleet, sensors and vehicles available.
- Operational activity analysis: overview of missions undertaken in 2010 and 2011 (zones of presence, typology and driving objectives); key findings obtained with gliders; and how these missions were supported in terms of (a) planning, (b) prevention, (c) piloting and (d) scientific calibration, amongst others.
- Data management strategies: review of the current situation followed by three representative examples of processing systems and discussion including a specific proposal for glider data management in Europe;

- Compilation of costs related to the glider activity: quantification of the personnel; the operations; the investments derived from the purchase of gliders and related goods (in coordination with WP4).

The report is based on the information collected from an extensive questionnaire that was prepared by the JERICO glider team during 2011-2012, the discussions that took place in the glider meeting in Mallorca in May 2012 and the discussions and iterations that continued after the meeting and during 2013.

This report reflects the present status of glider operation in Europe and is mostly centred on infrastructures, operations, data management and costs. Besides different origins and drivers in the different teams, there are evidences of an evolution towards similar approaches to common infrastructure and operation procedures.

With respect to infrastructures, human resources seem to be limited when compared with the size of the fleets to be managed. Considering that the intentions of fleet growth are close to 25%, fully dedicated personnel will be needed to sustain the number of missions planned in forthcoming years.

The deliverable D3.4 addresses only briefly the new developed and existing new sensors deployed on gliders. Details are referred to the corresponding deliverable in the EU project GROOM.

The sensor developments for gliders could be divided in two groups, i.e. sensors in pre-operational mode which are mainly mission-proved. The other group consists of developments which are not yet tested on gliders. In the second group, however, all requirements for a successful deployment are fulfilled.

Task 3.3 Fixed Platforms

Progress and achievements:

On the basis of a questionnaire together with information from the EDIOS database and the EMODnet physical portal, a database of all fixed platforms within Europe including a lot of metadata has been set up. The database includes over 900 fixed platforms. The measuring sites were mapped by region (using the NOOS, BOOS, IBI-ROOS and MOON regions), and by country. A very wide variety of instruments and platform types are in use at these sites. The database has been continuously updated.

On the basis of this database, a report about all fixed platforms within Europe (deliverable D3.3 "Review of current marine fixed instrumentation") has been written. The final version was delivered in Aug 2013.

This JERICO report describes the current status of fixed platform observing systems in the seas around Europe. Fixed platforms are fixed with respect to their position on or above the seafloor and they are a part of a coastal network, or they may be located offshore. The resolution of processes at time scales from seconds to years gives fixed platforms a unique role in the global ocean observing network, providing an unparalleled ability to detect processes which otherwise may be missed.

Moored and fixed systems are usually unmanned and compared to drifting platforms such as Argo floats or gliders can carry a greater range of sensors. Power to the platform can be derived from renewable sources such as solar panels, or from large battery packs. Newly developed cabled observatories will have additional capability to transmit high volumes of data in real time, as well as the ability to support more powerful instruments. So, these platforms are an ideal base for the testing of new developed sensors.

The report clusters a collection of similar measurements (often made by the same institute) as a distinct system. According to this classification, Europe has 80 identifiable marine observing systems. Systems have an average of 11 nodes or measuring stations. The observing systems are predominantly located in the shallow coastal zone where the seabed is less than 50 m deep. 33 (39%) of the 80 systems belong to organizations who are partners in the JERICO project.

Best practice for fixed platforms has been intensively discussed on the fixed platform workshop in Rome as well as on the common workshop in Crete. A working group has been established for developing recommendations on best practice for fixed platforms (lead ACTI).

Deliverable D3.4, which has already been mentioned in the previous two paragraphs, addresses also sensor developments which are designed for use on fixed platforms. Due to their eulerian form of observation, fixed platforms provide a high temporal resolution of measurements for coastal positions and they are able to carry a higher load of sensors than e.g. floats. Thus, they are capable of accommodating spacious observing systems such as passive samplers, which also can be deployed on FerryBox systems.

These sensor types as well as specific techniques are described for fixed platforms:

- Wipers for the Aanderaa optode, Seapoint Chl and OBS and Licor PAR

  On SmartBuoy, ZebraTech wipers have been installed for the Aanderaa optode, Seapoint Chl and OBS and Licor PAR. This is not a sensor development but allows using data from sensors which would normally be bio-fouled within 4-6 weeks. Now it is expected to receive data for up to 12 weeks even in the bloom periods. Tests showed an significant increase in good data collection making 3 month deployments possible and thereby significantly reducing ship and servicing costs. As a result, 5 out of 6 SmartBuoy sites now have wipers.

- Fish detection echo sounder

  The main objective is the establishment of a procedure for the integration of biomass echo sounders on fixed platforms. With Basque deep water buoy network it is possible to correlate fish presence with water physical conditions under a kind of fish aggregating device. It permits also to have near real time information about presence of fish at a known position and then study the fish school with scientific echo-sounders. The use of multi-frequency echo sounders will permit the implementation of algorithms to identify other organisms apart from fishes as zooplankton or gelatinous organisms.

- · ***Deliverables***

Del. no.	Deliverable name	WP n°	Date due proj.month	Actual/Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D3.1	Report on current status of FerryBox	3	M9	Submitted M17	20	12	HZG/NOCS
D3.2	Report on current status of gliders observatories within Europe	3	M15	Submitted M24	20	1	CSIC
D3.3	Review of current marine fixed instrumentation	3	M21	Submitted M28	20	5	HZG/CEFAS
D3.4	Report on new sensor developments	3	M36	Submitted M38	24.7	1	HZG
D3.5	Conclusion report	3	M42	Submitted M48	20	1	HZG

- · ***Milestones list***

Del. no.	Milestones name	WP	Date due proj.month	delivery date	Lead contractor
MS28	Report on activities	WP3	M42	M48	HZG

- ***2.3.2 Deviations from the project work programme, and corrective actions taken***

The deliverable D-3.2 (Report on current status of gliders observatories within Europe, delivery date M15) has been postponed to M24 in order to synchronize the work with the activities in the GROOM project.

The deliverable D-3.3 (Review of current marine fixed instrumentation, due M21) planned for M21 were delayed as it turned out that especially the review on fixed platforms needed a lot of effort both due to the high number of operators as well as platforms and the heterogeneity of the systems and difficulties of getting metadata. The report was finally delivered in August 2013 (M28).

The deliverable D3.4 (Report on new sensor developments) was submitted with small deviation due to coordination that had to be done with deliverable D10.4. The final version has been delivered in June 2014 (M38).

Deliverable D3.5 (Conclusion report) was due to M42, but was postponed to M48. It was supposed to contain also a summary of parts of deliverable D4.4 (Best practise in operation and maintenance) which was due in the same time period. D3.5 was successfully submitted in April 2015 (M48).

• 2.4 WP 4 – HARMONIZING OPERATION AND MAINTENANCE METHODS

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- ***Progress towards objectives – tasks worked on and achievements made***

During the last reporting period (May 2014 – April 2015) work on the first two tasks was finalised while most effort was directed towards Task 3 "End to end quality assurance" that had some delays during the previous period. Although there were no dedicated tow WP4 workshops during the reporting period, the biofouling exercise – Biofouling Monitoring Program (BMP) – continued and was concluded.

EXERCISES

Date	Title	Coordinator	Participants
June 2013 – April 2015.	Biofouling Monitoring Program (BMP)	ISMAR-CNR	IFREMER, CEFAS, HCMR, AZTI, SMHI,SYKE

Task 4.1 Calibration

All work under Task 4.1 has been completed during the previous reporting periods and two deliverables were successfully delivered. Both documents are available at the project's website.

Deliverable	Responsible	Month Scheduled	Month uploaded on the website

D4.1 Report on Existing Calibration Facilities	**HZG**	**18**	**20**
D4.2 Report on Calibration Best Practices	**HZG**	**36**	**36**

The JERICO web page was further populated with calibration manuals and related material.

Associated to this task there is one milestone (MS15) that was decided to be delayed for few months in order to complete all activities within the task and in particular to have the outcome of the COST proposal which unfortunately was not successful. Thus a teleconference meeting was organised on the 20th of November 2014 between the key partners.

Milestone	Responsible	Month Scheduled	Month uploaded on the website
MS15 Constitution of a permanent JERICO Working Group for Calibration Activities	**HCMR**	**30**	**43**

Europe spends €1.4 billion p.a. for marine data collection: €0.4 billion for satellite data and €1.0 billion for in-situ observations, respectively. In the case of the latter, the traditional and expensive practice of vessel-based data-gathering is progressively giving way to monitoring via "observatories" - complexes of distributed, autonomous, real-time sensor systems. Burgeoning technology and pressing societal needs will soon make such observatories the backbone of European marine observing activity because of their ability to provide copious quantities of diversified data over large areas at reasonable costs. But to be useful for research and decision-making at a transnational level, all the incoming data have to be comparable and amenable to fitness-for-purpose assessments in relation to specific user-group requirements. This will require measurements to be metrologically sound, and instruments to be working within known specifications at all times despite prolonged deployment in harsh conditions. The only realistic way to achieve these goals will be through continuous, responsive, high-quality calibrating activity. Calibration, unlike validation, which can be performed with various ways and methods, requires standardised techniques and specialised equipment.
However, as it is revealed through the JERICO WP4 activities and in particular Deliverable 4.1 "Report on existing calibration facilities", very few observatory operators actually maintain dedicated calibration facilities with trained personnel. Thus very often sensors are shipped to manufacturers on regular basis which is neither convenient nor cost efficient. Moreover maintenance intervals have to be planned according to the requirements of each sensor (need for double sets of sensors). Thus transport and calibration costs often have a major contribution on total running costs. Partners operating calibration facilities often face

difficulties in maintaining dedicated personnel positions, as funding is variable and rather insecure. Although there is significant experience among European research institutes on calibration methods, at present each lab works independently with no or very little connections with other labs.
From the above it is obvious that there is an urgent need to create a permanent, pan-European calibration grid to support the activities of marine observatories. The grid has to be open to all partners and to the wider marine community while in order to maximise benefits and minimise costs it can have a 2 level approach, separating calibration procedures into primary and secondary. In the first category, labs capable of handling reference calibration procedures will be acknowledged and appointed as nodes where secondary calibration instruments can be calibrated. Level 2 or secondary calibration labs will be responsible for the calibration of the operational sensors.
Building this grid will require fostering cooperation between people and groups to promote knowledge exchange and training, nurturing consensus on methodologies and procedures, harmonizing standards of operation, achieving Best Practice, and a rational coordination of resources. The above activities will be pursued by the permanent calibration-working group taking advantage of all available opportunities. Apart from the JERICO-NEXT proposal in which there is a continuation of the calibration activities, the active participation and involvement of the working group members in numerous EU projects related to marine observations, is a significant advantage for the sustainability of the calibration board beyond the duration of JERICO.
During the meeting it was decided that the following JERICO partners all having significant experience on calibration issues will compose the calibration board (in alphabetical order).

Name and surname	Affiliation
Laurent Coppola	CNRS
Rajesh Nair	OGS
Manolis Ntoumas	HCMR
Wilhelm Petersen	HZG
George Petihakis	HCMR
Ingrid Puillat	IFREMER
Florence Salvetat	IFREMER
Jukka Seppala	SYKE

Task 4.2 Bio fouling prevention

All work under Task 4.2 has been completed during the previous reporting periods and one deliverable was successfully delivered. The document is available at the project's website.

Deliverable	Responsible	Month Scheduled	Month uploaded on the website
D4.3 Report on Biofouling Prevention Methods	**CNR**	**36**	**36**

During the common workshops in Rome (29 Feb – 1 March 2012) and in Heraklion (4th & 5th of October) it was decided to perform a common bio fouling experiment where selected partner sites will act as a test bed. Dr. Marco Faimali (CNR) who is coordinating the designed the biofouling plates, which were distributed to the partners and successfully, placed in the predefined platforms. Since a detailed report can be found in the project's website, a brief description is only given in this report. As it was easily predictable, the different environmental parameters deeply influence larval settlement. Nevertheless, thanks to BMB preliminary experiment, we demonstrated the complexity and heterogeneity of fouling community, showing how it can be influenced by several parameters. First, we considered which are the main factors that influence the fouling community in one site (Genoa) during 1 year of exposure, and how they influence such community. The factors that we focused on were: the materials employed (metal, plastic and glass), the spatial orientation of the panels (vertical plane, horizontal plane and interstitial plane), the exposure to light. Secondly, we compared the Genoa's results with the data obtained from other sites, in order to understand the differences and the similarities of all these interactions in the fouling processes. With the second part of the experiments, the results allowed to underline differences in fouling community comparing different sites of exposure. The experiments performed in different sampling areas showed, as might be expected, that the fouling community was very different among sites. After 3 months of exposure, Genoa was the site with the highest percentage of hard fouling, followed by ISMAR-Ve, IFREMER, HCMR.
The settlement of marine organisms is influenced by complex interaction between different variables, including biotic and abiotic factors. The choice of settlement substratum is modulated by a series of abiotic factors that included environmental parameters and the physical nature of surfaces; these parameters also affect the biofilm growth that represents in turn an important biotic factor that affected larval settlement. Biofilm formation is strictly related to surface characterization, and it is known to influence larval settlement as, for example, larvae of *B. amphitrite*.
As shown by our data, we investigated the role of some abiotic factors that deeply affected the settlement of a variety of macro- and microscopic marine organisms. Despite the differences in fouling composition among sampling sites, some factors played always a key role in the settlement of organisms. Such factors included the light availability, the materials employed and its physical nature.
Our results contribute to show that organisms' settlement is a process affected by many chemical, physical and biological factors. These field experiments highlight how complex and numerous are the interactions among factors, that cannot mimicked in the laboratory. These mutual interactions play a key role during the settlement process, determining the variety and the heterogeneity in fouling composition, which characterize the different sampling sites.
Comparing the data from the different sampling sites, we can learn more about the reasons that determine the complex process of fouling colonization. Such studies are required and these preliminary experiments move a first step toward this direction. Further joint research has to be carried out in this field in order to understand all the interactions involved and to obtain a better characterization of settlement behavior and fouling process.

Task 4.3 End to end quality assurance

This is an important task as its outcome will update the JERICO Label deliverable and most importantly will set a road map for JERICO NEXT. Two deliverables are associated with the activities

Milestone	Responsible	Month Scheduled	Month uploaded on the website
D4.4 Report on best practice in operation and maintenance	**HCMR**	**42**	**48**
D4.5 Report on Running Costs	**HCMR**	**42**	**43**

The D4.5 Report on Running Costs has been delivered with one month delay and can be found in the project's website. Following a platform dependant approach costs were analysed separately for Fixed Platforms, FerryBox systems, Gliders and Calibration Laboratories.
Long term sustained marine observing systems are required to help understand and predict changes in the world's seas and oceans. The cost of setting up and operating such systems can be significant. The report examines the costs associated with setting up and running fixed platforms, Ferrybox systems, gliders and calibration laboratories, compiled using questionnaire replies returned from JERICO partners. The costs for gliders are taken directly from a report complied through a joint exercise with GROOM.
There was a large variability in costs between laboratories reflecting the different types of platforms and parameters being measured. Initial investment costs are greater for glider fleets (€222,545 in 2011) and Ferrybox systems (€110,298) than for fixed platforms (€86,526). Ongoing total annual running costs for a glider fleet (€184,014 excluding investment in 2011) and fixed platforms (€139,358) exceed those of Ferrybox systems (€90,529). This analysis of costs has shown that a large proportion of the total annual running costs (27%) of fixed platforms is associated with boat charter. Collaborative working such as under the Eurofleets project (http://www.eurofleets.eu/np4/63) may give the opportunity to reduce these costs and maximize efficiency.

Regarding the D4.4 Report on best practice in operation and maintenance, acknowledging its importance more effort was invested than originally planned and this is evident in the length of the document and on the number of meetings/workshop/teleconferences that took place. The main objective was to describe best practices in all phases of the system (pre-deployment test, maintenance, calibration etc), which proved a very difficult exercise especially in the case of Fixed Platforms due to the big variability of the existing systems. On the contrary Gliders proved to be much more uniform in terms of technology and operation methods while FerryBox systems are standing somewhere in the middle with significant customisations.
During the last meeting on the 27th of October in Lisbon right after the EuroGOOS conference, the progress for each platform was presented by the persons in charge and after extensive discussions, the contents were finalized. The FerryBox part of the deliverable was much more developed with few only details pending.
The progress of the particular deliverable was also presented to the JERICO partners during the Steering Committee meeting in Brussels on the 14th and 15th of December 2014.
The detailed descriptions and presentations in the deliverable can be found at the project's website and only the contents for each platform are given here.

- **Fixed Platforms**

The contents of the deliverable related to the Fixed Platforms are:

- **FerryBox**

The contents of the deliverable related to the FerryBox are:

- **Gliders**

The contents of the deliverable related to the Gliders are:

1 Glider Technologies
1.1 Slocum Glider
1.2 Seaglider
1.3. Spray
1.4. Others
2 Glider Infrastructure (These are covered inside the GROOM Deliverable)
2.1 Laboratory
2.2 Ballast tank
2.3 Pressure chamber
2.4 Calibration
2.5 Storage
2.6 Communications
2.7 Control room
2.8 Data Center
2.9 Vehicles
2.10 Vessels
2.11 Others
3 Glider Platforms in the Laboratory
3.1 Platform maintenance (these are covered inside JERICO D3.2)
3.2 Sensor maintenance
3.3 Sensors and instruments calibration (these are covered inside JERICO D3.2)
4 Glider Missions
4.1 Planning (these are covered inside JERICO D3.2)
4.2 Definition (these are partly covered inside JERICO D3.2)
4.3 Deployment Techniques (these are partly covered inside JERICO D3.2)
4.4 Recovery Techniques (these are partly covered inside JERICO D3.2)
4.5 Piloting (these are covered inside JERICO D3.2)
4.6 General safety (these are covered inside JERICO D3.2)
5 Glider Data Management (These are covered inside the GROOM Deliverable)
5.1 Glider Data Retrieval (Real Time & Delay Mode)
5.2 Glider Data Archiving
6 Data Processing and Quality Control
7 Glider Data Dissemination and Outreach
8 Training Materials, Courses and more Information

- ***Deliverables***

The deliverables scheduled in the framework of WP4 are listed below.

Del. no.	Deliverable name	WP n°	Delivery date from DOW	Actual/Forecast delivery date	Estimated indicative person-months	Used indicative person-months	Lead benificiary
D4.1	Report on existing facilities	4	M18	Submitted M21	10.00	5.00	HZG
D4.2	Report on calibration best practices	4	M36	Submitted M38	20.00	5.00	HZG
D4.3	"Report on biofouling prevention methods	4	M36	Submitted M39	20.00	5.00	CNR
D4.4	"Report on best practice in operation and maintaining	4	M42	Submitted M48	20.00	4.30	HCMR
D4.5	Report on running costs of observing systems	4	M42	Submitted M44	14.50	2.70	CEFAS

- ***Milestones list***

The milestone was intentionally delayed in order to finalise all activities at task 4.1 and to have the outcome of the COST proposal. It must be noted that JERICO has acted as the vehicle to bring together for the first time the marine calibration community, and the effort will continue, as related activities are included in the JERICO NEXT proposal.

MS. no.	Milestones name	WP n°	Delivery date from DOW	Actual/Forecast achievement date	Lead contractor	Achieved Yes/No
MS15	Constitution of a permanent Working Group within JERICO for Calibration Activities	4	M30	Achieved M43	HCMR	YES

2.1.2 Deviations from the project work programme, and corrective actions taken

The deliverable **D4.1 - Report on existing facilities with the capacity to handle pressure, temperature, salinity and dissolved oxygen calibrations amongst the active coastal observing networks** planned for M18, (October 2013) and was delayed it was delivered in January 2013.

The deliverable **D4.2 - Report on calibration best practices** planned for M36 it was delivered with a one-month delay as input from the partners during the GA in Oslo was important.

The deliverable **D4.3 - Report on biofouling prevention methods** planned for M36 it was delivered with a one-month delay as input from the partners during the GA in Oslo was important.

The deliverable **D4.4 - Report on best practice in operation and maintenance** planned for M42 it was delivered at the end of the project due to unforeseen reasons.

The deliverable **D4.5 - Report on running costs** planned for M42 it was delivered with a one-month delay due to some additional information regarding gliders which was thought important and was incorporated.

The milestone **MS15 - Constitution of a permanent JERICO Working Group for Calibration Activities** planned for M30 it was decided to be postponed (it was delivered at M43) until all activities were concluded.

• 2.5 WP5 – DATA MANAGEMENT AND DISTRIBUTION

+Persons in charge of this report:

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• *2.5.1 Progress towards objectives – tasks worked on and achievements made*

All the objectives of WP5 for this reporting period have been met, as evidenced by the successful rendering of the following relative deliverables and the attainment of the associated milestones.

Deliverable D5.4, the document "Guidelines for uncertainty" furnishes members of the JERICO community with a basic understanding of uncertainty in measurement by presenting the essential principles and concepts central to its determination. The document describes the different steps involved in an uncertainty calculation, and introduces reporting conventions. It also provides guidance on the proper preparation of relevant documentation and outlines the importance of uncertainty determinations in the context of coastal marine observing activity. Deliverable 5.5 follows from where D5.4 leaves off. The document, entitled "Uncertainty estimation for temperature, salinity & chlorophyll-a" deals with how one should proceed when attempting to establish measurement uncertainties for marine temperature, salinity and chlorophyll-a measurements. It presents descriptions of these three measurands from a metrological standpoint, and discusses the approaches that could be taken to prepare uncertainty budgets for relevant sensors with some suitable examples and useful advice.

Deliverables D5.6 and D5.8 constitute the second versions of the JERICO Delayed-mode (DM) and Real-time (RT) data management handbooks, repectively. They describe the general JERICO data management structure and policy, and provide partners with practical advice and information on how to manage their DM and RT data within the framework of the project. The documents also contain references and links to the basic and most important online documents needed for implementing established procedures. The guidelines presented in the handbooks are those that have been followed by partners for handling their data during the JERICO Service Data Access period, which began in January 2013.

Lastly, deliverable D5.7, the "Second Data Management Report" gives a final overview of the actions and activities concerning data management and distribution that were carried out within the framework of WP5.

- · ***Deliverables***

Del. no.	*Deliverable name*	*WP n°*	*Date due proj.month*	*Actual/Forecast delivery date*	*Estimated indicative person-months *)*	*Used indicative person-months *)*	*Lead contractor*
D5.1	*DM data management handbook V1*	*5*	*M8*	***Submitted M13***	*6*	*3*	*Ifremer*
D5.2	*RT data management handbook V1*	*5*	*M8*	***Submitted M13***	*6*	*3*	*Ifremer*
D5.3	*First data management report*	*5*	*M24*	***Submitted M33***	*6*	*6*	*OGS*
D5.4	*Guidelines for uncertainty*	*5*	*M30*	***Submitted M38***	*6*	*0*	*OGS*
D5.5	*Report on uncertainty*	*5*	*M42*	***Submitted M47***	*6.1*	*0*	*OGS*
D5.6	*DM data management handbook V2*	*5*	*M48*	***Submitted M47***	*6*	*0*	*OGS*
D5.7	*Second data management report*	*5*	*M48*	***Submitted M48***	*10*	*0*	*OGS*
D 5.8	*RT data management handbook V2*	*5*	*M48*	***Submitted M47***	*6*	*0*	*OGS*

- · ***Milestones list***

Del. no.	*Milestones name*	*WP*	*Date due proj.month*	*Actual/Forecast delivery date*	*Lead contractor*
MS16	*First JERICO management Handbook*	*WP5*	*M8*	***Achieved M13***	*OGS*
MS17	*Launch of service access*	*WP5*	*M18*	***Achieved M21***	*OGS*
MS18	*Report on activities*	*WP5*	*M46*	***Achieved** M46*	*OGS*
MS19	*Final JERICO management Handbook*	*WP5*	*M48*	***Achieved** M48*	*OGS*

- ***2.5.2 Deviations from the project work programme, and corrective actions taken***

Deliverables have been slightly postponed but delivered in Month 47

2.6 WP6: OUTREACH

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2.6.1 Progress towards objectives – tasks worked on and achievements made

Task 6.1: Development of end-user products and services

SubTask 6.1.1: The development of end user products and services

The Jerico Community Hub was delivered ahead of schedule in M9, January 2012.
The Jerico Community Hub is hosted at www.jerico-fp7.eu. This has links to Trans National Access, the Forum for Coastal Technology, descriptions of the work packages, the Jerico OceanBoard, workshops and meeting documents. Since the website was launched in January 2012 it has had 19,000 visits from 157 countries. The countries with the most users of the Community Hub are Italy, UK, France, Spain, Greece and Malta.

SubTask 6.1.2: Development of the EMECO Datatool for Jerico

The Jerico Datatool was completed in M24.
The Jerico Datatool has been designed, developed, and implemented and is available as a link from the Jerico Community Hub; http://www.jerico-fp7.eu/datatool/. The user interface is targeted at public and educational sectors, and at scientific and policy users. The Datatool gives users access to integrated data products and datasets via a user interface. Data are being fed in directly from MyOcean. The Datatools were fully launched in March 2014 with the data that are available via Service Activity WP7 from 1st May 2014 and have already been visited.
A set of data computed with the data tools are presented in the deliverable D7.1

SubTask 6.1.3: Provision of data from Jerico observing systems onto public display monitors /information hubs including enhancement of NERC-NOCS FerryBox passenger display

The FerryBox JUD (Jerico User Display) document is available from a link on the front page of the Jerico Community Hub website: http://www.jerico-fp7.eu/live-ferrybox-data. The JUD has been tested by HCMR and SMHI.

SubTask 6.1.4: On going maintenance, support, hosting of JCH and Jerico Datatool

This SubTask continues for the life of the Jerico programme.

Task 6.2: The Jerico OceanBoard

Jerico OceanBoard

SubTask 6.2.1: Jerico OceanBoard PROF

SubTask 6.2.2: Jerico OceanBoard PUB

Final version of Jerico OceanBoard was completed in M30.

The OceanBoard has been developed and incorporated into the Jerico Community Hub. The OceanBoard is complete and is available at: http://www.jerico-fp7.eu/oceanboard. There are ongoing updates and new content is uploaded to OceanBoard PUB and PROF web pages as it is made available to the coordinators and editorial group (University of Malta). There are six regions for articles: general, Baltic Sea, Black Sea, Iberian area, Mediterranean and North Sea. The PUB articles are aimed at the a non-scientific audience including younger generation, policy makers and stakeholders. The PROF articles are aimed at academia, students and professionals. The OceanBoard is used for presenting Jerico results, deliverables, news articles and advertising events. At the time of writing there are 44 articles.

Task 6.3: The Jerico Summer School

Deltares (http://www.deltares.nl/en) organised a 2nd summer school after the successful 2013 one held in Malta. The date was 14-20 June 2014 (Saturday – Friday) and the location was around The Hague and Delft, in the Netherlands.

The topic of the summer school was "From data to decisions". It aimed to cover the entire marine and coastal information cycle from data gathering via data management, data dissemination, data analysis, data assimilation to data-based policy decisions for MSFD purposes. The overall programme was:

- Dissemination: EMODnet backbones: EurOBIS/ICES, EuroGOOS, MyOcean and SeaDataNet
- Data analysis: with DIVA (variational analysis) or DINEOF [by: University de Liege]
- Data assimilation: introduction with OpenDA [by: OpenDA, TU Delft, Deltares]
- Making information: MSFD, web processing, EMECO, analysis tools, communities [by: Cefas]
- Data management: interoperability standards (OGC, INSPIRE), versions [by: DataCite partner]
- There was a field visit and demonstration at the Dutch Sand Engine coastal observatory: HF Radar, Argus camera, jetski with sonar.

The target group was early career scientists plus scientifically-oriented early career marine spatial planners (MSP). Affordable lodging was provided in the beach resort near a coastal observatory and students were expected to arrange for their own funding for travel and lodging.

Updates to the programme were made available via a wiki including the official form for admission: http://publicwiki.deltares.nl/display/OET/JERICO. It contained a bullet list with the required supplementary documents; e.g. CV, letter of recommendation, covering letter.

16 applicants attend this 2nd summer school

Deliverables

Del. no.	Deliverable name	WP n°	Date due proj. month	Actual/ Forecast delivery date	Estimated indicative person months *)	Used indicative person months *)	Lead contractor
D6.1	Design and launch of JERICO OceanBoard v0	6	M6	Completed M9 Submitted M13	6.0	3	Cefas (& UoM)
D6.2	JERICO Community Hub	6	M12	Reported M12 Submitted M13	5.0	0.5	Cefas
D6.3	Summer school 1	6	M15	Completed M27 Submitted M28	3.02	0.3	UoM
D6.4	Development and implementation of suite of web-based tools	6	M24	Completed M24 Submitted M25	8.0	0.0	Cefas
D6.5	Summer school 2	6	M27	Submitted M41	4.0	0.07	DELTARES
D6.6	Final version of JERICO OceanBoard	6	M30	Completed M30 Submitted M32	14.08		Cefas (UoM)

- ***Milestones list***

Del. no.	Milestones name	WP	Date due proj.month	Actual/Forecast delivery date	Lead contractor
MS20	Summer School 1	6	M16	Achieved M28	Cefas
MS21	Summer School 2	6	M28	Achieved M40	Cefas

- ***2.6.2 Deviations from the project work programme, and corrective actions taken***

Task 6.3 Summer schools. These were postponed by one calendar year for each school. The new date for Course 1 was 8–13th July 2013 and for Course 2 was 14–20th June 2014. This was a change agreed at the outset of the Jerico programme (1st steering committee decision) as more time was needed for the various partner organisations to prepare their data and to design the summer schools. Furthermore, the order of the summer schools has been changed. The 1st summer school was held at UoM and the second was hosted by Deltares (as explained above).

• 2.7 WP 7 – SERVICE AND DATA ACCESS

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• *2.7.1 Progress towards objectives – tasks worked on and achievements made*

This workpackage embodies the ultimate goal of the coastal observatories, ie the provision of useful data

Taking into account what has been recommended within WP5 –Data Management coordination- remember R, Nair (OGS) 's presentation, the objective was to make the Jerico data flowing through the 2 main marine data circulation structures maintained at european level:
- MyOcean and in the very near future Copernicus TAC-In situ (Near real time dedicated to operational oceanography needs
- SeadataNet delayed mode data structure based on the NODC –National Ocean Data Centres- network

Practically speaking the data are first integrated in MyOcean then they are transmitted to SeaDataNet which acts as a portal for EMODNET

1) MOLIT & Mesurho buoys	
2) RECOPESCA (158 vessels)	
3) Alg@line	
	3 Ferrys :
	- Finnmaid (call sign = OJMI) : data reaching the Coriolis/MyOcean data flow.
	- Silja Serenade (call sign = OJCS) and Kristina Brahe (call sign = OIEC) :
	No data. Contact taken. Data will flow through NIVA
4) CRS - Coastal Research Station	

	1 coastal station and 1 mooring
	- Contact taken - Data integration process started
5) NorFerry - Norwegian Ferrybox network	
	3 Ferrys :
	- Norbjorn (call sign = LAKM4)
	- Trollfjord (call sign = LLVT)
	- Bergensfjord (call sign = OUZI2)
6) NorFerry – ColorFantasy	Color Fantasy (call sign = LMSD)
7) IMR - Coast observatories	
8) OGS-NACObs - FVG-MMS	
	Data will be available may 2013
	Development for data integration is started
9) OGS-NACObs – MAMBO	
	Contact taken
	Data will be available mid-april 2013
10) CNR – NAMS	
	Contact taken
	Data flow to Coriolis/MyOcean. Development for data integration started in December 2012 with the collaboration of the Mediterranean in-situ TAC (HCMR) and provision of archived data. Near real time data are provided in a dailly basis since July 2013. Archived data were provided starting from January 2013.
11) CNR – FOS	
	Contact taken
	Data flow to Coriolis/MyOcean. Development for data integration started in December 2013 with the collaboration of the Mediterranean in situ TAC (HCMR). Data from January 2014 have been provided on a monthly basis.
12) POSEIDON Buoy Network	
	8 stations

13) POSEIDON Buoy Network	
	3 stations
	1 Ferry : Olympic Champion (call sign = SYWD)
14) POL – COBS	
	No answer to a mail sent by coordinator
15) COSYNA	
	3 Ferrys :
	- Hafnia Seaways (call sign = 2AMH9) : No data
	- FunnyGirl (call sign DFPZ) : Data reaching Coriolis/MyOcean Database
	- LysBris (call sign = LJLN3) : Data reaching Coriolis/MyOcean Database
	- Wadden Sea Piles : Data integration process started
16) SMHI – MOS	
17) SMHI – Laesoe	
18) SmartBay Galway	
19)Puertos del Estado Deep Water Network	

The following table gives more information about the data available in the Coriolis database with for each platform :

- The platform_code
- the date of the first measure since the beginning of 2013
- the numbers of locations since the beginning of 2013

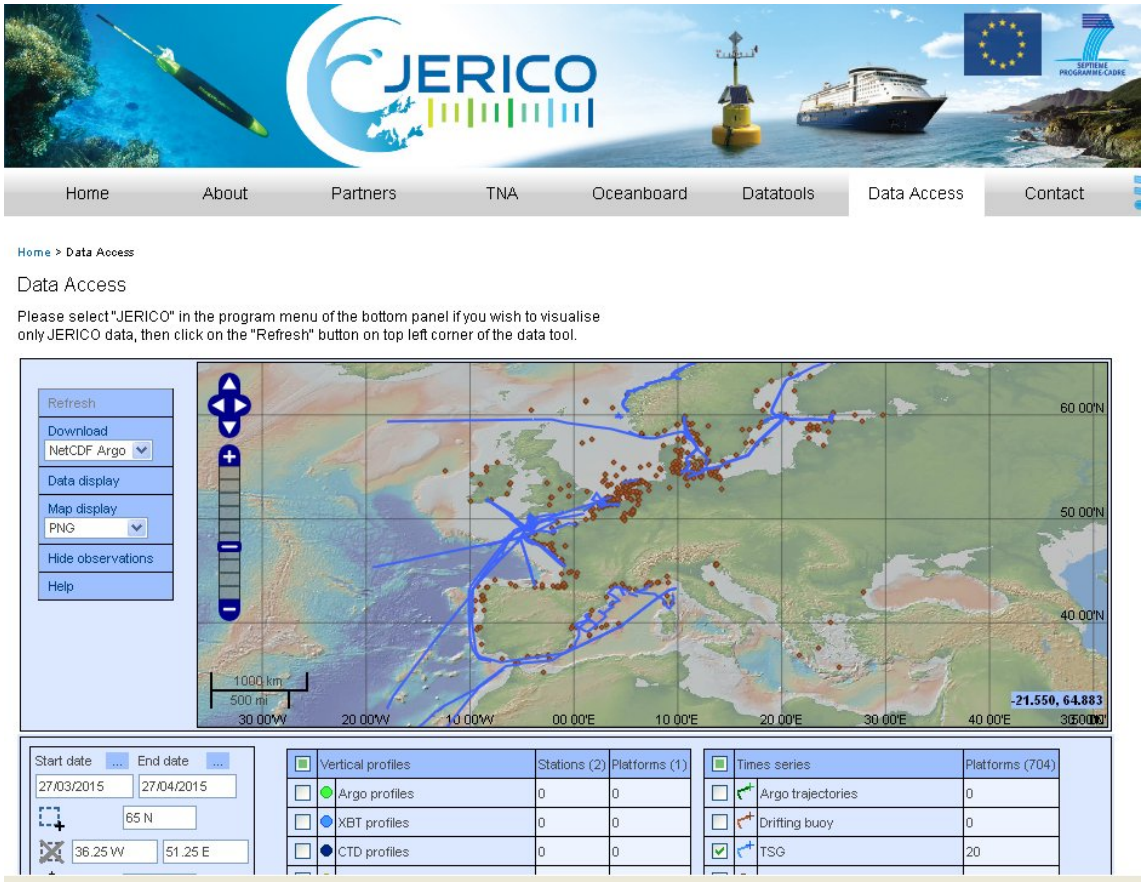
	Platform	Platform_ code	First measure in 2013	Nb of locations
1) MOLIT & Mesurho Buoys	MOLIT	62021	11/02/2013	2439
	Mesurho	61284	01/01/2013	34488
2) RECOPESCA	38 platforms send data since the 1st of January 2013			
	For the total of 38 platforms :		01/01/2013	92500

3) Alg@line	Finnmaid	OJMI	01/01/2013	161885
5) NorFerry - Norwegian Ferrybox network	Norbjorn	LAKM4	No data in 2013	
	Trollfjord	LLVT	01/01/2013	56419
	Bergensfjord	OUZI2	No data in 2013	
6) NorFerry - ColorFantasy	Color Fantasy	LMSD	02/01/2013	48430
12) POSEIDON Buoy Network	Avgo	IF000229	No data in 2013	
	Athos	6101003		
	Lesvos	6101004		
	Mykonos	6101005		
	Kalamata	6101002		
	Skyros	6101000		
	Zakynthos	6101009		
	Pylos	68422	12/04/2013	88
13) POSEIDON Buoy Network	E1M3A	61277	No data in 2013	
	Saronikos	6101001		
	Santorini	6101006		
15) COSYNA	Hafnia Seaways	2AMH9	No data in 2013	
	FunnyGirl	DFPZ	21/02/2013	11/09/1910
	LysBris	LJLN3	01/01/2013	19/01/2462
17) SMHI - Laesoe	Laesoe	IF000204	No data in 2013	
18) SmartBay Galway	Castletownbere TG	EXMY0619	01/01/2013	10062

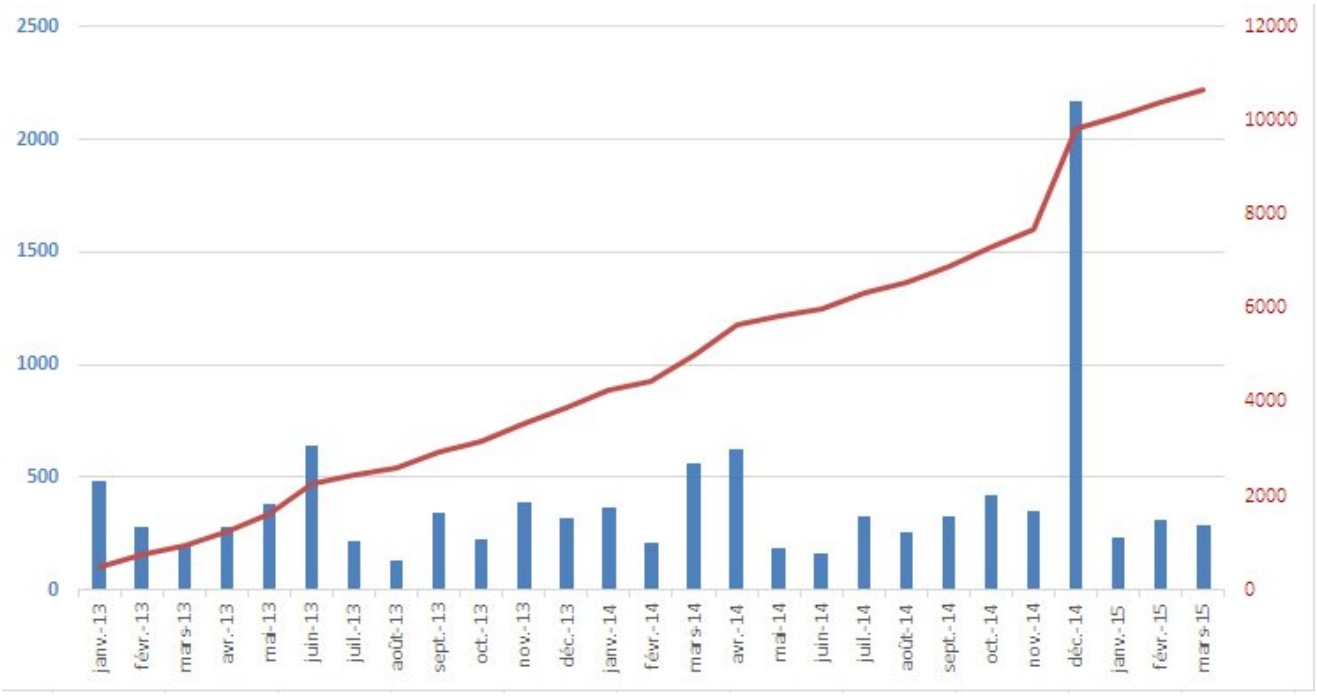
	Wesford TG	EXMY0685	01/01/2013	26409
	Sligo TG	EXMY0675	01/01/2013	25420
	Malin Head TG	EXMY0662	27/03/2013	5786
	Killybegs TG	EXMY0658	01/01/2013	25300
	Galway Port TG	EXMY0639	01/01/2013	25420
	Inishmore TG	EXMY0041	No data in 2013	
	Aranmore TG	EXMY0613	01/01/2013	25329
	Ballycotton TG	EXMY0614	01/01/2013	25300
	Howth TG	EXMY0647	01/01/2013	25294
	Dublin Port TG	EXMY0629	01/01/2013	31370
	Dundalk TG	EXMY0630	01/01/2013	14373
	Ballyglass TG	EXMY0692	01/01/2013	17475
	M6 Buoy	62095	01/01/2013	1311
	M5 Buoy	62094	01/01/2013	2681
	M4 Buoy	62093	01/01/2013	835
	M3 Buoy	62092	01/01/2013	1072
	M2 Buoy	62091	02/01/2013	2657
	M1 Buoy	62090	No data in 2013	
19) Puertos del Estado Deep Water Network	Bilbao	62024	01/01/2013	883
	Cabo de Penas	62025	01/01/2013	883
	Estaca de Bares	62082	No data in 2013	
	Villano-Sisargas	62083	01/01/2013	532

Silleiro	62084	01/01/2013	839
Cadiz	62085	01/01/2013	880
Gran Canaria	13130	01/01/2013	870
Tenerife	13131	10/01/2013	688
Cabo de Gata	61198	01/01/2013	883
Cabo de Palos	61417	01/01/2013	884
Valencia	61281	01/01/2013	886
Tarragona	61280	01/01/2013	886
Cabo Begur	61196	01/01/2013	884
Dragonera	61430	01/01/2013	884
Mahon	61197	01/01/2013	884
		Last update :	23/04/2013

How to access the data



Number of downloading of MyOcean data (global data)



- ***2.7.2 Deviations from the project work programme, and corrective actions taken***

All the foreseen data have not yet been integrated in the Seadatanet database. A dedicated portal has been designed to access to the jerico data.

• 2.8 WP 8 – TRANSNATIONAL ACCESS TO COASTAL OBSERVATORIES

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+Name of task team responsible persons:
Work package leader name: Stefania Sparnocchia

Task title	Responsible persons	Institution
Implementation of Trans National Access to Coastal Observatories	Stefania Sparnocchia	CNR

Partners involved in the activity:

Infrastructure/Installation proposed for TNA	Responsible person	Institution	1st Call	2nd Call	3rd Call
CRS Lubiatowo/CRS	Rafal Ostrowski	IBW PAN	X	X	
Norferry/Color Fantasy	Kai Sørensen	NIVA	X	X	X
OGS NACObs/OGS CTO	Rajesh Nair	OGS	X	X	
CNR MPL/ACQUA ALTA	Mauro Bastianini	CNR	X	X	X
CNR MPL/MPLS	Mireno Borghini, Katrin Schroeder	CNR	X	X	
CNR MPL/MPLC	Mireno Borghini, Katrin Schroeder	CNR	X		X
CNR MPL/MPL Genoa	Pierluigi Traverso	CNR	X		X
CNR MPL/MPL CAL 6	Stefano Cozzi	CNR	X	X	
CNR MPL/MPL CAL 7	Mario Sprovieri	CNR	X	X	
POSEIDON/POSEIDON BUOYS (1& 2)	Leonidas Perivoliotis	HCMR	X		
POSEIDON/POSEIDON CAL	George Petihakis	HCMR	X		
COBS/MARS	David White	NERC	X	X	X
COSYNA/COSYNA_1 (FB)	Wilhelm Petersen	HZG	X	X	X
COSYNA/COSYNA_2 (PILE)	Goetz Floeser	HZG	X	X	X
COSYNA/COSYNA_3 (GLIDER)	Lucas Merckelbach	HZG	X	X	X
CSIC-Glider/ CSIC-Glider	Simón Ruiz	CSIC	X	X	X
National Glider Facility/ CETSM	Pierre Testor	CNRS	X		X

2.8.1 Progress towards objectives – tasks worked on and achievements made

During its lifetime JERICO offered Transnational Access to a number of unique European Coastal Observatories and Calibration Facilities for international research and technology development.
Access to selected JERICO infrastructures was provided following three open Calls for Transnational Access provision. The 3rd Call was extraordinary (it wasn't planned in th Annex 1 - Description of Work).
Selection of user projects was made by a Selection Panel formed by independent experts. The schedule of the Calls, the procedures adopted for selection of user projects and their implementation are described in D1.10 (Second report of access activities). A summary of access provided by facility operators involved in the activities is reported in D8.1 (Trans National Access provision).

Description of the publicity concerning the new opportunities for access

A dedicated Web page was developed on the JERICO website (www.jerico-fp7.eu/tna), where the relevant information was published, including detailed description of the facilities open to TNA (www.jerico-fp7.eu/tna/accessible-facilities), eligibility and access modality (www.jerico-fp7.eu/tna/access-rules), schedule of the calls and procedure of selection, including the composition of the Selection Panel (www.jerico-fp7.eu/tna/calls-and-selection). The text of the Calls had a special section, containing also a downloadable version of the application form and guidelines for application (http://www.jerico-fp7.eu/tna/calls-and-selection/first-call, http://www.jerico-fp7.eu/tna/calls-and-selection/second-call, http://www.jerico-fp7.eu/tna/calls-and-selection/third-call).
Within the consortium, the TNA calls have been promoted, as well as on the JERICO newsletters published in May and in September 2013. Furthermore, the opportunities for access open to research teams throughout Europe were publicised in the institutional webpages of partners (CEFAS, CNR DTA and ISMAR, IBW PAN, IFREMER, IMR, MI, Puertos del Estado), in the webpages of other projects and organizations (Euroris-net, Euroceans, University of Gothenborg, NKE) and diffuse through mailing lists of other projects and organizations (EUROFLEETS, PERSEUS, Marine Ripple Effect, MONGOOS, NOOS, NEXOS MedCLIVAR).

Description of the selection procedure

Submitted proposals were collected by the JERICO TNA Office (jerico.tna@ismar.cnr.it), composed by Stefania Sparnocchia and Sara Ferluga at CNR-ISMAR in Trieste (Italy). After reception, the office registered each proposal and sent acknowledge of receipt to the Proponent communicating also the assigned Reference Number. The codes used were CALL_1_N, CALL_2_N and CALL_3_N for the first, second and third call, respectively.
Submitted projects were subjected to a three-step selection process involving:

i. validation of the proposals by the managers of the targeted facilities;
ii. evaluations of all the submitted proposals by the Selection Panel (SP), particularly with regard to scientific excellence, innovation and impacts on the state- of-the-art;
iii. final assessments by the SP.

(This procedure was changed by the Selection Panel after the First Call, for which step (i) followed step (ii), to avoid technically non-feasible proposals).

The composition of the SP was the same communicated in deliverable D1.2 – Second Call for TNA Proposals V2, published on the JERICO web site http://www.jerico-fp7.eu/tna/calls-and-selection and also listed in **Annex 1** ***("List_of_Panel_members")***.

Trans-national Access activity

All the user-projects approved under the three Calls have been concluded and reported their preliminary results submitting a project report (published in the JERICO website at http://www.jerico-fp7.eu/tna/tna-outcomes). One project was unsuccessful because of failure of the user equipment, found at recovery at the end of the access period (project acronym MOSC, CALL_2_5).
Detailed information regarding user-projects and users supported in the reporting period is contained in **Annex 2** ***("List of User-Projects")*** and **Annex 3** ***("List of Users")***. Scientific outcomes of user-projects are in **Annex 4** ("***List_of_Users_Publications***").

- ***Deliverables***

Del. no.	Deliverable name	WP n°	Date due proj.month	Actual/Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D8.1	Trans National Access Provision	WP8	M48	Delivered M48	2.50	2.50	CNR

- ***Milestones list: no milestones for this WP***

2.8.2 Deviations from the project work programme, and corrective actions taken

NERC didn't provide all the facilities originally proposed for TNA, in particular the facilities COBS 1 POL BUOY and COBS 3 FERRYBOX were no longer accessible, and COBS 4 POL GLIDER was replaced by the NOC Marine Autonomous and Robotic Systems (MARS) based in Southampton. As corrective action a revision of the costs was asked and negotiated between the beneficiary and the project coordinator.

INSU/CNRS referred to a wrong unit cost calculation for its glider infrastructure. Recalculation was asked for successive amendment to the Contract to account for expected changes in costs and this was negotiated between the beneficiary and the project coordinator.

Since Color Fantasy ferry hosts the most advanced and accessible Ferrybox in Europe, NIVA decided to reoffer this facility instead of the one installed on Norbjørn.

CNR withdrew the calibration facilities identified with MPL CAL 6 and MPL CAL 7 asking for a redistribution of the allocated budget on other facilities.

IBW PAN withdrew the facility identified CRS since it was destroyed by an heavy storm and renounced to the allocated budget.

These changes were negotiated between involved beneficiary and the project coordinator and included in the amendment of the DoW proposed after the mid-term review. Funds not used by beneficiaries as assigned in the DoW have been partially added to the TNA budget for travel grants of users and Selection Panel members and redistributed among TNA beneficiaries whose facilities delivered more access than originally planned.

• 2.9 WP 9 – NEW METHODS TO ASSESS THE IMPACT OF COASTAL OBSERVING SYSTEMS

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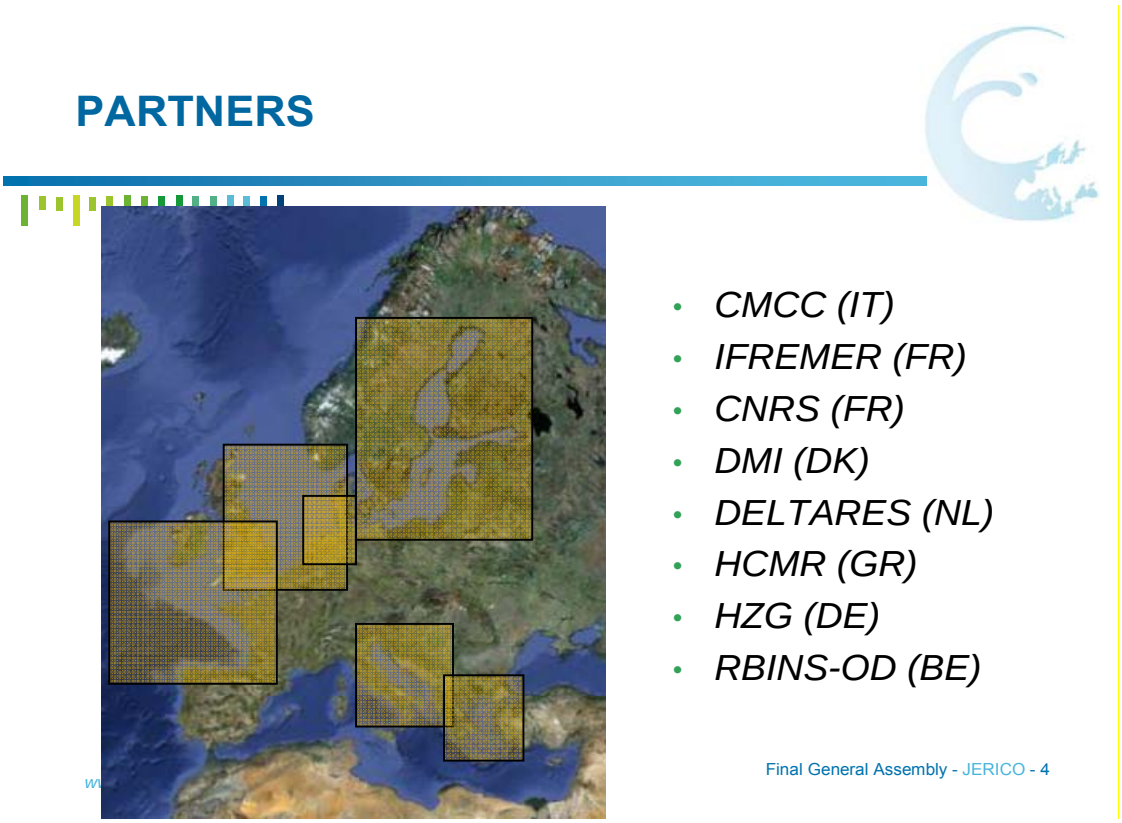
• *2.9.1 Progress towards objectives – tasks worked on and achievements made*

Task 9.1: The workpackage has been coordinated by CMCC and several technical meetings were held to organize the Tasks work. All deliverables have been completed and there are no deviations from the planned activities in Annex 1.
The partners to this workpackage are:

Type of experiment	Adriatic Sea	Aegean Sea	Bay of Biscay	North Sea	Baltic Sea
OSE	CMCC	HCMR		DELTARES HZG RBINS-OD	DMI
OSSE	CMCC		CNRS-IFREMER	HZG RBINS-OD	DMI

Two Technical meetings were held, one at month 06 in Bologna, October 2011, and the second in Lisbon, October 30-31, 2014 where conclusions were given for the final report.



A technical meeting of WP9 together with WP-2-3-4 has been done in October 30, 2014, about six month later than previously scheduled with the main objectives as follow:

1. present results of Observing System Experiments (OSE/OSSE) in JERICO to the larger audience of JERICO and EuroGOOS;
2. Discuss the OSE/OSSE results implications for the future European Ocean Observing System (EOOS)

The agenda of the meeting was the following:
October 30, 2014
14:00-14:30 Observing System Simulation Experiments and overall WP9 results (Pinardi, CMCC)
14:45-15:15 Observing System Experiments for Ferry Box and HF radar in the Aegean Sea (Korres et al., HCMR)
15:30-16:00 Optimizing observation networks using gliders, moored buoys and Ferry Box in the Bay of Biscay and English Channel (Charria and De Mey, IFREMER and CNRS)

16:30-17:00 Adriatic Sea OSE/OSSE for the Fishery Observing System (Aydogdu et al, CMCC)
17:15-17:30 Invited Talk: OSE/OSSE practice in atmospheric research and operations (T.Vukicevic (CMCC)

October 31, 2014
9:00-9:30 OSE for the North Sea moored buoys (S.Ponsar, RBINS-DO)
9:30-9:45 Discussion
9:45-10:15 Coastal tide gauge OSE for sea level forecasting along the Dutch coasts (M.Verlaan, DELTARES)
10:15-10:30 Discussion
10:30-11:00 HF radar data assimilation in the German Bight(J. Schulz-Stellenfleth, HZG)
11:15-11:30 Discussion
11:30-12:00 OSE and OSSE experiments for XBT and moored arrays in the Baltic Sea (Vlaan, DMI)
12:00-13:00 Discussion on contribution to EOOS and plans for future work

Task 9.2: Impact of existing observational platforms on estimates of coastal processes

This Task is concerned with the OSE studies. Partners involved are listed in Table 1 above. For OSE, the studied observing system components in the different seas are:

	Adriatic Sea	Aegean Sea	North Sea	Baltic Sea
Observing system analyzed	Temperature from Fishery Observing system	HF radar and Ferry Box SST	Tide Gauges, HF radar and buoy stations	Satellite SST

In the Adriatic Sea, the Fishery Observing System (FOS) data have been made available from WP4 (CNR): 7 fishing vessels data for 2007 have been used to study the impact of these kind of data on the quality of the analyses. Results show a relatively high impact of these measurements on the quality of basin average temperature reconstruction.
In the Aegean Sea, the HF radar data in front of the Dardanelles Strait have been assimilated and results indicate that different errors in the two vector components should be considered in order to get a positive impact from these data on the analyses. This result is in agreement with the same analysis done in the North Sea. Impact of FerryBox SST on the analysis is also found to be very relevant.
In the North Sea-German Bight area, the HF radar data assimilation shows a positive impact in a large area, extending as far as the central-southern North Sea but only for the zonal velocity component which is measured accurately. The impact of profiling buoy stations in the offshore areas of the North Sea is shown to be limited to the area around the buoy but optimal design of the array could bring benefits, reducing the cost of the observing system.
A study case of impacts of tide gauges on 6 and 12 hours forecasts has been carried out in the North Sea. It shows that upstream tide gauges, located on the eastern english coasts, will beneficially impact sea level forecast along the Dutch coasts up to 12 hours while closer tide gauges will have maximum impact in the 3-6 hours forecasts.
In the Baltic, SST assimilation shows a positive error reduction in the analysis.

All the foreseen OSE experiments in this Task have been carried out and results have been reported accordingly in the deliverables
D9.2 First report on OSE experiments (M21)
D9.5 Final report on OSE experiments (M47)

Task 9.3 Impact of future coastal observing observing platforms on the estimates of coastal processes

This Task is concerned with OSSE experiments that are carried out only in four of the five European Sea areas, as outlined in Table 1. For OSSE, the studied observing system components in the different seas are:

	Adriatic Sea	Bay of Biscay	North Sea	Baltic Sea
Observing system analyzed	Temperature from Fishery Observing system	Fixed stations, gliders and Ferry Box SST	HF radar and buoy stations	XBT profiles and moored stations

In the Adriatic Sea, the work was up to now concentrated on the definition of the correct perturbation method to be used in order to produce a different-from-truth simulation to be used to insert synthetic data. The addition of salinity measurements in FOS will be tested in the next months.
The Bay of Biscay OSSE has been completed and publications are being pursued. Results concern the impacts of buoy and glider synthetic sections in the offshore area of the Loire river: it is found that, due to river plume dynamics, the northern glider sections have the potential highest impact on the quality of the temperature and salinity reconstructions. Impact of Ferry box SST data in the English Channel is compared to glider sections and it is found that, due to the homogenization of temperature and salinity in these waters, surface high frequency SST FerryBox data have maximum impact if compared with glider temperature profile assimilation.
For the North Sea, impact of synthetic vertical profiles with an optimized buoy network sampling scheme has been carried out and work is done to consolidate the results.
For the Baltic Sea, the network of buoy stations and XBT SOOP lines have been planned and experiments will be carried out in the next months.

All the foreseen OSSE experiments in this Task have been carried out and results have been reported accordingly in the deliverables
D9.3 First report on OSSE experiments (M21)
D9.6 Final report on OSSE experiments (M47)

WP9 ASSIMILATIVE TOOLS AND DYNAMICAL MODELS

ADRIATIC	AEGEAN	BAY OF BISCAY	NORTH SEA	BALTIC
1/48 deg model & 3DVAR	1/48 deg model & SEEK Filter	1/50 deg model & Matrix representer	1 to 5 km models & Kalman filter, Observational sensitivity analysis	2 km model & 3DVAR

- · ***Deliverables***

Del. no.	Deliverable name	WP n°	Date due proj.month	Actual/Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D9.1	First scientific report	9	M12	Delivered M12	10	10	CMCC
D9.2	First report on OSE	9	M18	Delivered M21	10	10	HCMR
D9.3	First report on OSSE	9	M18	Delivered M21	10	10	DMI
D9.4	Second scientific report	9	M24	Delivered M25	7.5	7.5	CMCC
D9.5	Second report on OSE	9	M36	Delivered M47	10	10	HCMR
D9.6	Second report on OSSE	9	M36	Delivered M47	10	10	DMI

- · ***Milestones list***

Del. no.	Milestones name	WP	Date due proj.month	Actual/Forecast delivery date	Lead contractor
MS29	Final Report OSE as input to WP1	WP9	M42	Achieved M47	HCMR
MS30	Final Report OSSE as input to WP1	WP9	M42	Achieved M47	DMI

- ***2.9.2 Deviations from the project work programme, and corrective actions taken***

A technical meeting of WP9 together with WP-2-3-4 has been done in October 30, 2014, about six month later than previously scheduled, in order to finalise the 2 last deliverables, delivered in time (M47). All results, deliverables and milestones have been achieved.
Several changes have occurred in the partner human resources which have been absorbed along the past 18 months. CMCC has changed the responsible from Dr. S.Dobricic to Dr. S.Masina and Prof Nadia Pinardi, DMI changed from Dr. Weiwei Fu to Dr. Zhenwen Wan.

• 2.10 WP 10 – IMPROVED EXISTING AND EMERGING TECHNOLOGIES

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• *2.10.1 Progress towards objectives – tasks worked on and achievements made*

Task 10.1 1 Development of new tools and strategies for the monitoring of key biological compartments and processes

Work on optimising the software for semi-automatic recognition of plankton groups is currently underway. One of the key issues with the new SPI software is to broaden out the number of images that the system is analysing to include sediment profile images of other regions in the European shelf seas. Researchers from outside the JERICO community were invited to a dedicated demonstration and workshop in Villefranche, October 2013.

The work, led by LOV (Stemmann, Picheral, Romagnan), on software development to analyse plankton images from lab instruments such as Zooscan and Flowcam is achieved and version zooprocess 7.12 can be downloaded from http://www.obs-vlfr.fr/LOV/ZooPart/ZooScan/. Note that the software includes flowcam and Zooscan, but also UVP and microscopy. It has been tested on a weekly time series (1 year) analysis that demonstrated that monitoring plankton biodiversity is possible and meaningful.

The results have been published:

•Pieter Vandromme, **Lars Stemmann**, Carmen Garcia-Comas, Léo Berline, Xiaoxia Sun, Gaby Gorsky (**2012**) Assessing biases in computing size spectra of automatically classified zooplankton from imaging systems: A case study with the ZooScan integrated system. Methods in Oceanography, doi:10.1016/j.mio.2012.06.001

•**Lars Stemmann**, Marc Picheral, Lionel Guidi, Fabien Lombard, Franck Prejger, Hervé Claustre, Gabriel Gorsky (**2012**) Assessing the spatial and temporal distributions of zooplankton and marine particles using the Underwater Vision Profiler. CNRS Edition, ed. Françoise Gaill, Yvan Lagadeuc et Jean-François Le Galliard

•**Lars Stemmann** & Hervé Claustre & Fabrizio D'Ortenzio (**2012**) Integrated observation system for pelagic ecosystems and biogeochemical cycles in the oceans CNRS Edition, ed. Françoise Gaill, Yvan Lagadeuc et Jean-François Le Galliard

Two deliverables are submitted :

WP 10.1 Report on Trials and Deployments Summary

- **Software Testing and deployment for Monitoring of key biological compartments 10.1** This trial was carried out by EPOC CNRS.
- **Phycoerythrin fluorometry in autonomous monitoring systems - WP10 Task 10.2 Development of new physico-chemical sensors**
- **Fast-repetition rate fluorometry in autonomous monitoring systems - WP10 Task 10.2 Development of new physico-chemical sensors**
- This trial was carried out by the Finnish Environment Institute SYKE, Marine Research Centre
- **WP10 Task 10.2.3 Carbon Development of new physico-chemical sensors**
  This trial was carried out by NERC.
- **Emerging technology: profiling technology, inter-comparison with mature technology WP10 Task 10.3 Use of emerging Profiling technologies in coastal seas.** This trial was carried out by OGS
- **Ships of opportunity/Next Generation fishing vessel probes - WP10 Task 10.4**
  This Trial was carried out by IFREMER
- **Ferrybox QA algorithim 10.5** - work carried out by HZG
- **Remote sensing of suspended particulate matter concentration, inter-comparison with smart buoy and benthic lander 10.6**
- Trial carried out by RBINS

WP 10.2 Development of set of software for image analysis

The 10.2 'Set of Software' deliverable is primarily linked to Task 10.1 from the Jerico Description of Work - **Development of new tools and strategies for the monitoring of key biological compartments and processes.**The idea behind this deliverable is to harness existing imaging and biology expertise within different fields to develop and test new software designed to process the following data:

•Sediment Profile Images.
•SpiArcBase provides an excellent tool for the analysis of Sediment Profile Images (SPI).

•Mobile platform recorded video.
•AviExplore allows the treatment of video imaging of the water sediment interface acquired using a ROV (or other mobile carriers) in order to infer the abundance of epibenthos (suprabenthos).

•Fixed platform recorded video.
•AviExplore is also used to analyse video imaging by fixed cameras. The main purpose is to allow the survey of recruitment on substrates, as well as the growth characteristics of fouling organisms. Image analysis is used to track the animals settling on the substrate, measure their interactions and growth rates.
•It is to be noted that for the convenience of final users, **a single software (AviExplore) is proposed for video data originating from fixed and mobile platforms** giving access to the different modules depending on the desired analysis.

•Phytoplankton and Zooplankton images. Zooprocess - an integrated analysis system for acquisition and classification of digital zooplankton images from preserved zooplankton and phytoplankton samples

Task 10.2 Development of physico-chemical sensors and implementation on new platforms (finishing the activities of previous period)

Sub-task 10.2.1: Contaminants Kai Sorensen

Evaluation of the Chem-mariner system continued in this reporting period of JERICO. A full test of functionality was conducted where the system was successfully operated in autonomous mode during two entire cruise legs. Sampling programme was predefined based on a set of geographic coordinates. Passive samplers were deployed inside the chamber and were exposed for preliminary testing purposes for a period of about 8 hours each in their respective locations. All system components worked efficiently. Results of chemical analysis of this preliminary test suggested longer exposure times are required to achieve detection of targeted contaminants (in this case PAHs). Some improvements and adjustments of the system will be performed and implemented for a last test.

Sub-task 10.2.2: Algal pigments Jukka Seppala, Willi Peterson

A flow-through PSICAM prototype for chlorophyll and TSM measurements has successfully been tested and shows promising results concerning more reliable chlorophyll-a data compared to fluorescence measurements due to less influence of light conditions. The optimization and especially automated cleaning procedures are under development.

Commercially available single-wavelength fluorometers for the unattended detection of accessory pigments have been rigorously tested in spring 2013. Altogether 8 fluorometer models for phycobilin detection, from 4 manufacturers, were tested using 7 algal cultures, including various cyanobacteria, diatom, green algae and cryptophyte species. It was observed that the optical setup varies largely between instruments designated for the detection of phycocyanin, while instruments designated for phycoerythrin detection were quite similar. The main problem for some phycocyanin fluorometers with non-optimal optical setup is that other pigments present (chlorophyll, phycoerythrin) will increase the background signal and thus affect the reliability of the results. As a conclusion, care must be taken when selecting instruments for phycocyanin detection to avoid instruments giving biased results.

Phycoerythrin (PE) fluorometers have been tested both in the field and laboratory using alga1 cultures. The measured PE fluorescence intensity has been compared with phytoplankton counts of PE containing cells (epifluorescence microscopy and flowCAM analysis) and with size-fractionated fluorescence measurements. Initial results indicate that major part of the PE signal in the Baltic Sea originates from picocyanobacteria, though larger PE containing organisms may occasionally contribute to the signal as well.

Spectral fluorometer (Multiexciter, Advantech, Japan) has been tested with algae cultures and in the field. The initial analysis of the results show that the technique reliably tracks the abundance of cyanobacteria. The full statistical analysis of results is still pending.

Two novel Fast Repetetion rate fluorometer instruments (FRRf) for measuring variable chlorophyll a fluorescence (Chelsea Instruments, Uk; PSI, Czech Republic) have been tested in the laboratory during spring 2013. Initial tests have been performed with alga1 cultures, to determine optimal setup for measuring Rapid Light Curves (RLC, response of fluorescence parameters to changes in light levels). The RLC technique together with light and absorption measurements may be used in estimating primary productivity of phytoplankton. Both

systems tested may be operated unattended in Ferrybox systems. During the field trials in 2013-14, in a ferrybox between Helsinki and Travemünde, we have focused on Integration of the FRRf with existing systems, establishing measurement protocols, developing software for instrument control, synchronization, and data handling and testing the sensitivity of the FRRf in natural waters.

Sub-task 10.2.3: Carbon and pH Kai Sorenson, Willi Peterson

NIVA have conducted several tests and updates of the Franatech pCO2 system in a Ferrybox application during this period. This membrane based solid state detector system can be calibrated by the user which makes it more flexible. Some correction on humidity must be performed by theoretical consideration since this is not measured directly. The long term test has been done on MS Trollfjord along the Norwegian coast.
NIVA have also developed a miniaturized *in situ* detection system for pH. This is in operation along with the pCO2 system on the MS Trollfjord. One more system is undergoing safety checks in order to be hosted by the ferrybox system running onboard the Color Fantasy cruise line, for continuous monitoring of Skagerrak and Kattegat from Oslo to Kiel. The pCO2 system has been installed there.
A combined high precision pH and alkalinity measuring system based on sequential injection analysis (SIA) has been successfully tested in combination with FerryBox systems aboard research vessels.

Task 10.3 Emerging technology, profiling technology, intercomparison with mature technologies Rajesh Nair/Laurent Coppola

The profiling float system, designed and constructed ad hoc by OGS for the proposed inter-comparison experiment in the northern Adriatic Sea, was deployed in November, 2013 incorporating a NKE Instrumentation Arvor-C float supplied by Ifremer for the purpose. The system functioned for about a week when the tether broke following a bout of extreme weather, freeing the float. The Arvor-C was recovered, and the possible causes of the incident were evaluated. Some small modifications to the system were made based on the results of this evaluation, and the system was deployed again on 10 January, 2014. It worked until 17 January, when the float broke free once more, and had to be recovered as before. The Arvor-C unit was continuously monitored during both the trials by the Ifremer Centre in Brest which aided enormously in its recovery after the breakaways. The whole system is being redesigned at the present time and the test has been planned during the last year, with an in-house Arvor-C unit provided by Ifremer. The results of the trials conducted are reported in deliverable 10.3.

The CTD sensors on the EOL buoy are working in mooring mode since April 2014 due to recent damage to the winch. A new winch is under construction and was implemented in Autumn 2014. More recently an oxygen sensor (optode 4330) has been mounted on the CTD sensor for long-term measurements as well as a pH sensor at the surface (2m depth).

WP 10.3 Report on Data Analysis (Moored Profile comparisons, 3D T/S structure)

This report focuses on Data analysis and processing techniques undertaken by JERICO partners, it also includes details on the data analysis of a number of inter-comparisons between various sensing technologies including:

•Data analysis Report on Dissolved Oxygen sensors inter-comparison exercises - Ifremer

•A Data analysis and evaluation on Star-Oddi and NKE probes in order to assess their capability to be used for physical oceanography purposes.-CNR-ISMAR

•Data analysis, methodological development and 3D T/S (Temperature/Salinity) structure along FerryBox lines carried out under the JERICO project. - NOC

•A report on a moored profile analysis trial to assess the data availability using different methods in varying weather and operating conditions and to compare profile measurements from a moored buoy with similar profiles from profiling floats, standard ship based CTD measurements and surface data from FerryBox systems.

TITLE - JERICO - 17

Task 10.4 Ships of opportunity, Next generation fishing vessels probes
Laurent Delaunay/ Michela Martinelli

Recopesca probes were delivered by Ifremer to the Marine Institute to have a qualitative testing in Celtic sea. Unfortunately, the experiment has not been completed and we have nor results for the moment.

CNR spent a considerable effort in testing various commercial probes (Star Oddi, NKE, SeaBird) in order to evaluate typology, precision, accuracy, size, suitability for the use on fishing gears.
CNR upgraded the FOS (Fishery Observing System) already in place in the Adriatic Sea (7 boats) in order to obtain more parameters and near real time data transmission.

Various testing and demonstration surveys with simultaneous use of CTD and probes, and trials on the sensors mounted on fishing gears have been performed on board of R/V Dallaporta (Cruise “Bianchetto” 27 February – 8 March 2012, Cruise “I-UWTV Survey 2012 - JERICO trials” 28 April – 14 May 2012, Cruise “I-UWTV Survey 2013” 6-22 April 2013, Cruise “I-UWTV Survey 2014” 22 April 2014 – 14 May 2014).

The first test installations of the upgraded system (for the moment named “Fishery and Oceanography observing system – FOOS”) took place in June 2012. The goal was to convert and expand the whole system in place in order to be ready for WP7 request of data (SERVICE AND DATA ACCESS: 1 year – 2014). Since January 2014, monthly datasets from at least 5 boats were ready, while CNR is able to send to WP7 servers data from 8 vessels in the Adriatic Sea. The task 10.4 activities are reported in deliverable 10.4.

WP 10.4 - Report on Potential New Sensors (Fishing Vessels and Voluntary Opportunity Ships)

The report on the new sensors and other emerging technologies is structured and presented as follows:

•Description of new sensors and emerging technology

•Appropriate platform for the sensor (Ferrybox, Glider, Fixed platform, other)

•Future steps

- Integration into operational system
- Timescale of integration
- Cost implications
- Other operational considerations.

TITLE - JERICO - 18

WP 10.4 - Report on Potential New Sensors (Fishing Vessels and Voluntary Opportunity Ships)

This report focuses on the documentation and testing of emerging sensor technologies looking at the improvements and development of emerging new technologies and sensors, along with the use and development of platforms allowing for the optimal deployment of novel sensors. These include emerging profiling technology, gliders and ships of opportunity.

One of the key objectives is to examine the extent to which emerging technologies can be utilised and/or adapted to the benefit of coastal operational oceanography and to document and test technology will underpin future operational oceanographic systems in Europe's coastal seas.

This report includes a description of Potential new sensors developed in relation to Tasks 10.3/10.4 - (Emerging Technology) and links the development of these potential new sensors for deployment on ships of opportunity (Volunteer Opportunity Ships – VOS) – including fishing vessels.

TITLE - JERICO - 1

WP 10.4 - Report on Potential New Sensors (Fishing Vessels and Voluntary Opportunity Ships) - Conclusions

This report documents the improvements and the development of new tools and sensors used by Jerico partners allowing for:

(1) The measurements of a new set of parameters (including biological ones)
(2) A better precision of already available measurements (e.g., in relation with the monitoring of rising threats such as ocean acidification)

(3) The automation of parameter's acquisition, which will allow for operating at higher frequency and on wider geographical scales. This last point is also important in view of reducing the time lag between raw data measurements and the delivery of relevant end products (i.e., in developing operational observatories).
A key issue covered in this deliverable involved analysis of the use and the development of platforms allowing for the optimal deployment of sensors. This includes emerging profiling technology, gliders and ships of opportunity.
It is clear from analysis of the future steps that in many cases there is a requirement that the technology be improved and/or further adapted before it will be of wide ranging benefit to underpin future operational oceanographic systems in Europe's coastal seas.

TITLE - JERICO - 21

Task 10.5 FerryBox data quality control algorithm Willi Petersson

Existing Ferrybox quality control schemes were evaluated and discussed at the Ferrybox workshop in Helsinki (April 2013) with a view to developing new algorithms in the September 2013-2015 period. This task brings together the collective experience of Europe's Ferrybox operator in the development of new algorithms that will be made widely available to FB operators. The algorithms have been adapted and validated as required by EuroGOOS Data-MEQ group for quality control of real-time in-situ data. The algorithms are applied either directly after measurement (e.g. HZG) or before central storage (NIVA) of all FerryBox data within the MyOcean project.

Task 10.6 Remote sensing of SPM Fritz Francken

No more activities in that extra task during period 3.

This task was not initially in the DoW.

- · ***Deliverables***

All deliverables in this work-package fell within this reporting period. Deliverable 10.1 summarises the trials and deployments carried out throughout this JERICO work-package in all relevant tasks. Deliverable 10.2 provides a set of software and comprehensive supporting documentation for the analysis of SPI, Flowcam and Zooscan images. Deliverable 10.3 focuses on the data collected through the various trials and fieldwork campaigns in WP10 while deliverable 10.4 focuses in particular on potential new sensors under development. All deliverables were complied and submitted during this reporting period. The reports can be accessed at : www.jerico-fp7.eu.

The WP partners also made a significant contribution to the plenary and round table discussions at the Final JERICO General Assembly in Brest in April 2015.

Del. no.	Deliverable name	WP n°	Date due proj.month	Actual Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D10.1	Report on trials and deployments	10	M36	Submitted M47	20	0	MI
D10.2	Set of software (analysis of SPI, Flowscan and Zooscan images)	10	M42	Submitted M47	60	6	INSU/CNRS
D10.3	Report on data analysis (moored profile comparison, 3D T/S structure)	10	M42	Submitted M48	32.5	2	HZG
D10.4	Report on potential new sensors (fishing vessels and VOS)	10	M42	Submitted M48	30	2	IFREMER

- · ***Milestones list***

Del. no.	Milestones name	WP	Date due proj.month	Actual/Forecast delivery date	Lead contractor
MS22	JERICO workshop on sensors for vessels of opportunity and fishing vessels probes	WP10	M12	Achieved M2	MI Ifremer
MS23	Software and manuals for new image analysis techniques (including Flowscan and Zooscan)	WP10	M24	Achieved M47	INSU/CNRS (not BLIT as indicated in the DOW)
MS24	Recommendations Report for autonomous carbon measurements	WP10	M26	Achieved M48	MI
MS25	Data report on salinity and Temperature measurements from XBT and FerryBox	WP10	M26	Not done	MI
MS26	Report of joint workshop on best practices for coastal observatories	WP10	M30	Achieved M27	MI

- ***2.10.2 Deviations from the project work programme, and corrective actions taken***

There were some delays in the moored profiling experiment due to equipment availability and technical problems due to a bad weather event at the MAMBO buoy location in November 2012. These experiments were conducted in 2014.

Report on salinity and temperature measurements not done by NERC. No corrective action was possible.

No more deviations except the delay in the deliverable submission dates.

3 DELIVERABLES AND MILESTONES TABLES

3.1 Deliverables list

Del. no.	Deliverable name	WP n°	Delivery date from DOW	Actual/Forecast delivery date	Estimated indicative person-months	Used indicative person-months	Lead beneficiary
D1.1	First call for TNA proposals	1	M8	**M9**	5		CNR
D1.2	Rationale and definitions for a common strategy	1	M9	**M21**	6		INSU/CNRS
D1.3	Terms of reference of the FCT	1	M9	**M14**	3		MI
D1.4	JERICO label definition	1	M18	**M38**	2		HCMR
D1.5	Second call for TNA proposals	1	M20	**M21**	5		CNR
D1.6	First report of the FCT activity	1	M24	**M27**	3		MI
D1.7	First report of the access activity	1	M24	**M25**	5		CNR
D1.8	Second report of the FCT activity	1	M36	**M47**	3		IFREMER
D1.9	Proposed strategy for biodiversity	1	M36	**M39**	4		NIOZ
D1.10	Second report of the access activity	1	M42	**M47**	5		CNR
D1.11	Final report	1	M48	**M48**	20.3		INSU/CNRS
D2.1	Report on existing observation network	2	M12	**M21**	6		IMR
D2.2	Report on recommendations	2	M12	**M26**	6		IMR
D2.3	Integrated Pan European Atlas first report	2	M18	**M29**	6		IMR
D2.4	Demonstration of the feasibility of Joint trans-regional production	2	M24	**M26**	9		SMHI
D2.5	Integrated Pan European Atlas/second report	2	M48	**M48**	6,25		IMR
D3.1	Report on current status of FerryBox	3	M9	**M18**	20		HZG/NOCS
D3.2	Report on current status of gliders observatories within Europe	3	M15	**M27**	20		CSIC
D3.3	Review of current marine fixed instrumentation	3	M21	**M27**	20		HZG/CEFAS
D3.4	Report on new sensor developments	3	M36	**M38**	24.7		HZG

D3.5	Conclusion report	3	M42	**M48**	20		HZG
D4.1	Report on existing facilities	4	M18	**M21**	10.00		HZG
D4.2	Report on calibration best practices	4	M36	**M38**	20.00		HZG
D4.3	"Report on biofouling prevention methods	4	M36	**M38**	20.00		CNR
D4.4	"Report on best practice in operation and maintaining	4	M42	**M48**	20.00		HCMR
D4.5	Report on running costs of observing systems	4	M48	**M44**	14.50		CEFAS
D5.1	DM data management handbook V1	5	M8	**M13**	6		Ifremer
D5.2	RT data management handbook V1	5	M8	**M13**	6		Ifremer
D5.3	First data management report	5	M24	**M33**	6		OGS
D5.4	Guidelines for uncertainty	5	M30	**M38**	6		OGS
D5.5	Report on uncertainty	5	M42	**M47**	6.1		OGS
D5.6	DM data management handbook V2	5	M48	**M47**	6		OGS
D5.7	Second data management report	5	M48	**M48**	10		OGS
D5.8	RT data management handbook V2	5	M48	**M47**	6		OGS
D6.1	Design and launch of JERICO OceanBoard v0	6	M6	**M13**	6.0		Cefas (+UoM)
D6.2	JERICO Community Hub	6	M12	**M13**	5.0		Cefas
D6.3	Summer school 1	6	M15	**M28**	3.02		UoM
D6.4	Development and implementation of suite of web-based interactive tools	6	M24	**M25**	8.0		Cefas
D6.5	Summer school 2	6	M27	**M40**	4.0		DELTARES
D6.6	Final version of JERICO OceanBoard	6	M30	**M32**	14.08		Cefas (+UoM)
D8.1	Trans National Access Provision	WP8	M48	**M48**	2.50		CNR
D9.1	First scientific report	9	M12	**M12**	10		CMCC

D9.2	First report on OSE	9	M18	**M21**	10		HCMR
D9.3	First report on OSSE	9	M18	**M21**	10		DMI
D9.4	Second scientific report	9	M24	**M25**	7.5		CMCC
D9.5	Second report on OSE	9	M36	**M47**	10		HCMR
D9.6	Second report on OSSE	9	M36	**M47**	10		DMI
D10.1	Report on trials and deployments	10	M36	**M47**	20		MI
D10.2	Set of software (analysis of SPI, Flowscan and Zooscan images)	10	M42	**M47**	60		INSU/CNRS
D10.3	Report on data analysis (moored profile comparison, 3D T/S structure)	10	M42	**M48**	32.5		HZG
D10.4	Report on potential new sensors (fishing vessels and VOS)	10	M42	**M48**	30		IFREMER
D11.1	Signed consortium agreement	11	M2	**M8**	2		IFREMER
D11.2	Quality assurance plan	11	M3	**M6**	5		HCMR
D11.3	Identity Set	11	M6	**M12**	2		NIVA
D11.4	First periodic report	11	M18	**M21**	12		IFREMER
D11.5	Second periodic report	11	M36	**M39**	12		IFREMER
D11.6	Final report	11	M48	**M48**	15		IFREMER

3.2 Milestones list

Mil. no.	Milestones name	WP n°	Delivery month from DOW	Actual Forecast achievement date	Lead contractor	Achieved Yes/No	Comments
MS1	Kick off meeting	WP11	1	**M1**	Ifremer	**Yes**	Kick off meeting report
MS2	First intermediate GA	WP11	18	**M18**	Ifremer	**Yes**	General Assembly in Iraklion (1 and 2 Oct)
MS3	2nd intermediate GA	WP11	36	**M36**	Ifremer	**Yes**	
MS4	Final GA	WP11	48	**M48**	Ifremer	**Yes**	
MS5	First steering committee outputs	WP1	9	**M9**	INSU/CNRS Ifremer	**Yes**	First steering committee report
MS6	Infrastructure available for users	WP1	11	**M9**	INSU/CNRS	**Yes**	1st TNA call
MS7	First forum for coastal technology	WP1	18	**M18**	INSU/CNRS	**Yes**	Held during the Sea Tech Week in Brest
MS8	Second steering committee outputs	WP1	18	**M19**	INSU/CNRS Ifremer	**Yes**	SC meeting in Iraklion in October 2012
MS9	Third steering committee outputs	WP1	27	**M25**	INSU/CNRS Ifremer	**Yes**	SC meeting in Galway in may 2013.

MS10	Second forum for coastal technology	WP1	30	**M35**	INSU/CNRS	**Yes**	During OI 2014 in London in march 2014
MS11	Fourth steering committee outputs	WP1	36	**M37**	INSU/CNRS Ifremer	**Yes**	SC meeting in Oslo in May 2015
MS12	Fifth steering committee outputs	WP1	45	**M45**	INSU/CNRS Ifremer	**Yes**	
MS13	User reports of activities	WP1	47	**M48**	INSU/CNRS	**Yes**	D8.1
MS14	Roadmap for the future	WP1	48	**M48**	INSU/CNRS	**Yes**	D1.11
MS15	Constitution of a permanent JERICO Working Group for Calibration Activities	WP4	30	**M43**	HCMR	**Yes**	
MS16	First JERICO management Handbook	WP5	8	**M13**	OGS	**Yes**	Handbook in progress
MS17	Launch of service access	WP5	18	**M21**	OGS	**Yes**	Done
MS18	Report on activities	WP5	46	**M47**	OGS	**Yes**	
MS19	Final JERICO management Handbook	WP5	48	**M48**	OGS	**Yes**	
MS20	Summer School 1	WP6	16	**M27**	CEFAS	**Yes**	Organisation UOM
MS21	Summer School 2	WP6	28	**M39**	CEFAS	**Yes**	Organisation Deltares
MS22	JERICO workshop on sensors for vessels of opportunity and fishing vessels probes	WP10	12	**M2**	MI Ifremer	**Yes**	Workshop report done
MS23	Software and manuals for new image analysis techniques (including Flowscan and Zooscan)	WP10	24	**M47**	INSU/CNRS (not BLIT as indicated in the DOW)	**Yes**	
MS24	Recommendations Report for autonomous carbon measurements	WP10	26	**M47**	MI	**Yes**	
MS25	Data report on salinity and Temperature measurements from XBT and FerryBox	WP10	26	**42**	MI	**No**	
MS26	Report of joint workshop on best practices for coastal observatories	WP10	30	**M27**	MI	**Yes**	
MS27	Report on activities	WP2	42	**M47**	IMR	**Yes**	
MS28	Report on activities	WP3	42	**M47**	HZG	**Yes**	
MS29	Final Report OSE	WP9	42	**M47**	HCMR	**Yes**	
MS30	Final Report OSSE	WP9	42	**M47**	DMI	**Yes**	

4 PROJECT MANAGEMENT DURING THE PERIOD (WP11 report)

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To ensure efficient project coordination adapted to the specificities of the JERICO project and to achieve the project objectives and goals, the management is divided into the following tasks:

- Task 11.1: Day to day management
- Task 11.2: Financial follow-up
- Task 11.3: Technical reporting
- Task 11.4: Quality assurance plan
- Task 11.5: Consortium animation
- Task 11.6: Other management related issues

4.1 Day to day management

To ensure an active and efficient management of the project, JERICO has developed some tools as a quality assurance plan, a project Identity set and templates for the reporting.
The coordinator manages the delivery and the follow-up of the deliverables and all official documents (administrative and financial ones). He organized the second general assembly in OSLO (5 to 7 may 2014) and the 3rdsteering committee meetings, in Galway (May 2013) and the 4th one in Oslo (May 2014, after the second general assembly). A 5th steering committee occurred during the 3rd period, in Brussels (14 and 15th of December 2014). The objectives was the organisation of the last months of the project (Deliverables and general assembly preparation) and the outlook of the future strategy with or without Jerico-next.

4.1.1 Second General Assembly

The second general assembly was held in Oslo, the 5 and 6 May 2014 (The 7th was dedicated to a workshop on future strategy) and was followed by the 4th steering committee. This assembly was organised by the partner NIVA.

The aim of this GA was to present the status of each WP in order to identify the work to be done in the last year of Jerico.

Actions decided by the steering committee, listed below :

WPs	Action	Who	Deadline
1	*Deliver the second FCT final report*	G Nolan	End of July
	Complete the Label document and the roadmap	WP1 members + G Petihakis	End of June
	Organize a stakeholders' meeting	P Farcy	Before the end of the project
2	*Update the gap analyses report*	WP2 members + WP9	TBD
	Promote Task 2.2	WP2 members + BL	TBD
	Organize a joint meeting between WP1, 2, 3 & 9	N Pinardi, H Wehde, P Gorringe	Agenda for mid june (October 28th)
3	*Organize a workshop on fixed platforms in common with WP4*	W Petersen + P Gorringe	October 27th
	Update the fixed platforms data base and make it available on the website (+EMODNET)	WP3 member + BL+ P Gorringe	TBD
4	*Organize a workshop on fixed platforms in common with WP3*	WP4 members + WP3	October 27th
	Send a small questionnaire to the partners to see if they can apply the label recommendations	*HCMR*	TBD
5	*Solve the issues with MyOcean*	WP5 members	End of June
	Check that the JERICO data in EMODNET is labelled	L Petit de la Vileon + P Gorringe	End of June
6	*Promote the Summer School*	WP6 members	End of May
7	*Work on the portal (data coming from JERICO partners + link with MyOcean and SeaDataNet)*	WP7 members	TBD
	Initiate the TOP: application of JERICO data tools and 2 other TOPS	WP7 members + BL	TBD
8	*Prepare a final workshop focusing on TNA projects*	WP8 members	Before the next GA
9	*Organize a meeting with WP1, 2, 3 & 4*	N Pinardi	End of October
10	*Finalize the Villefranche workshop report*	G Nolan	End of June
	Follow up on Task 10.5 and 10.6	G Nolan	End of June
11	*Deliver the technical and financial reporting to the EC*	IFREMER + partners	End of June
	Propose an editorial group for a special issue (to be released before the end of the project)	I Puillat + WP8, 9, 10 and 11	Mid-June
	All partners should give their real costs concerning TA and SA	JERICO partners	End of May
1	*Deliver the second FCT final report*	G Nolan	End of July
	Complete the Label document and the roadmap	WP1 members + G Petihakis	End of June
	Organize a stakeholders' meeting	P Farcy	Before the end of the

			project
2	*Update the gap analyses report*	WP2 members + WP9	TBD
	Promote Task 2.2	WP2 members + BL	TBD
	Organize a joint meeting between WP1, 2, 3 & 9	N Pinardi, H Wehde, P Gorringe	Agenda for mid june (October 28th)
3	*Organize a workshop on fixed platforms in common with WP4*	W Petersen + P Gorringe	October 27th
	Update the fixed platforms data base and make it available on the website (+EMODNET)	WP3 member + BL+ P Gorringe	TBD
4	*Organize a workshop on fixed platforms in common with WP3*	WP4 members + WP3	October 27th
	Send a small questionnaire to the partners to see if they can apply the label recommendations	*HCMR*	TBD
5	*Solve the issues with MyOcean*	WP5 members	End of June
	Check that the JERICO data in EMODNET is labelled	L Petit de la Vileon + P Gorringe	End of June
6	*Promote the Summer School*	WP6 members	End of May
7	*Work on the portal (data coming from JERICO partners + link with MyOcean and SeaDataNet)*	WP7 members	TBD
	Initiate the TOP: application of JERICO data tools and 2 other TOPS	WP7 members + BL	TBD
8	*Prepare a final workshop focusing on TNA projects*	WP8 members	Before the next GA
9	*Organize a meeting with WP1, 2, 3 & 4*	N Pinardi	End of October
10	*Finalize the Villefranche workshop report*	G Nolan	End of June
	Follow up on Task 10.5 and 10.6	G Nolan	End of June
11	*Deliver the technical and financial reporting to the EC*	IFREMER + partners	End of June
	Propose an editorial group for a special issue (to be released before the end of the project)	I Puillat + WP8, 9, 10 and 11	Mid-June
	All partners should give their real costs concerning TA and SA	JERICO partners	End of May

4.1.2 5th Steering Committee meetings

The 5rd Steering committee meeting (SC) was held in Brussels, in CLORA office on 14th and 15th of December 2014

. Statement of decisions

Decision	***Content***	***Who, when***
1	Organisation of the final meeting	*Coordination team + SC*
2	Small questionnaire for the label application	*G. Petihakis*
3	Jerico data labelled in Emodnet	*L. Petit de la Villeon – P. Gorringe*
4		*WP7 and TOP Leaders*
5		*P. Farcy*
6	Instructions for next reporting to be sent before mid February for TNA & SA real costs	*P. Farcy*
7	Instructions for next reporting to be sent 1st of March for financial and technical reports	*P. Farcy*
8	Finalisation of all the 20 last deliverables	*All*
9	Dedicated meeting for D1.11	*WP leaders*
10	Actions to create merged products from different platforms: (FB, FP) on 2 test sites North sea and Adriatic.	*CEFAS with HZG & Ifremer on North Sea And CNR in Adriatic*
11	Calibration board: to produce a white paper and present it during the GA in April.	*HCMR and calibration board*
12	Develop the glider part in D4.4	*CSIC (J. Tintore) – HCMR/HZG*
13	TOP: we have to provide some monthly maps with data for temperature and salinity from ferry boxes and buoys.	*Ifremer with CEFAS, HCMR & NIVA*
14	Ask the commission for use of the the TNA costs for invitation of TNA users at the GA	*P. Farcy*
15	Special issue agenda and organisation	*I Puillat, editorial Board*
17	Book agenda and organisation	*I Puillat & Nadia pinardi*
18	D1.11: Summary of decisions and actions + new document version to be sent in January	*I Puillat & M. Krieger*
19	D1.11: Fix the date of the physical meeting	*I. Puillat, P. farcy*
20	D1.11: Organize video conference meeting	*M. Krieger*
21	D1.11: SC will prepare a 1 page per country document for section 5.	*Steering Committee*
22	D2.5 Atlas should be accessible on line on the JERICO website: transfer URL to BL.	*H. Wehde*
23	WP4 FP: time line is fixed by WP4: to check in January	*G. Petihakis*
24	WP4 FB: a draft to be sent end of January	*K. Sorensen*

Workshops and meetings organized by the project

Final NA workshop (WP2, WP3 & 4, WP9): Lisbon, October 2014
Steering committee n°5: December 2015
Stakeholder meeting: France, April 2015.
Final GA: France, April 2015.

4.2 Financial follow-up

The financial contact person at Ifremer is formely Philippe MOAL. Persons in contact for the day to day reporting are Caroline Gernez and Nolwenn Beaume. They provide templates to fill in the periodic report with the financial inputs from all the partners. Nolwenn manages the preparation of the M48 financial report..

4.3 Technical reporting (including technical Deliverables)

The Project Deliverables are split into two categories:

- the technical Deliverables and Milestones,
- the interim, periodic and final reporting.

To ensure proper delivery at due dates, some principles have been set up in the Quality Assurance Plan to allow each actor in the process to know how and when he/she is expected to contribute. The management team intervenes at the beginning of the process (to remind concerned beneficiaries that they are involved in a future delivery) and at the end (to consolidate and harmonize various contributions and finally to store the Deliverable reports.

The deliverable reports can be uploaded from the JERICO Website.

The 48-months report was the third and last official reporting done by the Project. It will be accessible on the website (as a deliverable).

4.4 Quality Assurance Plan (QAP)

The Quality Assurance Plan (Deliverable D11.2) of the JERICO project aims to describe the Project organization (project bodies description and responsibilities, Work Package management and meetings) and the Project communication (communication means, templates, naming conventions and storage, and publications /dissemination rules), but also to describe the technical and financial aspects in view of the mid-term review and periodic reporting. For this purpose, several processes have been proposed for the delivery and storage of Deliverables and Milestone.

4.5 Consortium animation and communication

The Consortium animation is mainly based meetings, WPs workshops and, on the use of the working and reporting tools and the set of templates. All JERICO documents and communication supports use the Identity Set created for the Project and described in the Deliverable D11.3 “Project Identity set”.
The fundamentals of the Project Identity are composed of two main components, the logo and the banner (for websites, posters …), in addition to Power Point templates and MS word template.. They can be used in a variety of forms, either on materials and presentation slides to promote the dissemination of the Project identity or on the set of templates to ensure efficient communication within the Project.

The creative work has been subcontracted to a specialised SME, H.Comm and the banner including the logo presented hereafter (in full and abbreviate versions,) was designed with the following explanation concerning the graphics and contents:

· the blue color is for serious and institutional character and in connection with ocean;
· the wave evokes the sea;
· a map of Europe is inserted in the wave;

The JERICO banner obviously includes the JERICO and FP7 logos and the European flag, with the three observing infrastructure included in the project, i.e. ferry, fixed platform (buoy) and glider.

All the communication tool and graphic materials are available on JERICO website: www.jerico-fp7.eu. in the "Partner only" pages which are accessible via login and password after registration.

4.6 Other management related issues (including Relations with other European Projects)

- Committees

The main tasks and objectives of the four JERICO committees are described in the Annex I of the DoW. These committees are:

- *The steering committee (SC)*

It is composed by the main partners of the project; EEA and Marine Board are permanently invited to the SC meeting. Five SC meeting are planed during the project life at M9, M18, M24, M36, and M42. An extraordinary SC meeting can be organized by the coordinator as required. Some decision may be taken by exchanges of emails. The SC representatives are:

W. PETERSEN – HZG, S. KAITALA – SYKE, R. LAMPITT – NERC, D. MILLS – CEFAS, D. DURAND – IRIS on behalf of NIVA, G. NOLAN – MI, A. GREMARE – CNRS, S. SPARNOCCHIA – CNR, G.PETIHAKIS – HCMR, J. TINTORE – CSIC, P. FARCY – IFREMER.

P. GORRINGE from EUROGOOS is permanently invited to the steering committee meetings.

- *The Scientific Advisory Committee (SAC)*

It is a consultative body, important to maintain communication with international scientific communities and to prepare further steps. It is composed by:

1) Dr. Janet Newton, Biological Oceanographer, University of Washington
2) Dr. George Zodiatis, Physical Oceanographer, University of Cyprus.
3) Dr. Richard Dewey, Physical Oceanographer, University of Victoria, Canada.
4) Dr. Hans Dalhin, Director of EUROGOOS
5) Dr. Roger Proctor, Program Leader, IMOS, University of Tasmania, Australia

- *The FCT Advisory committee (FCTAC)*

It is in charge of the technical expertise for the organisation of the Forum for Coastal Technology. This committee is composed by:

1) Glenn Nolan (MI)
2) Yannick Aoustin (Ifremer)
3) Franciscus Colijn (Univ Kiel - Ferrybox)
4) Laurent Mortier (LOCEAN - glider)
5) Alicia Lavin (IEO – fixed platforms)
6) Secretary: French "pôle Mer", association of SMEs in marine R & D

- *The TNA selection committee*

It is in charge of the evaluation and the selection of the proposed project relevant to the TNA calls. This committee is composed by:

1) The 5 SAC experts (Newton, Zodiatis, Dewey, Dalhin, Proctor)
2) The 3 FCT board experts (Colijn, Mortier, Lavin)

These 8 members are the TNA scientific evaluation Team

3) The WP8 leader, Stefania Sparnocchia.
4) The coordinator, P Farcy.
5) The WP1 coordination team: P Morin-CNRS, D Durand-NIVA, I Puillat-Ifremer.

- Relations with other European Projects

JERICO is associated with the FP7 GROOM project on the gliders. The coordinator participated to the GROOM Kick-off meeting in Paris (14th and 15th of November, 2011). A common meeting on gliders was organised in Palma de Mallorca and GROOM coordinators are invited to the JERICO workshops and vice versa.
JERICO is interfaced with SeaDataNet and MyOcean for the data management of JERICO network observatories.

A common approach for the TNA is looked for the I3 and ESFRI marine project as JERICO, Eurofleets, EuroArgo and EMSO. A dedicated workshop will be organised to converge on a TNA marine infrastructure common approach.

Most of the infrastructure of JERICO is involved in the WP4 (Infrastructure WP) of SEASERA. The coordinator of JERICO is invited to participate to workshops on WP4 and WP6 of SEASERA.

JERICO was presented, by the coordinator, to the MARCOMM+ meeting in Brest (October 2012) and to the EUROGOOS general assembly in Hamburg (November 2012).

JERICO and NEXOS have presented a common approach on the use of TNA for sensor (developed in EU projects) validation and TNA from I3.

4.7 WP11 Deliverables and Milestones

- ***Deliverables (WP11)***

Del. no.	Deliverable name	WP n°	Date due proj.month	Actual/Forecast delivery date	Estimated indicative months	Used indicative months	Lead contractor
D11.1	Signed consortium agreement	11	M2	Submitted M8	2	2	IFREMER
D11.2	Quality assurance plan	11	M3	Submitted M6	5	5	HCMR
D11.3	Identity Set	11	M6	Submitted M12	2	2	NIVA
D11.4	First periodic report	11	M18	Submitted M21	12	12	IFREMER
D11.5	Second periodic report	11	M36	submitted M39	12	12	IFREMER
D11.6	Final report	11	M48	Submitted M48	15	0	IFREMER

The first 3 deliverables shifted because of the warm up starting of the project. For the consortium agreement, all the partners have signed it before end of M4 except one partner who signed M8.

The periodic reports are at least 2 months delayed to be completed after the end of the periodic (and final) reporting.

- ***Milestones list (WP11)***

Del. no.	Milestones name	WP	Date due proj.month	Actual/Forecast delivery date	Lead contractor
MS1	Kick off meeting	WP11	M1	Achieved M1	Ifremer
MS2	First intermediate GA	WP11	M18	Achieved M18	Ifremer
MS3	2nd intermediate GA	WP11	M18	Achieved M36	Ifremer
MS4	Final GA	WP11	M48	Achieved M48	Ifremer

5 FINANCIAL REPORTING

For this third and last reporting period, from May 1st 2014 to April 30th 2015, we asked the partners to send a first draft by early April, in order to review the calculation before the official deadline. Due to issues regarding the calculation of service access and trans-national access and the deadlines that needed to be met before the end of the project, this financial reporting took more time than usually planned and an extention has been approved by the European Commission.

IFREMER took into consideration changes made on the level of information requested in order to fill in the FORM C. Further details are required on use of resources: expenses per WP, details on the expenses. Therefore, IFREMER adjusted in accordance with these amendments the excel documents and ultimately decided to use only one template called "Explanation of the use of resources". In order to standardize FORM Cs for the JERICO project, IFREMER specify to all beneficiaries the level of detail needed to fill in their FORM C.

We planned to collect these data using one dedicated Excel document of the Project set of templates and proposed in the QAP for the financial follow-up.
Financial information was collected from each beneficiary who had to fill out this template describing project costs per WP. In the meantime and to save some time, we asked the partners to fill in the participant portal with their financial claims (as a draft version) and to submit it as soon as we give them our approval. A particular attention has been paid to the subcontracting in link with part B of the DOW where tasks to be sub-contracted are listed. We also assure that there were consistency between cost declared by each beneficiary and their initial budget in the DOW.

- **Costs and expenses follow-up through one dedicated template**

As explained in the introductory section on the financial reporting, IFREMER as decided to use one template instead of two templates as present in the QAP, in regard to the amendments made on the level of information requested on the use of resource on the participant portal. Since some partners needed to update their claims from the previous period, an adjustment template has been made available, using the same process as the Form C one.

The template "Explanation of the use of resources" allows describing all costs incurred by each beneficiary, to properly check financial information submitted by beneficiaries.

- **Overview of the actual eligible costs and associated effort progress per activity for the period M36-M48**

The total eligible costs presented by the 27 beneficiaries of the JERICO project for the M36-M48 period represent *2 881 31.,57€* with a maximum EC contribution of *2 209 712.08€.* These sums correspond respectively to *32.26%* and *34%* of the budgets planned for the whole project.

Reported costs by type of costs:

REPORTED costs	M48 (01/05/2014 - 30/04/2015)		
	Personnel costs	32.24%	1 150 769.28€
	Subcontracting	34.90%	100 117.28€
	Other direct	22.65%	214 752.85€
	Indirect costs	30.38%	910 431.41€
	access costs	44.68%	505 240.75€
	Total costs	32.26%	2 881 311.57€

Percentages correspond to the calculation: type of cost / total costs planned in DoW – Annex I of the ECGA: JERICO (262584) VERSION 2014-06-03

Reported effort progress by type of activity:

ACTIVITY	RTD	COORD	SUPPORT	MGT	TOTAL
(A): Total pm (Project)	200,00	367,90	3,50	50,00	621,40
(B): Total pm - Previous periods	135,23	337,40	0	40,38	513,01
(C): Total pm - Actual period	82,65	136,85	0	10,15	229,65
(D): Total (B+C)	217,88	474,25	0	50,53	742,66
(E): % (D/A)	108,94%	128,91%	0,00%	101,06%	119,51%

The percentage corresponds to the calculation between total pm project by type of activity and pm actual M48 period. There has been a substantial involvement of the beneficiaries in the coordination activities which can be explained by the fact that the main objectives of the 3rd period are partially linked to coordination activities and the deliverables expected before the end of the project.

- **Description of costs and the associated effort progress by activity**

A) Joint Research Activity (RTD)

The total eligible costs present by the 17 beneficiaries involved in the Joint Research Activity during this final reporting period represent *921 797.25€* (i.e. 38.67% of the RTD budget planned for the whole project), with a maximum EC contribution of *691 347.94€* (i.e. 38.63% of the whole EC contribution planned for this activity).

For this last reporting period, resources allocated by the beneficiaries for the JRA reaches *82.65* person months. In total, *217.88* person months have been claimed during the project

lifetime, representing 108.94% of the *200.00* person months initially planned for RTD activity in DoW – Annex I of the ECGA.

Networking activity (Coordination)

The total eligible costs presented by the 27 beneficiaries involved in the Networking activity during this final reporting period represent *1 297 435.62€* (i.e. 27.87% of the Coordination budget planned for the whole project) with a maximum EC contribution of *860 089.03€* (28.14% of the whole EC contribution planned for this activity).

For this last reporting period, resources allocated by the beneficiaries for the Networking activity reaches *136.85* person months. In total, *474.25* person months have been claimed during the project lifetime, representing 128.91% of the *367.90* person months initially planned for Networking activity in DoW – Annex I of the ECGA.

Trans National Access activity and service access (Support)

The preparation of the call for WP7 and WP8 was declared under WP1, task 6.
Regarding TNA activity, the 3 calls have been launched and all funded projects are being concluded. Partners involved in TNA projects/activity have claimed their infrastructure costs but due to internal and administrative issues, most partners decided to claim their estimated access costs in the previous reporting period and had to calculate their real costs for this last period.

For this M36-M48 period, 246 768.84€ were requested to the EC for TNA activity, which represents 20.38% of the overall budget for total ACCESS COST and 44.72% of the TNA costs.

CNR and CSIC claimed more TNA expenses than expected since their infrastructures and equipments were often requested during TNA experiments.

During this last reporting period, 285 866.71€ were requested to the EC for SA costs, which represents 23.61% of overall budget for total ACCESS COST and 43.38% of the SA costs.

Management activity

The total eligible costs presented by the three beneficiaries (IFREMER, NIVA, HCMR) involved in the management activity represent *129 443,15€* (i.e. 29.08% of the management budget planned for the whole project).

For this last reporting period, resources allocated by the beneficiaries for the Management activity reaches *10.15* person months. In total, *50.53* person months have been claimed during the project lifetime, representing 101.06% of the *50* person months initially planned for Management activity in DoW – Annex I of the ECGA.

- **M36-M48 Effort progress per WP and Beneficiary**

Partner	COORDINATION						SUPPORT		RTD		MGT	TOTAL
	WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	WP9	WP10	WP11	
	INSU/CNRS	IMR	HZG	HCMR	OGS	CEFAS	IFREMER	CNR	CMCC	MI	IFREMER	
IFREMER	2,77		0	2,87	3,05		0	0	0,67	1,21	9,11	19,68
SYKE	1,4		1,2	3		0				11,9		17,5
IBWPAN	0		4,3					0				4,3
DMI									2,64			2,64
NIVA	0,25		3,2	8,9	0,44		0	0		11,48	0,62	24,89
IMR		3,1			0,2							3,3
DELTARES		2,48				1,23			1,72			5,43
OGS	1		0,3	0,8	7,4			0		8		17,5
CNR	2,4		0	1,4	0,2		0	0		0,6		4,6
UOM						2,43						2,43
HCMR	1,76		4,19	7,8		3,2	0	0	0,64	6,58	0,42	24,59
NERC	2,92		7,9	4,26		0		0		6,7		21,78
INGV		4,65										4,65
HZG	0		5,9	5				0	4,2	4,1		19,2
RBINS-MUMM			0,3	0	0				0,9	0		1,2
CEFAS	1,17		1,02	0,53		1,79				1,02		5,53
SMHI		0,59	0,4	0,56	0,37					0,24		2,16
CSIC	0		0,24	0,08		0		0		3,3		3,62
NIOZ	0,4											0,4
MI	1,83		0	0						9,07		10,9
BL						1,7						1,7
TECNALIA-AZTI		0,6	0	2,7								3,3
INSU/CNRS	10,07		1,3	0,18				0	0	1,68		13,23
IH		2,6		0,9								3,5
IO-BAS	0,9	1,9										2,8
PUERTOS			1,01	1,01	0,8							2,82
CMCC									6			6
TOTAL	26,87	15,92	31,26	39,99	12,46	10,35	0	0	16,77	65,88	10,15	229,65

- **Budget synthesis of the 4-year project**

Total requested (all periods)

Total P1+P2+P3	Requested (4 years)	Difference
6 746 030.45 €	**6 500 000,00 €**	**246 030.45 €**

TOTAL Reported costs :

reporting period	declared eligible costs	%	RC UE	%
P1 : 1/05/2011 to 31/10/2012	2 675 903,36	29,96%	1 911 103,88	29,40%
P2 : 1/11/2012 to 30/04/2014	3 565 551,93	39,92%	2 625 214,48	40,39%
P3 : 1/05/2014 to 30/04/2015	2 881 311,57	32,26%	2 209 712,08	34,00%
TOTAL Reported costs :	**9 122 766,86**	**102,14%**	**6 746 030,45**	**103,79%**

The table above summarizes the budget that was consumed during the project lifetime. Among the 6 500 000,00€ requested to the EC, 2 209 712.12€ were claimed for RP3.

NIVA, CNR, HCMR had to produce a CFS, since they reached the 375 000€ claim limit.

The total requested contribution of all partners equals 6 746 030.45€, which is only 3.8% higher than the EC contribution for the four years.

Overspending

Below is a synthesis of the budget overspending of some partners (more than 20% of their allocated budget):

• IFREMER (COORD)

WP1. A common strategy.
This WP was significantly overspent with around 10 mm mainly for Ingrid Puillat and Patrick Farcy. This was due to the under evaluation of the work to do in that WP for the Label definition and the work out on the definition of the future strategy (deliverable 1.11).
WP4. Harmonizing operation and maintenance methods
This WP was significantly overspent with around 5 mm. This was connected to the best practice work on calibration and antifouling activities. We organised two calibration exercises mainly driven by Ifremer. The metrology laboratory of Ifremer, spent more time not estimated in the proposal to organised such exercises.
WP9. New methods to assess the impact of coastal observing systems
The WP was a little bit overspent with 0.17 mm. This WP was planned with only 2 mm and the workload here ended higher than we had foreseen.
WP11 (Management) vs WP8 (TNA): in WP8, we provided up to 100k€ for T and S for TNA selected project but also for the members of the selection panel committee. But, for Ifremer, main of the T & S cost for the selection panel were allocated on WP11. That explains the # of the total cost of WP11 and WP8

• NIVA (MGMT & COORD)

WP3. Harmonisation of technological aspects.

This WP was overspend with 0.98 mm. NIVA was put in charge for the best practice deliverable for Ferrybox and this work took more time than expected including more meetings and coordination and specially in the last reporting (RP3).

WP4. Harmonizing operation and maintenance methods

This WP was significantly overspent with 8.1 mm. This was connected to the best practice work as in WP3 since we had overlapping activities concerning the best practice deliverable, but it was also connected to technical aspects with the NIVA ferrybox systems. We had technical challenges that had to be solved to keep the system in operation.

WP5. Data management and distribution

The WP was overspent with 0.54 mm. This WP was planned with only 1 mm and the workload here ended higher than we had foreseen.

WP10. Improving existing and emerging technologies

This WP was overspent with 0.97 mm. This was a large activity for NIVA with planned 14.5 mm. We made a significant contribution on the new developments of pH and pCO2 which we now have 3 ferrybox lines in operation with both sensors. Also the work on the passive sampling (Chem Mariner) that was make available for the TNA needed to get more attention than planned. In total this R&D work took more time than planned.

WP11. Management of the project

This WP was overspent with 0.4 mm. This was planned for 1 mm. Some more time has been spend by NIVA partly due to subcontracting IRIS and we had to duplicate participation in some meeting, but mainly due to more cost for planning and arranging the General Assembly in the last period.

• OGS (RTD)

The RTD activities of the OGS consisted of a field evaluation of moored profiling technology using an autonomous buoy-mounted profiler and an experimental tethered profiling float as part of task 10.3 (“Emerging technology - profiling technology, inter-comparison with mature technology”) in WP10. The trial, unfortunately, was plagued by many setbacks, including the failure of and damage to equipment, breakaways and subsequent recoveries of the profiling apparatus due to bad weather, repairs and design modifications, and repeated deployments, all of which led to additional unplanned personnel and material costs that, however, were necessary to carry forward the undertaking to completion.

• CNR (COORD & SUPPORT)

Coordination Activity (CA)

CNR overspent 17118.43 euros (budget originally allocated: 203112.75, budget spent: 220231.18). The extra costs charged are due to additional activities assigned to CNR after the start of the project, in particular:

1) Organization and reporting of the First Fixed Platform Workshop (WP3 and WP4) in March 2012 in Rome which required extra effort of 0.6 person months and funds for the catering. This task was assigned to CNR at the Kick off meeting in May 2011, so no budget was previously allocated to CNR.
2) Organization and management of an extraordinary TNA Call in WP1 which required extra effort of 0.8 person months. This task was assigned to CNR at the Mid Term review meeting to consume residual funds available in form of access costs not used after the two planned calls.

3) Organization and management of the Biofouling Monitoring Experiment in WP4 which required extra effort of 1.1 person months and funds for the BMP box delivered to participating partners. This task was assigned to CNR at the Second GA in 2012.

Support Activity (SA)
CNR overspent 20208.71 euros (budget originally allocated: 174362, budget spent: 194570.71). The extra costs charged are due to:

1) Travels and shipment of equipment of users affiliated to CNR Institutes who participated to the TNA activities (total costs charged: 10333.55 euros).
2) Access costs to the CNR infrastructure participating to the JERICO TNA program. The CNR infrastructure hosted 7 user projects supported by JERICO, providing more access time than originally planned (extra access costs charged: 9875.16 euros).

• HZG (COORD)

HZG was involved in the coordination work package WP1, WP3 and WP4.
In WP3 HZG had the lead of the work package and it turned out that from several reasons not all partners contributed to the WP as expected from the beginning. Thus HZG had to take over more workload (e.g. lead of task 3.1) as originally has been planned but was essential to fulfil the work plan.
In WP4 the workload of HZG was much higher due to strong but essential and quite fruitful joint efforts between WP3 and WP3 with additional meetings and writing reports which were not anticipated during the planning phase of the project. Especially in deliverable D-4.4. about Best Practice at different platforms HZG had much more workload as expected.

• CSIC (COORD & SUPPORT)

Coordination: the activities related with new Coastal Ocean Observatories in Europe, glider activities -including new quality control procedures and operations - were substantially increased during the JERICO projects compared to the initial estimate. This was related to the success of the JERICO activities and the elaboration of working documents such as the innovation in oceanography that was produced during 2014-2015.

TNA: the activities were increased in agreement with the JERICO Coordinator, given the success of the TNA glider activities and the requests that were accordingly received.

• MI (RTD)

The Marine Institute as leader of WP10 were responsible for 4 deliverables all due towards the end of the Jerico Project in the final 12 months. The deliverables related to new sensor developments and their applications and as a result there were a large variety of inputs from a large number of the Jerico partners. As work package leaders the MI worked closely with the contributors on the inputs but additional time was required to provide an overview and analysis of the scientific work being carried out and its relevance in terms of the overall aims of the Jerico Project. This work was essential to ensure coherent and standardised deliverables and the Marine Institute - as work package leader was best placed to carry out this work. Additional person months were required in Work package 10 Activities 10.1, 10.2, 10.3 and 10.4 over the final reporting period of Jerico to carry out this analysis effectively and incorporate it into the Work package 10 series of deliverables.

• BLIT (COORD & TOTAL)
During the course of the project additional effort was required to maintain access to the Jerico Datatools in light of significant changes to the EMECO application, its server, security requirements and embedded technologies.
We also identified several new vulnerabilities, as web technologies evolved, that were rectified to maintain continued access and security to the Jerico Commnity Hub and its Datatools. There was also additional effort in maintaining the website content above that originally anticipated. This additional effort was essential for meeting the deliverables of Work Package 6, ensuring the availability website, Datatool application (and its connecting parties) and maximising the Outreach of the Jerico Project.

• CNRS (COORD)
Work on EOL buoy in WP4 mainly concerned the anti-biofouling method by electrolysis (task 4.2). It is part of the proposed methods in the "Best Practices" report. The man-months in this WP represented largely the maintenance work of the anti- biofouling system and therefore of buoy EOL itself. Due to unforeseen technical problems, this has resulted in a working time which was not considered (ex. Damage motor, electronic failure panel, changing the buoy). This has been long and tedious – which is explaining the unforeseen Person-Month in the WP4 for CNRS.

• AZTI (COORD)
AZTI mainly overspent in WP4 due to the lack of coordination on fixed platform best practices of MUMM.

Under spending

Most of the partners have spent between 90 and 110% of the estimated costs. Some are higher (see above) and some are below.

• DMI, INGV and IMR are below 90% mainly due to less activity on coordination workpackages but without any consequences on the results (the amount of the costs are low).

• NERC
NERC engaged a lot of evolution of its organisation and objectives. Many of the senior scientists were sorted out and the infrastructures proposed as TNA were stopped except gliders. It is the reason why NERC spent more time on coordination activities (mainly on best practices and ferrybox quality control) and less in R & D activities.
Except 3 days of gliders, no TNA was assumed by NERC.

• RBINS-MUMM
MUMM was less involved in the coordination activities in WP3. Most of its non effective activity was done by other partners, as AZTI.

Summary of costs by activity including the adjustments (RP1 + RP2 + RP3):

	RTD (A)	Coordination (B)	Support (C)	Management (D)	Other (E)	Total A+B+C+D+E	
Personnel costs	1 229 467,42 €	2 402 387,83 €	- €	356 869,39 €	- €	3 988 724,64€	111,75%
Subcontracting	59 788,37€	169 084,00 €	- €	40 518,28 €	- €	269 390,65€	93,91%
Other direct	160 844,38 €	490 058,71 €	52 605,37 €	92 290,26 €	- €	795 798,72€	83,93%
Indirect costs	1 003 757,24 €	1 950 896,66 €	3 561,95 €	229 777,82 €	- €	3 187 993,68€	106,39%
access costs	- €	- €	880 859,25 €	- €	- €	880 859,25€	77,89%
Total costs	**2 453 857,41€**	**5 012 427,20€**	**937 026,57€**	**719 455,75€**	**0,00€**	**9 122 766,94€**	
real/previsionnal	102,95%	107,67%	77,39%	105,48%		102,14%	
Requested EC contribution	**1 840 393,06 €**	**3 252 958,66 €**	**933 222,98 €**	**719 455,75 €**	**- €**	**6 746 030,45 €**	
real/previsionnal	102,95%	106,43%	77,07%	161,61%		103,79%	

WP1 costs are higher than expected, reaching *111.29%* of the initial budget. The main reason for this overspending is the work done within this work package for scientific coordination of the activities and to prepare the work of the others coordination work packages.
Besides, a lot of work has been undergone to prepare the conclusion of the project and the roadmap for the future.

WP4 costs during the project lifetime reached *130.46*% of the provisional budget. This is mainly due to the cost of indirect costs and other direct costs, such as travelling costs linked to the work of this work package.

WP6 costs are higher than expected, reaching *117.92%* of the initial budget. This can be explained by an increase of personnel costs (49.56% higher than the initial budget), due to the organization of summer schools and other work related to the website and communication activities.

The WP11 “management work package” has the higher percentage of realised costs with 161.61% of the provisional budget. A considerable effort has been made on the management for the JERICO second general assembly and the final general assembly week.
Moreover, the coordination for this last period had to be increased to make sure we meet all deadlines before the end of the project.

WP2, 3, 5, 9 and 10 costs are below the provisional budget, going from 82% to 99% of their initial budget.