THEME [INFRA-2010-1.1.20]
[Research Infrastructures for Coastal Research, including for Integrated Coastal Zone Management and Planning.]

Grant agreement for: Combination of CP & CSA*

Annex I - "Description of Work"

Project acronym: JERICO

Project full title: " TOWARDS A JOINT EUROPEAN RESEARCH INFRASTRUCTURE NETWORK FOR COASTAL OBSERVATORIES "

Grant agreement no: 262584

Date of last change: 2011-02-22

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Part A

Workplan Tables

A1:
Project summary

Project Number [1]	262584	Project Acronym [2]	JERICO

One form per project

General information

Project title [3]	TOWARDS A JOINT EUROPEAN RESEARCH INFRASTRUCTURE NETWORK FOR COASTAL OBSERVATORIES		
Starting date [4]	01/05/2011		
Duration in months [5]	48		
Call (part) identifier [6]	FP7-INFRASTRUCTURES-2010-1		
Activity code(s) most relevant to your topic [7]	INFRA-2010-1.1.20: Research Infrastructures for Coastal Research, including for Integrated Coastal Zone Management and Planning.		
Free keywords [8]		Coastal observatory, operational oceanography, physical and biochemical coastal parameters, Marine Science, Network of observatori	

Abstract [9]

Around European coastal seas, the number of marine observing systems is quickly increasing under the pressure of both monitoring requirements and oceanographic research. Present demands for such systems include reliable, high-quality and comprehensive observations, automated platforms and sensors systems, as well as autonomy over long time periods. In-situ data collected, combined with remote sensing and models output, contribute to detect, understand and forecast the most crucial coastal processes over extensive areas within the various national and regional marine environments.
Coastal observations are an important part of the marine research puzzle of activities and applications. However significant heterogeneity exists in Europe concerning technological design of observing systems, measured parameters, practices for maintenance and quality control, as well as quality standards for sensors and data exchange. Up to now, the expansion of “coastal observatories” has been driven by domestic interests and mainly undertaken through short-term research projects. Therefore the main challenge for the research community is now to increase the coherence and the sustainability of these dispersed infrastructures by addressing their future within a shared pan-European framework.
This is the main objective of JERICO, which proposes a Pan European approach for a European coastal marine observatory network, integrating infrastructure and technologies such as moorings, drifters, ferrybox and gliders. Networking activities will lead to the definitions of best practices for design, implementation, maintenance and distribution of data of coastal observing systems, as well as the definition of a quality standard. Harmonisation and strengthening coastal observation systems within EuroGOOS regions will be sought.
Unique twin Trans National Access experiments will be carried out in order to reveal the potential of datasets used in synergy. Central coastal infrastructure in Europe will be opened for international research. This will among other benefits GMES and European contribution to climate change research.
New joint research will be conducted in order to identify new and strategic technologies to be implemented in the next generation European coastal observatories. Focus is given on emerging technologies and the biochemical compartment.
JERICO intends to contribute to the international and global effort on climate change research (GEOSS), to provide coastal data inputs for operational ocean observing and forecasting, and also to answer to some of the needs of the environmental research and societal communities.

A2:
List of Beneficiaries

Project Number [1]	262584	Project Acronym [2]	JERICO

List of Beneficiaries

No	Name	Short name	Country	Project entry month[10]	Project exit month
1	INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	IFREMER	France	1	48
2	SUOMEN YMPARISTOKESKUS	SYKE	Finland	1	48
3	INSTYTUT BUDOWNICTWA WODNEGO POLSKIEJ AKADEMII NAUK	IBWPAN	Poland	1	48
4	DANMARKS METEOROLOGISKE INSTITUT	DMI	Denmark	1	48
5	NORSK INSTITUTT FOR VANNFORSKNING	NIVA	Norway	1	48
6	HAVFORSKNINGSINSTITUTTET	IMR	Norway	1	48
7	STICHTING DELTARES	DELTARES	Netherlands	1	48
8	ISTITUTO NAZIONALE DI OCEANOGRAFIA E DI GEOFISICA SPERIMENTALE OGS	OGS	Italy	1	48
9	CONSIGLIO NAZIONALE DELLE RICERCHE	CNR	Italy	1	48
10	UNIVERSITA TA MALTA	UOM	Malta	1	48
11	HELLENIC CENTRE FOR MARINE RESEARCH	HCMR	Greece	1	48
12	NATURAL ENVIRONMENT RESEARCH COUNCIL	NERC	United Kingdom	1	48
13	ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA	INGV	Italy	1	48
14	HELMHOLTZ-ZENTRUM GEESTHACHT ZENTRUM FUR MATERIAL- UND KUSTENFORSCHUNG GMBH	HZG	Germany	1	48
15	INSTITUT ROYAL DES SCIENCES NATURELLES DE BELGIQUE	MUMM	Belgium	1	48
16	THE SECRETARY OF STATE FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS	CEFAS	United Kingdom	1	48
17	SVERIGES METEOROLOGISKA OCH HYDROLOGISKA INSTITUT	SMHI	Sweden	1	48
18	AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	CSIC	Spain	1	48
19	STICHTING KONINKLIJK NEDERLANDS INSTITUUT VOOR ZEEONDERZOEK (NIOZ)	NIOZ	Netherlands	1	48

A2:
List of Beneficiaries

No	Name	Short name	Country	Project entry month[10]	Project exit month
20	MARINE INSTITUTE	MI	Ireland	1	48
21	BLUE LOBSTER IT LIMITED	BL	United Kingdom	1	48
22	FUNDACION AZTI/AZTI FUNDAZIOA	TECNALIA-AZTI	Spain	1	48
23	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	INSU/CNRS	France	1	48
24	INSTITUTO HIDROGRAFICO	IH	Portugal	1	48
25	INSTITUTE OF OCEANOLOGY - BULGARIAN ACADEMY OF SCIENCES	IO-BAS	Bulgaria	1	48
26	Puertos del Estado	PUERTOS	Spain	1	48
27	CENTRO EURO-MEDITERRANEO PER I CAMBIAMENTI CLIMATICI SCARL	CMCC	Italy	1	48

A3:
Budget Breakdown

Project Number [1]	262584	Project Acronym [2]	JERICO

One Form per Project

Participant number in this project [11]	Participant short name	Fund. % [12]	Ind. costs [13]	Estimated eligible costs (whole duration of the project)						Total receipts	Requested EU contribution
				RTD (A)	Coordination (B)	Support (C)	Management (D)	Other (E)	Total A+B+C+D+		
1	IFREMER	75.0	A	200,568.08	513,799.12	107,293.00	622,995.75	0.00	1,444,655.95	0.00	1,048,135.59
2	SYKE	75.0	A	205,778.00	153,831.40	24,976.00	0.00	0.00	384,585.40	0.00	278,362.61
3	IBWPAN	75.0	T	0.00	41,600.00	37,879.98	0.00	0.00	79,479.98	0.00	59,976.98
4	DMI	75.0	A	121,251.00	3,585.00	0.00	0.00	0.00	124,836.00	0.00	94,523.00
5	NIVA	75.0	A	242,777.00	414,037.12	119,447.40	22,348.64	0.00	798,610.16	0.00	517,850.53
6	IMR	75.0	A	0.00	185,927.60	18,395.00	0.00	0.00	204,322.60	0.00	155,923.00
7	DELTARES	75.0	A	49,602.00	146,689.00	0.00	0.00	0.00	196,291.00	0.00	141,436.62
8	OGS	75.0	S	75,038.00	259,919.10	71,263.20	0.00	0.00	406,220.30	0.00	289,800.78
9	CNR	75.0	S	73,335.00	323,812.49	174,360.69	2,400.00	0.00	573,908.18	0.00	434,874.69
10	UOM	75.0	T	0.00	94,142.40	0.00	0.00	0.00	94,142.40	0.00	62,957.73
11	HCMR	75.0	A	141,390.00	414,692.00	131,220.26	24,726.00	0.00	712,028.26	0.00	538,262.76
12	NERC	75.0	A	249,232.00	365,227.00	125,069.45	4,800.00	0.00	744,328.45	0.00	513,805.06
13	INGV	75.0	T	0.00	39,664.00	0.00	0.00	0.00	39,664.00	0.00	26,525.00
14	HZG	75.0	A	208,979.00	259,160.30	69,627.60	2,400.00	0.00	540,166.90	0.00	394,221.30
15	MUMM	75.0	T	132,000.00	115,904.40	0.00	0.00	0.00	247,904.40	0.00	187,790.13
16	CEFAS	75.0	T	29,771.00	296,511.00	0.00	0.00	0.00	326,282.00	0.00	187,608.25
17	SMHI	75.0	A	47,820.00	195,775.00	31,582.00	0.00	0.00	275,177.00	0.00	191,122.95
18	CSIC	75.0	A	41,800.00	149,781.16	103,182.30	0.00	0.00	294,763.46	0.00	226,476.33
19	NIOZ	75.0	A	0.00	38,635.00	0.00	0.00	0.00	38,635.00	0.00	26,055.00
20	MI	75.0	A	93,200.00	102,550.00	17,743.00	0.00	0.00	213,493.00	0.00	171,691.00
21	BL	75.0	F	0.00	131,828.40	30,655.00	0.00	0.00	162,483.40	0.00	148,201.99

A3:
Budget Breakdown

Participant number in this project [11]	Participant short name	Fund. %[12]	Ind. costs[13]	Estimated eligible costs (whole duration of the project)						Total receipts	Requested EU contribution
				RTD (A)	Coordination (B)	Support (C)	Management (D)	Other (E)	Total A+B+C+D+		
22	TECNALIA-AZTI	75.0	A	0.00	72,118.74	0.00	0.00	0.00	72,118.74	0.00	58,134.00
23	INSU/CNRS	75.0	T	304,081.60	164,120.00	103,533.60	2,400.00	0.00	574,135.20	0.00	443,750.05
24	IH	75.0	A	0.00	39,665.00	0.00	0.00	0.00	39,665.00	0.00	39,552.00
25	IO-BAS	75.0	F	0.00	21,090.00	0.00	0.00	0.00	21,090.00	0.00	18,805.25
26	PUERTOS	75.0	T	0.00	108,512.00	44,608.00	0.00	0.00	153,120.00	0.00	117,175.40
27	CMCC	75.0	T	166,920.00	2,680.00	0.00	0.00	0.00	169,600.00	0.00	126,982.00
Total				2,383,542.68	4,655,257.23	1,210,836.48	682,070.39	0.00	8,931,706.78	0.00	6,500,000.00

Note that the budget mentioned in this table is the total budget requested by the Beneficiary and associated Third Parties.

*** The following funding schemes are distinguished**

Collaborative Project (if a distinction is made in the call please state which type of Collaborative project is referred to: (i) Small of medium-scale focused research project, (ii) Large-scale integrating project, (iii) Project targeted to special groups such as SMEs and other smaller actors), Network of Excellence, Coordination Action, Support Action.

1. Project number

The project number has been assigned by the Commission as the unique identifier for your project, and it cannot be changed. The project number **should appear on each page of the grant agreement preparation documents** to prevent errors during its handling.

2. Project acronym

Use the project acronym as indicated in the submitted proposal. It cannot be changed, unless agreed during the negotiations. The same acronym **should appear on each page of the grant agreement preparation documents** to prevent errors during its handling.

3. Project title

Use the title (preferably no longer than 200 characters) as indicated in the submitted proposal. Minor corrections are possible if agreed during the preparation of the grant agreement.

4. Starting date

Unless a specific (fixed) starting date is duly justified and agreed upon during the preparation of the Grant Agreement, the project will start on the first day of the month following the entry info force of the Grant Agreement (NB : entry into force = signature by the Commission). Please note that if a fixed starting date is used, you will be required to provide a detailed justification on a separate note.

5. Duration

Insert the duration of the project in full months.

6. Call (part) identifier

The Call (part) identifier is the reference number given in the call or part of the call you were addressing, as indicated in the publication of the call in the Official Journal of the European Union. You have to use the identifier given by the Commission in the letter inviting to prepare the grant agreement.

7. Activity code

Select the activity code from the drop-down menu.

8. Free keywords

Use the free keywords from your original proposal; changes and additions are possible.

9. Abstract

10. The month at which the participant joined the consortium, month 1 marking the start date of the project, and all other start dates being relative to this start date.

11. The number allocated by the Consortium to the participant for this project.

12. Include the funding % for RTD/Innovation – either 50% or 75%

13. Indirect cost model

A: Actual Costs
S: Actual Costs Simplified Method
T: Transitional Flat rate
F :Flat Rate

Workplan Tables

Project number

262584

Project title

JERICO—TOWARDS A JOINT EUROPEAN RESEARCH INFRASTRUCTURE NETWORK FOR COASTAL OBSERVATORIES

Call (part) identifier

FP7-INFRASTRUCTURES-2010-1

Funding scheme

Combination of CP & CSA

WT1
List of work packages

Project Number [1]	262584	Project Acronym [2]	JERICO

LIST OF WORK PACKAGES (WP)

WP Number [53]	WP Title	Type of activity [54]	Lead beneficiary number [55]	Person-months [56]	Start month [57]	End month [58]
WP 1	A COMMON STRATEGY	COORD	23	61.30	1	48
WP 2	STRENGTHENING REGIONAL AND TRANS-REGIONAL ACTIVITIES	COORD	6	36.25	1	48
WP 3	HARMONIZING TECHNOLOGICAL ASPECTS	COORD	14	104.70	1	48
WP 4	HARMONIZING OPERATION AND MAINTENANCE METHODS	COORD	11	84.50	1	48
WP 5	DATA MANAGEMENT AND DISTRIBUTION	COORD	8	52.10	1	48
WP 6	OUTREACH	COORD	16	33.05	1	48
WP 7	SERVICE AND DATA ACCESS	SUPP	1	1.00	18	48
WP 8	TRANSNATIONAL ACCESS TO COASTAL OBSERVATORIES	SUPP	9	2.50	1	48
WP 9	NEW METHODS TO ASSESS THE IMPACT of COASTAL OBSERVING SYSTEMS	RTD	27	57.50	1	42
WP 10	IMPROVED EXISTING AND EMERGING TECHNOLOGIES	RTD	20	142.50	1	48
WP 11	MANAGEMENT OF THE PROJECT	MGT	1	50.00	1	48
			Total	625.40		

WT2:
List of Deliverables

Project Number [1]	262584	Project Acronym [2]	JERICO

List of Deliverables - to be submitted for review to EC

Delive-rable Number [61]	Deliverable Title	WP number [53]	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
D1.1	First call for TNA proposals	1	9	5.00	R	PU	8
D1.2	Rationale and definitions for a common strategy	1	23	6.00	R	PU	9
D1.3	Terms of reference of the FCT	1	20	3.00	R	PU	9
D1.4	JERICO label definition	1	11	2.00	O	PU	18
D1.5	Second call for TNA proposals	1	9	5.00	R	PU	20
D1.6	First report of the FCT activity	1	20	3.00	R	PU	24
D1.7	First report of the access activity	1	9	5.00	R	PU	24
D1.8	Second assessment of the FCT activity	1	1	3.00	R	PU	36
D1.9	Proposed strategy for biodiversity	1	19	4.00	R	PU	36
D1.10	Second report of the access activity	1	9	5.00	R	PU	42
D1.11	Final report	1	23	20.30	R	PU	48
D2.1	Report on existing observation	2	6	6.00	R	PU	12
D2.2	Report on recommendations	2	6	9.00	R	PU	12
D2.3	Integrated Pan European Atlas/first report	2	6	6.00	R	PU	18
D2.4	Demonstration of the feasibility of joint trans-regional production	2	17	9.00	P	PU	24

WT2:
List of Deliverables

Delive-rable Number [61]	Deliverable Title	WP number [53]	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
D2.5	Integrated Pan European Atlas/second report	2	6	6.25	R	PU	48
D3.1	Report on current status of ferrybox	3	14	20.00	R	PU	9
D3.2	Report on current status of gliders observatories within Europe	3	18	20.00	R	PU	15
D3.3	Review of current marine fixed instrumentation	3	14	20.00	O	PU	21
D3.4	Report on new sensor developments	3	14	24.70	R	PU	36
D3.5	Conclusion report	3	14	20.00	R	PU	42
D4.1	Report on existing facilities	4	14	10.00	R	PU	18
D4.2	Report on calibration best practices	4	14	20.00	R	PU	36
D4.3	Report on biofouling prevention methods	4	9	20.00	R	PU	36
D4.4	Report on best practice in operation and maintenance	4	11	20.00	R	PU	42
D4.5	Report on running costs	4	11	14.50	R	RE	42
D5.1	DM data management handbook V1	5	1	6.00	R	PU	8
D5.2	RT data management handbook V1	5	1	6.00	R	PU	8
D5.3	First data management report	5	8	6.00	R	PU	24

WT2:
List of Deliverables

Delive-rable Number [61]	Deliverable Title	WP number [53]	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
D5.4	Guidelines for uncertainty	5	8	6.00	R	PU	30
D5.5	Report on uncertainty	5	8	6.10	R	PU	42
D5.6	DM data management handbook V2	5	8	6.00	R	PU	48
D5.7	Second data management report	5	8	10.00	R	PU	48
D5.8	RT data management handbook RT V2	5	8	6.00	R	PU	48
D6.1	Design and launching of JERICO OceanBoard V0	6	16	6.00	P	PU	6
D6.2	Jerico Community Hub	6	16	5.00	P	PU	12
D6.3	Summer school 1	6	7	4.00	R	PU	15
D6.4	Development and implementation of suite of web-based interactive tools	6	16	8.00	D	PU	24
D6.5	Summer school 2	6	10	4.00	R	PU	27
D6.6	Final version of JERICO OceanBoard	6	16	6.05	P	PU	30
D7.1	Service provision	7	1	1.00	R	PU	48
D8.1	Trans National Access Provision	8	9	2.50	R	PU	48
D9.1	First scientific report	9	27	10.00	R	PU	12
D9.2	First report on OSE	9	11	10.00	R	PU	18
D9.3	First report on OSSE	9	4	10.00	R	PU	18

WT2:
List of Deliverables

Delive-rable Number [61]	Deliverable Title	WP number [53]	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
D9.4	Second scientific report	9	27	7.50	R	PU	24
D9.5	Second report OSE	9	11	10.00	R	PU	36
D9.6	Second report on OSSE	9	4	10.00	R	PU	36
D10.1	Report on trials and deployment	10	20	20.00	R	PU	36
D10.2	Set of software	10	23	60.00	R	PU	42
D10.3	Report on data analysis	10	14	32.50	R	PU	42
D10.4	Report on potential new sensors	10	1	30.00	D	PU	42
D11.1	Signed consortium agreement	11	1	2.00	R	PU	2
D11.2	Quality assurance plan	11	11	5.00	R	PU	3
D11.3	Identity Set	11	5	2.00	O	PU	6
D11.4	First periodic report	11	1	12.00	R	PU	18
D11.5	Second periodic report	11	1	12.00	R	PU	36
D11.6	Final report	11	1	15.00	R	PU	48
			Total	623.40			

WT3:
Work package description

Project Number [1]	262584	Project Acronym [2]	JERICO

One form per Work Package

Work package number [53]	WP1	Type of activity [54]	COORD
Work package title	A COMMON STRATEGY		
Start month	1		
End month	48		
Lead beneficiary number [55]	23		

Objectives

Although they share the same objective, aiming at getting operational data for assessment, model validation and assimilation purposes, the heterogeneity of the high-frequency in situ measurements obtained from coastal observatories is striking. The set of measured parameters and the density of their respective coverage obviously differ, due to the incentives that initiated the implementation of such or such network. Precision and reliability do not hinge on pan-European standards, and some concurrent methods are not cross-validated. Moreover, the sustainability would also rely on the availability of project funding or on the renewal of service level agreements, which barely cover excessively high running costs due to maintenance at sea, recalibration, etc. Hence, coastal observatories have rapidly developed along most European shorelines, but with such diversity that JERICO truly becomes a timely initiative.

This full work package is therefore devoted to developing a common strategy:
- listening representative user committees and accounting for the richness of the various initial approaches,
- defining the most efficient standards by way of a label that does not kill initiative but recognizes shared values,
- plotting a convincing roadmap from the conclusions of the project.
It should then help all stakeholders to benefit from well-designed, well-maintained and cost effective observatories to fulfil the needs for coastal data in research and operational usage. Pan-European governance should then be proposed, that would carry on this harmonisation process and foster the expansion of coastal observations. As a first step, a long-lasting forum should be launched, that will provide a clear response to the lack of competitiveness of the oceanographic instrumentation in Europe, due to the fragmentation of the market. As for the global research and operational infrastructure, for obvious geographical reasons the network of coastal observatories should remain distributed, but the JERICO partners wish to design a common implementation strategy with a clear message, by visible outcomes.

Therefore, the objectives of NA1 is to address these issues by:

Launching a European strategic view on operational coastal observatories:
- to analyse with shared criteria the initial state of existing networks among the ROOSs: commonalities and differences will be highlighted, obviously showing gaps and unbalanced coverage;
- to inform stakeholders, mainly public authorities and research consortia, where and why information is missing, pointing out which natural or anthropogenic processes can not be presently tracked, and which operational services are missing or provided with insufficient accuracy, for research purposes but also for objective assessments regarding the European policies and regulations, such as the WFD and the MSFD;
- to show ways to reduce the investment and the running cost;
- to find out mechanisms for durable links with financial resources including new economical models;
- to identify future technological and methodological developments;
- to evaluate further, within the same time frame, the needs expressed by scientists and by operational systems for a larger geographical and thematic coverage of the coastal observatories;
- to prepare an ad-hoc governance scheme facilitating and linking European coastal observatories.

Creating a JERICO label:
- to establish a consensus on guidelines for best practices in the design, the implementation, the maintenance, the data policy and the valorisation of operational coastal observatories;

- to get, for the partners and all new comers that comply with this label, a fair recognition of the quality of the managed observatories;
- to help stakeholders becoming aware of the European interest in the development of high quality coastal observatories;
- to foster a wider market for the industry in sensor technology and platforms based on the agreed standards.

Organizing a Forum for Coastal Technology:
- to set up a non profit-making mechanism scheme to promote and share informal exchanges on scientific and technical topics related to coastal environment;
- to provide a strong interface between SMEs, industry, stakeholders and science & technology, e.g. by joint developments and technology transfer;
- to provide a market intelligence tool, indicator of the tendencies/growth on the JERICO related market on instruments and services,
- to seed a Euro-Act, based on the model and in close collaboration with the US-ACT organization;
- to provide an unbiased third party testbed for sensors and measuring systems;
- to prospect the market, forecasting scientific and societal needs for new coastal observations;
- to identify upcoming standards for quality assessment and for reducing equipment and maintenance costs, by exchange over best practices;
- to sustain joint research and development initiatives on sensors and platforms.

To promote open access to JERICO network
The primary objectives of this WP is to enable scientists and engineers to have access to original infrastructures to which they do not have access to in their countries. They include fixed platforms, buoys, profiling systems, gliders, ferryboxes and associated support facilities (e.g., calibration laboratories).
These access opportunities will also contribute to:
- build a long-term collaboration between users and JERICO's partners and associated, facilitating the staff exchange and scientific collaboration among them,
- build a real European facility for science dedicated to innovation (new sensors , new automated platforms), opening the access for users also from non-EU countries of common regional interest (South Mediterranean, Black sea, Baltic Sea),
- promote the infrastructure by transferring know-how from the partners to users and may be future partners (including from non European countries).

Description of work and role of partners

This work is split into 6 specific tasks. For each one, the task leader is in charge of the first set of propositions which are disseminated to the other partners for reviewing, comments and alternatives. Work progresses through an e-mail forum process under NA0. At each semester meeting, tasks restitutions are performed and discussed, and recommendations for the following period are agreed. This important work package for the future of the European operational coastal observatories implies that the larger part of the partners will be involved for their awareness, their contribution and their proposals.

TASK 1.1 : SET UP THE SCENE AND IMPLEMENTATION PLAN(M1-M24) (INSU, all)
The task has a chronological development, consisting of:
- as from M1, agreeing on many definitions and rationale, that are necessary to propose a later analysis of the existing observatories, to define the JERICO label, to propose a roadmap for future governance. This subtask will take the form of a well documented glossary, based on the outcomes of previous projects and the experience of several international working groups (for instance, reflexions dedicated to the coastal component of GOOS). Examples of such rationale are a priority list of measured variables, standards on quality assurance valid for research and core operational data, all these terms needing to be defined at first;
- organizing a meeting in Australia with IMOS to compare the two initiative and stress a real cooperation with the Australian community;
- setting the terms of reference of the Forum for Coastal Technologies, in order to share experiment and technical knowledge, but also to help in building a sound niche market on which European manufacturorscan take an international leadership (reduce the fragmentation of the market);
- analysing the present successes and gaps of the existing facilities, after NA2 has drawn a GIS map harmonized among the ROOSs, under the following criteria: relevance of the data: scientific validation, fitness of the time/space scale for the main physical/biological processes, for scientific or monitoring purposes, the WFD and MSFD being considered as guidelines; quality of the data: confidence, existence of standardised

protocols, qualification process with respect to sensor drift and recalibration, completeness of the time series; cost efficiency: evaluation of the investment and running costs; benefit optimization: data policy for maximum reuse, dissemination processes, analysis/bulletin.

In practice, the documents will be prepared by animating an e-forum between the partners, agreed upon at the main meetings. As many further deliverables, they will be made publicly available through a library of key JERICO products, providing guidelines and technical guides and manuals on a proper format designed in WP6. This task also animates the user committee, which consists of a selective set of stakeholders bearing different expectations with respect to the usage of data (environmental agencies, harbours, marine protected areas, marine renewable energy, …).

TASK 1.2: JERICO LABEL (M1-M12) (HCMR, PUERTO, HZG, CEFAS)
The work consists of:
- defining the JERICO label for coastal observatories and technology, taking account of compliance with other normative efforts (EU projects SeaDataNet & MyOcean, EU initiative EMODNet); specificity of the coastal issues – heterogeneity of the processes, predominance of the biology, intricacy with ICZM for funding the networks (example of port authorities heavily involved in the monitoring of the major estuaries).
- designing a comprehensive bullet list of what a JERICO observatory should be, with the contribution of the early synthesis of WP3 and WP4: to provide measures on variables related to given criteria (in situ, high frequency, etc.); to follow a quality checkpoint list (precision, availability, metadata, etc.); to ensure a sustainability threshold (long series, financing of maintenance and update).
- ensuring a wide publicity with the tools offered by WP6, in order to attract other teams to adopt the JERICO label, through: a leaflet, a video-clip, or other communication material; presentations in international conferences; instant recognition through a striking logo.

TASK1.3: FORUM FOR COASTAL TECHNOLOGY (FCT) (M6-48) (MI, Ifremer, all)
Towards the implementation of a EURO-ACT (Alliance for Coastal Technology), this tasks contributes to create a market for European oceanographic instruments/techniques. It will consist in:
- implementing a forum to better encourage communication and collaboration between public stakeholders (scientists, managers, executives, ..) and private companies to ensure a common and coherent approach of the technical developments for operational oceanographic systems: to ensure that technologies developed by industry meet the requirements of long term operational oceanographic systems; to unify protocols and technologies to give rise to market opportunities for European SMEs; to define a “JERICO label” for coastal instrumentation; to better link SME/academia/user; to communicate the value of ocean science and ocean observatory systems to business decision making
- animating a scientific secretariat aimed at: organizing the meetings and working groups (guidelines and best practices on specific topics); conducting technical evaluations; disseminating their outcomes (newsletter and WEB site); recording the initiatives of the members.
In practice, this task will require subcontracting, in order to benefit from the experience of third parties (among them, regional clusters) in previous attempts to settle such a European forum. Two meetings are planned during the project.

TASK 1.4: DEFINITION STRATEGY AND INTERFACES WITH THE MONITORING OF MARINE BIODIVERSITY (M12-42) (NIOZ, all)
Besides the development of new sensors and tools, it is also essential to prepare an implementation strategy allowing for the optimization of long-term observations, which are to be carried out within coastal observatories. The state and evolution of marine biodiversity in European coastal waters is the subject of national and international legislation. This task therefore propose to carry out a study on this particular point. JERICO will investigate the potential of existing coastal observatories to develop into observatories of biodiversity and to define interfaces with a future marine biodiversity network.

TASK 1.5: ROADMAP FOR THE FUTURE (M24-48) (INSU, all)
This task analyses and synthesizes the deliverables of all the other workpackages, and will also translate into recommendations the outcomes of the FCT, while meeting regularly with the user committee set up in WP 1.1. Hence, it will consist of:
- drawing an update of the initial GIS map of the network at the end of the project, with the same criteria for the analysis: relevance, quality, cost-efficiency, and valorisation.
- drawing, from the conclusions of WP9 on network optimization, recommendations for an optimal deployment: a new map will be sketched (based on the initial GIS) showing where, and at which cost, short and medium term efforts should be carried out for complementing the network.

- acting as a think tank in relation to the future ERAnet SEASERA, the group will elaborate recommendations for: adapting the cost/benefit analysis for any extension or new implementation of a coastal observatory; distributing the investment and running costs of observatories at the appropriate level corresponding to the observation scale and the added-value of the information: European, Member States, Regions, Local Authorities, professional unions; optimizing the use of available existing funds to improve and develop the coastal observatories (increasing the number of sampling points, improving the functionalities); defining the common infrastructure needs (pool of expertise, pool of equipment/instruments); proposing a pan-European governance for post-I3
- holding a widely open seminar, in order to publicize preliminary recommendations to stakeholders following the success of such an initiative about marine habitat mapping (Interreg MESH project), whose recommendations have become a European standard. A brief list of these stakeholders helps grasping the interest of the meeting: the scientific community to get the feedback over the consistency of the approach (future deployment map, specifications associated to the label) and the ability to keep an encyclopaedic curiosity thanks to the developed systems; the European Commission or institutions (EEA, EMSA), to perceive the requirements induced by its policies (GMES, EMODNET, integrated marine policy); the member states facing their monitoring duties (WFD, MSFD); the local authorities managing their coastal environment (Bathing Waters, maritime traffic, Shell farming…); the professionals with coastal activities (and among them, the designers of information and warning systems).

Milestones for this task might be shifted (especially to occur earlier) in order to adapt to the pace of the implementation of the MSFD, a very strong driver of the societal need for coastal observatories.

TASK1.6: USER MODALITY ACCESS FOR THE TRANS NATIONAL ACTIVITIES (CNR, all WP8 TNA partners)
SUBTASK 1.6.1 : preparationof the call – peer review (M1 - M26)
The activities to be implemented in this task are:
- Drafting of the call, including technical and financial conditions, enabling selection panel to make decision. Rules and procedures to permit access to the infrastructure, either consisting in personnel or instrumentation to be hosted in the labs/observing stations (including ferryboxes, ships of opportunity, fixed platforms, gliders) will be defined by the providers.
- Drafting of the guidelines for common evaluation criteria and developing the processes for scientific and logistic evaluation.
- Setting the “Selection Panel”, composed of independent experts from the scientific community and members from providers. Panel members will be named within the project kick-off meeting.
- Meetings of the panel, to finalize and validate the call drafting, the evaluation/selection criteria, the call information on web site, the planning for the call opening, dead line and decision.
- Meetings of the “Selection Panel” for the access projects selection.
SUBTASK 1.6.2 : Information and reporting activities (M11 – M47)
The activities to be implemented in this task are:
- Drafting of the specifications of the web site (call section), construction and implementation.
- Call opening, proposals reception and transmission to the targeted providers for pre-screening technical review.
- User groups and the providers implement the selected projects and related access to the concerned installations (establishment of a protocol between the provider and the user to state all the access details when necessary).
For each facility allocated a reporting mechanism will be introduced at the end of the testing period which will quantify the scientific and technological outcomes being achieved. An annual report describing experience so far and open projects under ‘the Trans-National Access programme’ will be released on the web page. In order to ensure transparency, fairness and impartiality, the Selection Panel and their assessment reports will be made public via the web. Final TNA recommendations will be produced for a strategic implementation plan of the infrastructure to cover all the European coast line and waters.

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
1	IFREMER	8.00
2	SYKE	2.70

WT3:
Work package description

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
3	IBWPAN	1.00
5	NIVA	8.00
8	OGS	1.00
9	CNR	11.00
11	HCMR	7.00
12	NERC	2.00
14	HZG	2.50
16	CEFAS	2.60
18	CSIC	1.00
19	NIOZ	3.00
20	MI	2.00
23	INSU/CNRS	8.00
25	IO-BAS	1.50
	Total	61.30

List of deliverables

Delive-rable Number [61]	Deliverable Title	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
D1.1	First call for TNA proposals	9	5.00	R	PU	8
D1.2	Rationale and definitions for a common strategy	23	6.00	R	PU	9
D1.3	Terms of reference of the FCT	20	3.00	R	PU	9
D1.4	JERICO label definition	11	2.00	O	PU	18
D1.5	Second call for TNA proposals	9	5.00	R	PU	20
D1.6	First report of the FCT activity	20	3.00	R	PU	24
D1.7	First report of the access activity	9	5.00	R	PU	24
D1.8	Second assessment of the FCT activity	1	3.00	R	PU	36
D1.9	Proposed strategy for biodiversity	19	4.00	R	PU	36
D1.10	Second report of the access activity	9	5.00	R	PU	42
D1.11	Final report	23	20.30	R	PU	48
		Total	61.30			

Description of deliverables

D1.1) First call for TNA proposals: Task 1.6 - first call for trans national access including infrastructure contents, guidelines and evaluation criteria, proposal reception and selection. Announcement on the JERICO web site of the first open call for Trans-National Access to selected facilities of the network. [month 8]

D1.2) Rationale and definitions for a common strategy: Task 1.1 - Report with rationale and definitions for a common strategy including the guidelines and the objectives of the networking activities work packages [month 9]

D1.3) Terms of reference of the FCT: Task 1.3 - Terms of reference of the FCT: definition of the rôle and the objectives of the Forum of Coastal technology task. [month 9]

D1.4) JERICO label definition: Task 1.2 : definition of the JERICO label [month 18]

D1.5) Second call for TNA proposals: Task 1.6 - This is the first call for trans national access including infrastructure contents, guidelines and evaluation criteria, proposal reception and selection. Announcement on the JERICO web site of the second open call for Trans-National Access to selected facilities of the network [month 20]

D1.6) First report of the FCT activity: Task 1.3 - Report of the first forum FCT. [month 24]

D1.7) First report of the access activity: Release on the JERICO web site of the first annual report of the access activity [month 24, link with Task 1.6] [month 24]

D1.8) Second assessment of the FCT activity: Task 1.3 - Report of the second forum FCT. [month 36]

D1.9) Proposed strategy for biodiversity: Task 1.4 - Report on a proposed strategy with the future monitoring of marine biodiversity in European waters [month 36]

D1.10) Second report of the access activity: Release on the JERICO web site of the second annual report of the access activity [month 42 Task 1.6] [month 42]

D1.11) Final report: Task 1.5 Final report including a roadmap for the next decade. [month 48]

Schedule of relevant Milestones

Milestone number [59]	Milestone name	Lead benefi-ciary number	Delivery date from Annex I [60]	Comments
MS5	First steering committee outputs	23	9	First steering committee report
MS6	Infrastructure available for users	23	11	Call
MS7	First forum for coastal technology	23	18	First forum report
MS8	Second steering committee outputs	23	18	Second steering committee report
MS9	Third steering committee outputs	23	27	Third steering committee report
MS10	Second forum for coastal technology	23	30	Second forum report
MS11	Fourth steering committee outputs	23	36	Fourth steering committee report
MS12	Five steering committee outputs	23	45	Five steering committee report
MS13	User reports of activities	23	47	Final report
MS14	Roadmap for the future	23	48	Final report

WT3:
Work package description

Project Number [1]	262584	Project Acronym [2]	JERICO

One form per Work Package

Work package number [53]	WP2	Type of activity [54]	COORD
Work package title	STRENGTHENING REGIONAL AND TRANS-REGIONAL ACTIVITIES		
Start month	1		
End month	48		
Lead beneficiary number [55]	6		

Objectives

The European seas and coastal regions are different in many ways. To meet the differences and also the different needs, EuroGOOS has since 1996 followed a bottom-up approach in the development of European Operational Oceanography supported by pan-European activities for cross-cutting subjects such as technology, science, and data exchange. Regional task teams were established for the development of observations and services, these have developed into regional operational observing/oceanographic systems (ROOSs); today known as Arctic ROOS, BOOS, IBI-ROOS, MOON, and NOOS, representing the European Arctic, the Baltic, the Irish-Biscay-Iberian area, the Mediterranean and the European Northwest Shelf. A ROOS has yet to be established in the Black Sea area but there have been a number of cooperative activities and EU-funded operational oceanography projects around the Black Sea. The efforts undertaken within the ROOSs are today agreed under international interagency MoUs.

Improving our coastal monitoring and mapping capability is a major task in order to meet present challenges such as the implementation of the EU water framework directive, the management of conflict areas, or more generally the detection of reliable trends related to environmental changes.

The key issue for the establishment of a sustained operational coastal observing system in the ROOS areas is integration and further development of the existing observational systems and data sets. The data collected within the ROOSs should fulfil operational needs as well as temporary and long-term demands, i.e. scientific research needs and national policies on sustainable use of coastal regions.

Because of the scale of the phenomena such as waves, currents, storms, living resources and pollutants it is obvious that these activities and demands cannot be restricted to a national area on the different continental shelves. The monitoring of Coastal water systems with their strong dynamic variability requires a very dense sampling in time and space. The high resolution is necessary to assess the patchy nature of plankton blooms and high temporal variability caused e.g. by short term events like exceptionally strong phytoplankton blooms or upwelling events that may cause Harmful Algae Blooms.

Current efforts are mostly focussed on physical parameters and programs on in situ monitoring of ecosystem relevant parameters are only scarcely in operational mode. These efforts are mainly carried out by manual sampling and subsequent analysis along with regularly (semi-annual or quarterly) monitoring cruises with Research Vessels or by stationary measuring systems like buoys. The upcoming regional coastal observatories are trying to fill that gap, but an overall assessment of their abilities has not yet been undertaken.

The strategy of the work6package will follow therefore the approach that each of the named regions will continue to analyse the conditions on which existing observations can be made available and identifying the gaps within the observational systems. By doing so, an overall picture will be generated displaying the actual status of the coastal observing systems in Europe. It will be crucial to establish:
- More cooperation between the surrounding countries designing the observing system needed for each ROOS area and on Pan-European level.
- A better geographical coverage of the sampling programmes in particular at regional scale.
- Enhanced acquisition and access to observations from the observational systems in an operational sense.

The overall objectives of the Workpackage are:
- Make an inventory of existing coastal observing systems, terms of data accessibility (update SEPRISE, EDIOS, etc with focus on bio chemical parameters) and display them.

- To identify data to be used for demonstration, regional and trans-regional, for inter-calibration (WP4) and data collection in servers (WP5).
- To identify main gaps between accessible observations and data needs and propose how to fill these gaps at the regional level (link with WP9, European level).
- To demonstrate the feasibility of joint trans-regional product production.

Description of work and role of partners

The Work within the Work-package 2 is twofold. Within Task 2.1 an assessment of the coastal observing systems will be carried out for each of the European regions. Special focus will be laid on bio-chemical parameters that are scarcely taken into account in the ongoing European operational initiatives. Task 2.2 is aiming for the demonstration of pan European activities.

TASK 2.1: STATE OT THE ART IN COASTAL OBSERVING SYSTEMS (Lead: IMR, contributing: All)In each of the European regions the state of the Art in terms of coastal observing systems will be addressed, contributing to an overall atlas of the European coastal observing systems. For each region a responsible institute will carry out the following work:
- Review of ongoing and planned programmes and projects collecting in situ data
- Establishment of an inventory of existing observing systems, with special focus on issues that up until now have not been sufficiently considered - biochemical parameters, terms for data accessibility, administrative and legal barriers
- Identify data and make data available on servers
- Identification of the main gaps between accessible observations and data needs, define priorities
- Propose recommendations on how to fill these gaps at the regional level. The responsible partners for the specific regions are:
Arctic ROOS: IMR
BOOS: SMHI
NOOS: Deltares, IMR
IBI ROOS:IH and AZTI
MOON: INGV
Black Sea: IO-BAS

TASK 2.2: CROSS REGIONAL INTEGRATION AND DEMONSTRATION (Lead: SMHI, contributing: All)
There are two exemplary activities planned for this task:
- Demonstration of pan-European transport product
- E-HYPE European Hydrological Predictions for the Environment
The transport demonstration includes:
- Exploring/inventory of JERICO partners with observations which concentrate on fluxes in the different areas
- Define operational products based on this and connect to operational users
- Operational users that are foreseen: OSPAR., Marine framework Directive, National requirements, National authorities, science related to ecosystem approach
The focal point of the E-HYPE activity will be the
- Access to water discharge and nutrient transport from main rivers and diffuse outlets on a daily timescale and at a high spatial resolution.
- Access to hindcast data for monitoring changes in the coastal environment
- Incorporating observations into the river runoff model to increase its performanceIntegration of transport and river runoff will be demonstrated by:
- Evaluation of the effect of including river data in operational coastal modelling of transport of nutrientsThe responsible partners for the two demonstrations will be:
- Demonstration of pan-European transport product --> SMHI
- E-HYPE European Hydrological Predictions for the Environment --> SMHI

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
6	IMR	8.25

WT3:
Work package description

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
7	DELTARES	4.00
13	INGV	5.00
17	SMHI	7.00
22	TECNALIA-AZTI	3.00
24	IH	2.00
25	IO-BAS	7.00
	Total	36.25

List of deliverables

Delive-rable Number [61]	Deliverable Title	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
D2.1	Report on existing observation	6	6.00	R	PU	12
D2.2	Report on recommendations	6	9.00	R	PU	12
D2.3	Integrated Pan European Atlas/first report	6	6.00	R	PU	18
D2.4	Demonstration of the feasibility of joint trans-regional production	17	9.00	P	PU	24
D2.5	Integrated Pan European Atlas/second report	6	6.25	R	PU	48
		Total	36.25			

Description of deliverables

D2.1) Report on existing observation: Task 2.1 - Report on existing observation network from all the six ROOS [month 12]

D2.2) Report on recommendations: Task 2.1 - Report on recommendations for future research and developments for filling gaps in the areas where observations are unattainable due to lack of best practice or technologies from all ROOSs [month 12]

D2.3) Integrated Pan European Atlas/first report: Task 2.1 - Integrated Pan European Atlas/first report on Coastal Observing systems [month 18]

D2.4) Demonstration of the feasibility of joint trans-regional production: Task 2.2 - Demonstration of the feasibility of joint trans-regional product production - Transports and E-HYPE [month 24]

D2.5) Integrated Pan European Atlas/second report: Task 2.1 - Integrated Pan European Atlas/second report on Coastal Observing systems, update at the end of the project [month 48]

WT3:
Work package description

Schedule of relevant Milestones

Milestone number [59]	Milestone name	Lead benefi-ciary number	Delivery date from Annex I [60]	Comments
MS27	Report on activities	6	42	For final report (WP1)

WT3:
Work package description

Project Number [1]	262584	Project Acronym [2]	JERICO

One form per Work Package

Work package number [53]	WP3	Type of activity [54]	COORD
Work package title	HARMONIZING TECHNOLOGICAL ASPECTS		
Start month	1		
End month	48		
Lead beneficiary number [55]	14		

Objectives

- To provide a common base for the operational use of FerryBoxes, gliders, fixed platforms along European coasts
- To review the current status of existing systems in operational use in European seas
- To define the best technical practices for compatible, robust and cost-effective systems
- To define procedures for harmonizing and merging quality assessed FerryBox and Fixed platform data at regional (ROOS) level
- To define procedures and technological solutions for integration and testing of new sensors on these systems

Description of work and role of partners

TASK 3.1: FERRYBOX (FB)

Objectives:
- To review the current status and best technical practices of the existing FB systems and to harmonise the resulting data
- To provide technological solutions to integrating new sensors, developed in WP10, into FBs
- To define consensual procedures for using FerryBox data in validation of earth observation data

Methodology / work description:
The review of existing FBs and discussion on best practices will be performed through two main 3-day workshops gathering the entire European FerryBox community (every institute operating a FerryBox line). The core group in this task (HZG, NIVA, NERC and SYKE) who have been the main operators/developers of the FB concept will be in charge of preparing, organising and reporting on the workshops.
1st workshop (M3): Dedicated to the reviewing the state-of-the-art; discussion on the harmonisation issues between systems; and identification of and priority setting on technological and scientific gaps to be addressed in JERICO. This will give important and detailed inputs to the JRAs.
2nd workshop (M42): Focus on best practices for and recommendations on developing and implementing FB technologies in Europe and abroad, as well as paving the future by proposing a development plan for an integrated component of European coastal observatories. This development plan will address the gaps identified in workshop 1 in terms of observations and technologies.These two workshops will be jointly organised by WP3 and WP4, since a number of issues (e.g. technological) are common to both.

Subtask 3.1.1: Review current status of existing FB systems (flow-through systems, sensors, quality control, data handling): this will be done via a questionnaire sent to all groups. The answers will be summarised by the core group with the goals of comparing the systems and identifying the main items that should be discussed during workshop 1, especially with respect to harmonisation. A searchable catalogue with the characteristics of the different FB systems will be created (D3.1), and will be continuously updated, as well as a web-based map of past, current and future monitoring locations. Directly linked to WP9

Subtask 3.1.2: Best practice of FB systems (flow-through system, sensors, operation procedures, cleaning, control mechanisms, data handling) will be initially addressed at the 1st workshop, but will be fully tackled at the 2nd workshop. The overall goal of these workshops is to propose clear recommendations for coordinated and harmonised development of FB activity in Europe. Best practice covers the entire infrastructural chain of data acquisition from sensor (performance, robustness, accuracy, etc.) to supporting system (cabling, electric and electronic components, critical sub systems such as debubbling, pumping, etc.). Only the sensor characteristics

that are specific for FB (flow-through systems) will be addressed here; all other sensor issues will be addressed in WP4

Subtask 3.1.3: Harmonization and merging quality assessed data from FB systems in ROOS regions (mainly NOOS & BOOS, where a high number of FBs are in operation).The aim is to derive best practice in future implementations such as FB in the Mediterranean Sea and the IBI-ROOS (where only one FB currently operates). Arctic-ROOS will also been addressed in terms of how FB platforms can contribute in the Arctic region.

Subtask 3.1.4: FBs are an ideal platform for testing new sensors under controlled conditions. The potential of existing FB systems to integrate/accommodate new sensors for a period of time will be identified, e.g., for specific observations of eutrophication and acidification processes (algal, nutrients, pH, pCO2, TIC, alkalinity). This sub-task will be tightly linked to WP10. The technical challenges to achieve easier integration of new sensors will be discussed and best practices will be recommended

TASK 3.2: GLIDERS

Objectives
- To review the current status of the existing glider fleet in operational use in European seas.
- To define the best technical practices for operation of a fleet of glidersMethodology / work descriptionGliders represent new tools for quasi-real time ocean monitoring. There are however specific needs: To test and harmonise general strategies for glider operation in coastal and shallow areas, including the implementation of tools for path planning analysis to consider environmental conditions and its variability (for example from model outputs).

Subtask 3.2.1: Review current status of glider operations in Europe: This will be carried out in coordination with the Gliding Observatories network.

Subtask 3.2.2: Define the best technical practices for operation a fleet of glider

TASK 3.3: FIXED PLATFORMS

Objectives
To increase the use of high-frequency measurements on fixed platforms in European seas by:
- reviewing the current status of existing systems in operational use in Europe and defining best technical practices for compatible, robust and cost-effective systems on a variety of fixed platforms
- defining procedures for harmonizing and merging quality-assessed high-frequency in situ data across regional seas (e.g. the North Sea)
-identifying gaps in the present coverage
- proposing technological solutions for the integration and testing of new sensors on fixed platforms
- sharing data with mobile platforms and remote sensing to create new integrated products
Methodology / work description
Many solutions have been developed for placing unmanned logging sensors in the marine environment in order to collect high quality data for research and monitoring purposes. Sensors have been attached to anchored buoys, to seabed landers and to fixed platforms either onshore or offshore. Some locations have now been successfully collecting environmental data for over 10 years, and this type of continuous high resolution data has a very high value for understanding the marine environment and for fulfilling the requirements of policy (e.g. Marine Strategy Framework Directive). However, there has to date been little co-ordination of effort or comparison of different technological solutions. Even within individual countries there are often several different designs of fixed observing system in operation by different marine agencies. Regardless of the installation method, there are some generic problems which affect the performance of all platform designs, and these can best be solved by working together around Europe. The aim of the WP is therefore:
(1) to review the status of all fixed platform observing systems and
(2) to provide recommendations to JERICO for future improvements in the systems.
To achieve these goals, nine partners have been selected on the basis of their excellent track records in deploying fixed platforms in their own countries, and also on the basis of their willingness to participate regularly in joint actions organised by the regional ocean observatories

Subtask 3.3.1: Review of the current status of all existing fixed observing sites in European waters: A questionnaire (this will be merged with the FB questionnaire) will be sent to all groups. Then, the regional ROOSs (NOOS, IBI-ROOS, BOOS, MOON) will be used to collate data from the remaining countries. The

results will be summarised in the form of a report (D3.3) describing the different 'solutions' which have been generated to solving common problems, for example for choice of sensors, maintenance, energy supply solutions and data telemetry options. A searchable catalogue will be created, and will be continuously updated throughout the project lifetime, as well as a web-based map of past, current and future monitoring locations. This is strongly linked to WP9.

Subtask 3.3.2: Workshop to identify elements of fixed platform technology which clearly represent best practice, and to design a strategy to promote the uptake of such components. The workshop will also select marine sites where new platforms are needed, possibly as a result of joint operations between partners (from WP9). In the workshop important topics for fixed stations will be addressed: different types of platforms, energy supply, telemetry, special sensors for surface and depth etc. Issues of quality and biofouling will be addressed in WP4.

Subtask 3.3.3: Harmonization and merging quality assessed data from fixed platform systems in ROOS regions (NOOS, BOOS, MOON, IBI-ROOS): this activity is cross-cutting through WP3 and will harmonise the outputs of fixed platforms with other systems such as FerryBox/ships of opportunity. The test sites for this will be the North Sea (Cefas, HZG, Ifremer) and Adriatic (CNR).

Subtask 3.3.4: Comparison of new sensors and assessment of their applicability for fixed stations: 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. In this section the performance of potential new sensors will be assessed. The range of instruments to be tested will include carbonate species (e.g. pH and DIC) sensors for ocean acidification, fluorometers for the measurement of primary productivity using the variable fluorescence technique fluorescence, automated nutrient analysers, submersible flow cytometers and water samplers, spectroradiometers and absorption meters. Any advances in existing sensors due to miniaturisation or improved resolution will also be assessed here. This sub-task has a strong relationship to WP10

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
1	IFREMER	2.00
2	SYKE	4.00
3	IBWPAN	6.00
5	NIVA	5.00
8	OGS	4.00
9	CNR	7.00
11	HCMR	8.00
12	NERC	13.00
14	HZG	16.00
15	MUMM	3.00
16	CEFAS	8.00
17	SMHI	4.00
18	CSIC	5.50
20	MI	2.00
22	TECNALIA-AZTI	3.70
23	INSU/CNRS	7.00
26	PUERTOS	6.50
	Total	104.70

WT3:
Work package description

List of deliverables

Deliverable Number [61]	Deliverable Title	Lead beneficiary number	Estimated indicative person-months	Nature [62]	Dissemination level [63]	Delivery date [64]
D3.1	Report on current status of ferrybox	14	20.00	R	PU	9
D3.2	Report on current status of gliders observatories within Europe	18	20.00	R	PU	15
D3.3	Review of current marine fixed instrumentation	14	20.00	O	PU	21
D3.4	Report on new sensor developments	14	24.70	R	PU	36
D3.5	Conclusion report	14	20.00	R	PU	42
		Total	104.70			

Description of deliverables

D3.1) Report on current status of ferrybox: Task 3.1 - Report of the first Workshop on experiences using a FB system (systems, sensors, quality control, data handling), best practise and identifying problems and lacks of best practise [month 9]

D3.2) Report on current status of gliders observatories within Europe: Task 3.2 - Report on the fisrt workshops of gliders observatories within Europe [month 15]

D3.3) Review of current marine fixed instrumentation: Task 3.3 - Review of current marine fixed instrumentation sites describing best practice for operating fixed platforms and identification of potential new sites including an updatable catalogue of hardware used, and a map of locations (results from T 3.3.1 & T 3.3.2) [month 21]

D3.4) Report on new sensor developments: Report on new sensor developments and their suitability for different platforms (FB, Glider, fixed Platforms) linked with tasks 3.1 and 3.3 [month 36]

D3.5) Conclusion report: Task 3.1 - Report summing up the main conclusions from the 2nd workshop on the best practice, common procedures and agreed standards of FB systems [month 42]

Schedule of relevant Milestones

Milestone number [59]	Milestone name	Lead beneficiary number	Delivery date from Annex I [60]	Comments
MS28	Report on activities	14	42	Conclusion report

WT3:
Work package description

Project Number [1]	262584	Project Acronym [2]	JERICO

One form per Work Package

Work package number [53]	WP4	Type of activity [54]	COORD
Work package title	HARMONIZING OPERATION AND MAINTENANCE METHODS		
Start month	1		
End month	48		
Lead beneficiary number [55]	11		

Objectives

Operation and maintenance activities are probably the most crucial elements in the life-cycle of a research infrastructure and in some cases even more demanding than the design and construction of the infrastructure itself. Their successful implementation guarantees the good performance of the infrastructure and the protection of the investment. Coastal observatories have been developed in Europe in a rather uncoordinated way. Usually based on national funding and priorities these observatories have very diverse design and architecture and have established very different practices for their operation and maintenance. For certain subsystems (e.g. FerryBox) past EU projects have established a network of operators through which experience and best practices have been shared but this is not the case for other observing platforms, and certainly not for integrated coastal observatories.

Based on the experience of infrastructure operators and relevant regional activities, this WP will:
- gather elements of best practice in conducting operations and maintaining coastal observatories,
- identify the successes in terms of systems autonomy and reliability,;
- propose common procedures to be followed by all operators.

Therefore, the overall objective of WP4 is to increase the performance and efficiency of the JERICO observatories and improve the overall quality of delivered products.WP4 will interact closely with WP3 especially regarding the performance and needs of different observing platforms as well with WP5 regarding the quality of produced data and the research activities in WP10.

Description of work and role of partners

DESCRIPTION OF WORK

The work is divided into 4 tasks each one with a number of sub-tasks depending on the sensor or the platform. In the first task the effort will be to standardize and harmonize various calibration facilities operating across Europe with particular emphasis on the exchange of know-how and staff among partners. Towards this, a number of joint meetings and workshops will be organized. The second task will deal with the problem of biofouling, sharing the acquired knowledge between partners and reviewing existing methods. The third task is of particular importance as best practices will be described for each system adopting common methodologies and protocols. In the fourth task taking advantage of the wide range of systems and geographical coverage there will be a cost analysis enabling comparison, adjustment and improvements.

TASK 4.1: CALIBRATION (M1 – M42), (HZG, OGS, SMHI, SYKE, NERC(POL), HCMR, CNR, IH)
Reliable calibrations of instruments require well-established, documented procedures, specialized instrumentation, certified or recognized reference material (where these are available), dedicated laboratory facilities, trained personnel, and proven expertise. Although sensor calibration is absolutely crucial for good quality data, it is also a rather difficult task since different sensors have completely different requirements (time intervals) and methodologies. There are two major problems; shipping sensors to manufacturers on regular basis which is neither convenient nor cost efficient and maintenance intervals that 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. 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. The JERICO activities will:

- standardize and harmonize various facilities across European networks,
- share existing calibration facilities within the network, thus significantly reducing costs
- exchange and transfer know-how within the network through a series of workshops, seminars and staff exchange.

SubTask 4.1.1: Physical sensors T, S, DO, Currents, Sea-bed Pressure (OGS, NERC(POL), CNR HCMR).
Physical sensors are the ones with the longer history in the oceanography with significant advancements in the last few years. Following the overall objectives of WP4, the present subtask will be constituted by the following actions:
1) Harmonization of calibration practices through: a) documentation and assessment of existing calibration methodologies, equipment, and reference material currently in use within JERICO suggesting recommendations for standardization and b) organization of joint calibration exercises among partners to arrive at a consensus on methodologies and specifications.
2) Sharing of calibration facilities including: a) joint meetings for documentation of existing calibration infrastructures within JERICO b) identification/definition of potential trans-network “nodes” for these services.
3) Dissemination of know-how and the fostering of technical collaborations/partnerships to deal with pressure, temperature, salinity and dissolved oxygen calibration issues. This activity will provide material to WP6.

SubTask 4.1.2: Optical sensors Chl-a, Turbity, PAR (SMHI, IH, OGS, SYKE).
Optical sensors are used to estimate the biomass of phytoplankton or the amount of suspended particles in the water. Measurements are based on fluorescence, light attenuation or scattering. Chlorophyll-a fluorescence is widely used as a proxy for total phytoplankton biomass. Two important issues are that chla fluorescence may vary due to the composition of phytoplankton communities and that the fluorescence of phytoplankton varies due to photo quenching. Thus irradiation (PAR) is an important parameter in this context but it is also important when primary production is estimated. The present subtask will involve:
1) Harmonization of calibration practices through documentation and assessment of existing calibration methodologies, equipment, and reference material currently in use within JERICO
2) Sharing of calibration facilities including: a) joint meetings for documentation of existing calibration infrastructures within JERICO b) identification/definition of potential trans-network “nodes” for these services.
3) Designation of best practices for the use of optical sensors. This includes recommendations on time of day and frequency for sampling, calibration procedures, anti fouling measures and procedures to combine different data to produce high quality products.

SubTask 4.1.3: Chemical sensors-Nutrients (HZG, CNR).
1) Chemical sensors (either wet chemistry of in situ methods) need frequent calibrations and validation with insitu samples in order to have a satisfactory quality. This is due to deterioration of chemicals, interference with other substances in the water (seasonal or spatial) and other factors. Two main categories can be identified i) wet chemistry sensors for nutrients such as NH4, NO2/NO3, o-PO4, SiO4 and ii) optical sensors, currently only for NO3. The proposed methodology includes: the standardisation of the Standard Operation Procedures (SOPs) for calibration, adopting common procedures on comparisons with samples (time interval, sampling procedure etc.). Moreover, practices on analytical methods applied on seawater samples for in situ validation and long term performances evaluation of chemical sensors (pH, Total Alkalinity, TCO2, dissolved oxygen, dissolved inorganic nutrients, total/dissolved organic carbon) will be documented and harmonized.
2) Sharing of facilities and inter-calibration exercise between the involved institutions will be performed in order to assure a common lab quality.

TASK 4.2: BIO FOULING PREVENTION (M1 – M42), (CNR, HCMR, SYKE, NERC(POL), HZG, NIVA, IFREMER, CNRS)Bio fouling is a common problem across observing systems, even though there is a significant gradient of magnitude in European Seas - north to south and west to east. Additionally each sensor has its own characteristics and requirements. Although during the last few years significant progress has been achieved towards the minimisation of biofouling on optical measurements with the introduction of copper shutters, the problem still exists. During JERICO:
- all different methods used across the network will be described with reference to the cost (implementation, maintenance) and adaptability (different sensors and areas);
- there will be sharing of best practices and methodologies across the network with the aim towards a common approach;
- new methods used by the community external to Jerico will be evaluated to identify and suggest possible future implementation.

SubTask 4.2.1: Physical sensors T, S (HCMR, NERC(POL), IFREMER, CNRS).Biofouling can cause deterioration of data quality for conductivity sensors especially on fixed platforms (including instrumented ferries) and on sea bed landers. In the framework of this subtask:
1) sensors by different manufactures, using different techniques and geometries, will be investigated to see which are the most reliable;
2) dissolved oxygen sensors are commercially available which are claimed to be relatively immune to bio-fouling. These claims will be tested as long data records are obtained.

SubTask 4.2.2: Optical sensors Chl-a, Turbity, PAR (SYKE, NIVA, HCMR).Optical sensors, especially fluorimeters are very sensitive to bio-fouling. Measures to mitigate the unwanted effects have been removal bio-fouling trends from data, mechanical protection, cleaning and washing with detergent or acid. During JERICO:
1) all different methods and approaches will be described and evaluated in terms of costs;
2) the impacts of biofouling on the data quality will be evaluated;
3) recommendations for the best practice will be given.

SubTask 4.2.3: Chemical sensors-Nutrients (CNR, HZG, IFREMER).
During this subtask all the sensors that are used in the JERICO infrastructure for measuring chemical parameters, such as Dissolved Oxygen (DO), pH, partial pressure of carbon dioxide (pCO2) and nutrients will be considered. These sensors are used both on fixed observatories (moored buoys or fixed platforms) and on board ships (research vessels or ferries) as flow-through systems (e.g. ferrybox). Biofouling problems are very different depending on the platform and thus have to be dealt separately. The approach includes:
1) identification of the chemical sensors used across the JERICO network and collection of information about the biofouling prevention methods used (implementation, maintenance and total cost);
2) screening and summary of scientific literature and reports on biofouling prevention methods applied to chemical sensors, including the ones that at present are not used in the JERICO network, but that are recognized a necessary implementation for future applications (as specified by WP1.2 Implementation plan and label definition);
3) comparison of the methodologies identified above with reference to effectiveness and cost.

TASK 4.3: END TO END QUALITY ASSURANCE (M1 – M42), (HCMR, CSIC, NERC(NOCS, POL), CEFAS, SYKE, OGS, HZG, NIVA, IH, AZTI, MUMM, PUERTOS)
The development and operation of observing systems across Europe has been done uncoordinated following the needs and requirements of each member. Quite often within single systems there is significant variation in terms of quality between different operation phases. Considering the importance of observing systems and the substantial investment made until now, an important task of JERICO will be:
- to describe best practices in all phases of the system (pre-deployment test, maintenance, calibration etc);
- to adopt common methodologies and protocols;
- move towards the harmonisation of equipment which will help in reducing maintenance and calibration costs. For this inter calibration tests and in-situ validation will be organised.

SubTask 4.3.1: Fixed Platforms (PUERTOS, HCMR, IH, OGS, NERC(POL), AZTI).
Operating fixed platforms although focusing on more or less the same parameters are characterised by very diverse equipment with different needs and requirements. Considering them as members of a European network it is very important to describe best practices in all phases of the system (preparation, deployment, maintenance, calibration etc), adopt common methodologies and protocols and ultimately move towards improved overall system quality.

SubTask 4.3.2: Ferry Box (NERC(NOCS), HZG, SYKE, NERC(POL), NIVA, MUMM). FerryBoxes are characterised by the measurement of core variables (T, S, Chl a, Turbidity) which are currently measured with different sensors by different operators. This equipment diversity is true for additional measurements (eg nutrients, O2) which are not on all FerryBox operations. To enable regional comparisons (FerryBox to FerryBox), this diversity in sensors and variables requires transparency in best practices in all phases of the setup (e.g. sensor type, deployment, housing, calibration etc). Such transparency will enable adoption of common procedures and hence lead to quality assurance.

SubTask 4.3.3: Gliders (CSIC, OGS, CEFAS)Gliders is a new-technology platform; it is very important that right from the start there will be efforts towards adopting common methodologies and protocols as well as harmonisation of equipment at European level. This will help reducing maintenance and calibration costs. Towards this during JERICO experienced partners will describe best practices in all phases of the system with

emphasis in the optimization of design strategy and quality control. To adequately sample mesoscale and/or submesoscale structures in the coastal areas, that subtask will evaluate and develop an optimal strategy for the deployment of individual and/or coordinated schools of gliders. The strategy of combining glider deployments along altimetry tracks has recently shown new ways of understanding vertical motions associated with mesoscale eddies and biogeochemical exchanges and also a way to evaluate and improve coastal altimetry. Specific quality control procedures will be developed for T,S sensors (pumped/not pumped) in areas of intense gradients such as the thermocline where thermal lag is an important issue.

SubTask 4.3.4: Running costs, (CEFAS, HCMR, NIVA, CSIC, OGS, NERC(POL, NOCS), MI, HZG, AZTI, MUMM) The long term sustainability of the observing systems is an important issue with running costs being the most significant burden. Different phases have different demands and quite often the continuous operation is hindered by both scheduled and unforeseen expenses including routine operation, repair and replacement of equipments, personnel costs, accidents etc. JERICO will provide a unique opportunity:
1) to describe in an analytical form the expenses emanating by the operation of each different system. This will be a valuable tool as it will enable the operators to compare, adjust, improve and exchange practices with ultimate goal the minimisation of costs,
2) to examine the possibility of shared resources i.e. Research Vessels, personnel.

This task will be strongly connected with WP10.3

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
1	IFREMER	2.00
2	SYKE	2.00
5	NIVA	3.00
8	OGS	6.00
9	CNR	7.00
11	HCMR	17.00
12	NERC	10.00
14	HZG	6.00
15	MUMM	2.00
16	CEFAS	4.00
17	SMHI	4.00
18	CSIC	5.50
20	MI	2.00
22	TECNALIA-AZTI	2.50
23	INSU/CNRS	2.00
24	IH	3.00
26	PUERTOS	6.50
	Total	84.50

WT3:
Work package description

List of deliverables

Delive-rable Number [61]	Deliverable Title	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
D4.1	Report on existing facilities	14	10.00	R	PU	18
D4.2	Report on calibration best practices	14	20.00	R	PU	36
D4.3	Report on biofouling prevention methods	9	20.00	R	PU	36
D4.4	Report on best practice in operation and maintenance	11	20.00	R	PU	42
D4.5	Report on running costs	11	14.50	R	RE	42
		Total	84.50			

Description of deliverables

D4.1) Report on existing facilities: Task 4.1 - Report on existing facilities with the capacity to handle pressure, temperature, salinity and dissolved oxygen calibrations amongst the active coastal observing networks [month 18]

D4.2) Report on calibration best practices: Task 4.1 - Report on calibration best practices for the different sensors [month 36]

D4.3) Report on biofouling prevention methods: Task 4.2 - Report on biofouling prevention methods [month 36]

D4.4) Report on best practice in operation and maintenance: Task 4.1 - Report on best practice in conducting operations and maintaining of different systems [month 42]

D4.5) Report on running costs: Task 4.3 - Report on running costs of observing systems [month 42]

Schedule of relevant Milestones

Milestone number [59]	Milestone name	Lead benefi-ciary number	Delivery date from Annex I [60]	Comments
MS15	Constitution of a permanent JERICO Working Group for Calibration Activities	11	30	Working group constitution

WT3:
Work package description

Project Number [1]	262584	Project Acronym [2]	JERICO

One form per Work Package

Work package number [53]	WP5	Type of activity [54]	COORD
Work package title	DATA MANAGEMENT AND DISTRIBUTION		
Start month	1		
End month	48		
Lead beneficiary number [55]	8		

Objectives

A key aspect of an efficient operational observing system is the streamlined processing of real time and delayed mode data, which takes the data from raw to quality assured.The main goal of this WP is to design the JERICO Data Flow and Management infrastructure based on the implementation of an end-to-end 'open and free' conduit from data to users, and upon the guidelines proposed in GOOS Report 148 (2005). The implementation will be consistent with the major European initiatives for the establishment and coordination of infrastructures for the management and distribution of data and products in Europe which, in principle, will also be handling JERICO data (SeaDataNet, EuroGOOS Regional Centres, MyOcean).To be successful as a viable infrastructure, JERICO will need to ensure that the flow of real-time and delayed mode data coming from the participating observing networks will be reliable, accessible and easy to distribute. This WP will therefore be structured into three tasks that will focus respectively on:
- creating value for measured data;
- facilitating data and meta-data flow to existing data repository infrastructures (SeaDataNet);
- delivering real-time JERICO data to MyOcean and Regional/National Forecasting Systems.

Description of work and role of partners

TASK 5.1: CREATE VALUE FOR MEASURED DATA (M1 – M42), (OGS, HCMR)

A measurement is always associated with an uncertainty deriving from several sources: sensor accuracy, precision and stability, weaknesses in the measurement model, sampling error, etc. Existing data transfer and delivery protocols largely employ a posteriori quality control techniques based largely on some basic statistical properties of large populations of measurements of individual measurands. The aim of this task is to develop common procedures for assigning uncertainties to measured parameters within JERICO that comply with state-of-the-art uncertainty measurement methodology. This will be accomplished by:
- collecting existing knowledge regarding key specified sensors and critically evaluating the available literature on their laboratory and in situ performances (in conjunction with WP4);
- defining procedures for ascribing a total uncertainty to measurements that will account for the real conditions under which measurements are taken;
- testing/verifying uncertainty computational procedures.

Methodology
A novel model of a-priori uncertainty will be proposed as a sum of inherent and time-dependent sources of uncertainty (precision and accuracy, instrument drift, experimental uncertainties, the representativity error, etc.). The variables temperature, salinity and fluorescence/chlorophyll will be considered at first. Tests will be performed in order to document and validate the different uncertainty components composing the final uncertainty estimates. All the relevant assessments carried out in WP4 will be included as basic information for the uncertainty estimations. This information will be provided by HCMR no later than the scheduled delivery dates of the pertinent WP4 deliverables.

Task 5.2: HARMONIZATION OF DELAYED MODE DATA MANAGEMENT PROCEDURES WITH SEADATANET. (M1-M42) (IFREMER, HCMR, MUMM, OGS), IFREMER Subcontractor: MARIS, University of Bremen
Objective

This task will define, establish and oversee the data management infrastructure for dealing with delayed-mode data in JERICO. The infrastructure will be designed so as to supplement the EU funded SEADATANET initiative (a FP6 I3 project) aimed at setting up an efficient distributed pan-european marine data management system. An assessment will be performed to test the performance of the system once it is running (OGS). The availability of services offered by the infrastructure within JERICO will be continuously monitored and reported (HCMR).
Methodology
- Survey the existing delayed-mode data handling practices of JERICO partners.
- Formulate a viable proposal for a common JERICO delayed-mode data management platform that can serve to reinforce the SEADATANET effort; the guidelines established by DG-Mare/EMODNET and WISE-Marine will be also taken in account when doing this.
- Create common vocabularies for JERICO delayed-mode data formats and metadatabases, building upon the work that has already been done in SEADATANET.
- Implement delayed-mode data and metadata formats that are compatible with those of SEADATANET (in compliance with the EU INSPIRE Directive); the Sensor Web Enablement family of the OpenGIS consortium family of standards (SensorML, Sensor Registry, O&M) will be considered in the implementation.
- Reconcile, wherever possible, the data quality assurance procedures/protocols for delayed-mode data amongst the JERICO partners (link to WP4, WP5.1).
- Ensure easy sharing and secure archival of delayed-mode data within JERICO by employing common data transport formats and storage criteria making use of the experience gained by SEADATANET.
- Furnish users with standard tools for online data access and visualization.

Task 5.3: HARMONIZATION OF REAL TIME DATA MANAGEMENT PROCEDURES WITH MYOCEAN/EUROGOOS AND THE INSTITUTION OF DATA ACCESS SERVICES FOR JERICO TOP ACTIVITIES (M1-M42) (IFREMER, CNR, NIVA, IMR, HCMR,PUERTO, SMHI)
This task will define, establish and oversee the data management infrastructure for dealing with real-time data in JERICO. The infrastructure will be designed so as to supplement the activities of the EU Marine Core Service's MyOcean component and EuroGOOS. The goal is to provide for seamless integration with these initiatives in order to render JERICO real-time data accessible for use in generating downstream services and products.
An assessment will be performed to test the performance of the system once it is running. The availability of services offered by the infrastructure within JERICO will be continuously monitored and reported. Task 5.3 will also provide for the data access requirements pertinent to JERICO TOP activities (WP7).
Methodology
- Survey the existing real-time data handling practices of JERICO partners.
- Formulate a viable proposal for a common JERICO real-time data management platform that can serve to reinforce MyOcean and EuroGOOS.
- Create common vocabularies for JERICO real-time data formats and metadatabases, based on any existing recommendations by MyOcean/EuroGOOS for doing this.
- Implement real-time data and metadata formats (in compliance with the EU INSPIRE Directive) based on any existing recommendations by MyOcean/EuroGOOS for doing this.
- Reconcile, wherever possible, the data quality assurance procedures/protocols for real-time data amongst the JERICO partners (link to WP4, WP5.1).
- Ensure easy exchange of real-time data within JERICO by employing common data transport formats and storage criteria, based on any existing recommendations by MyOcean/EuroGOOS for doing this.
- Furnish users with standard tools for online data access and visualization.

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
1	IFREMER	10.00
5	NIVA	1.00
6	IMR	2.10
8	OGS	17.00
9	CNR	2.00
11	HCMR	10.00

WT3:
Work package description

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
15	MUMM	3.00
17	SMHI	3.00
26	PUERTOS	4.00
	Total	52.10

List of deliverables

Delive-rable Number [61]	Deliverable Title	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
D5.1	DM data management handbook V1	1	6.00	R	PU	8
D5.2	RT data management handbook V1	1	6.00	R	PU	8
D5.3	First data management report	8	6.00	R	PU	24
D5.4	Guidelines for uncertainty	8	6.00	R	PU	30
D5.5	Report on uncertainty	8	6.10	R	PU	42
D5.6	DM data management handbook V2	8	6.00	R	PU	48
D5.7	Second data management report	8	10.00	R	PU	48
D5.8	RT data management handbook RT V2	8	6.00	R	PU	48
		Total	52.10			

Description of deliverables

D5.1) DM data management handbook V1: Task 5.2 - JERICO data management handbook: delayed-mode data, version 1 [month 8]

D5.2) RT data management handbook V1: Task 5.3 - JERICO data management handbook: real-time data, version 1 [month 8]

D5.3) First data management report: Task 5.1 - First data management report [month 24]

D5.4) Guidelines for uncertainty: Task 5.1 - Guidelines for estimating and reporting measurement uncertainty within JERICO [month 30]

D5.5) Report on uncertainty: Task 5.1 - Report on uncertainty for selected key parameters: temperature, salinity and chlorophyll-a [month 42]

D5.6) DM data management handbook V2: Task 5.2 - JERICO data management handbook: delayed-mode data, version 2 [month 48]

D5.7) Second data management report: Task 5.1/5.3 - Second data management report with the report of the service access activity [month 48]

D5.8) RT data management handbook RT V2: Task 5.3 - JERICO data management handbook: real-time data, version 2 [month 48]

WT3:
Work package description

Schedule of relevant Milestones

Milestone number [59]	Milestone name	Lead beneficiary number	Delivery date from Annex I [60]	Comments
MS16	First JERICO management Handbook	8	8	Handbook
MS17	Launch of service access	8	18	Call
MS18	Report on activities	8	46	Final report
MS19	Final JERICO management Handbook	8	48	Handbook

WT3:
Work package description

Project Number [1]	262584	Project Acronym [2]	JERICO

One form per Work Package

Work package number [53]	WP6	Type of activity [54]	COORD
Work package title	OUTREACH		
Start month	1		
End month	48		
Lead beneficiary number [55]	16		

Objectives

- To develop a Jerico Community Hub and JERICO Datatool for engagement of diverse end-user groups
- To provide educational and informational resources for identified user groups
- To provide opportunities for targeted training in topics related to Jerico

Description of work and role of partners

TASK 6.1 DEVELOPMENT OF END-USER PRODUCTS AND SERVICES (Lead: CEFAS; Main Partners: BL, NERC)

Objectives
- To develop the Jerico Community Hub (JCH) using web technologies
- To enhance the current web-based EMECO data fusion and visualisation tools to allow users to import data and export integrated data sets and information products via a new user interface developed for the general public and educational sectors.

Methodology / work description
The JERICO Community Hub (JCH) datatools will be developed using the existing EMECO Datatool architecture. The JERICO datatools will host pan-European JERICO data and allow users to generate integrated data products via the website.

SubTask 6.1.1. Design and Build of the JERICO Community Hub.
Based on consultation with JERICO partners and users, the Jerico Community Hub will be designed, developed, and implemented. This will be a website to provide access to information and outputs from the whole JERICO project and other related projects and initiatives. This will encompass an OceanBoard (6.2), forums, information, news, data reports and other agreed outputs. It will also provide access to the Jerico datatool (T6.1.2.)
The initial design will be presented to the partners for comments and suggestions. Once the design has been agreed, the site will be developed to its final release state and integrated with a content management system (CMS). Initial content for the website and the OceanBoard (WP6.3) will be developed and loaded into the website and approved prior to launch.

SubTask 6.1.2. Development of JERICO Datatool.
The Jerico datatool will be based on the existing EMECO (www.emecogroup.org) marine datatool architecture. The tool will also be adapted to accept further data output from other Work Packages in the Jerico project on a pan-European scale. The tool will give users access to integrated data products and data sets via a user interface hosted on the JERICO Community Hub. The user interface will be targeted at public and educational sectors. WP7.2 will also provide access to JERICO data via the EMECO datatool for 1 year. This tool is aimed at scientific and policy users.
The EMECO marine datatool currently accepts data in a large number of common data formats, including NetCDF, XML, Excel, Access, ASCII, KML, TXT and others. The JERICO datatool could be enhanced to take other data formats if necessary. Data are converted into XML and read into the EMECO database. Integrated multi-platform, multi-parameter, and multi-national data can then be output as maps, KML, XML, CSV, and time series charts via a simple user interface, which is hosted at www.emecodata.net and targeted at scientific and policy users. The Jerico datatool will provide these products and services on a pan European scale.JERICO data will be provided from WP's 3 and 4 via WP 5, which will devise a common data format for exporting JERICO data into the JERICO datatool for public outreach and education. This will also be useful for scientists and

policy makers. The common data format from WP 5 will also provide data to other EU and National data centres and European initiatives in place (e.g. MyOceans, ECOOP, SeaDataNet) during the course of the JERICO programme.

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. Work will be carried out to design a new template for a ship-based and web-based Ferrybox passenger/web-user display programme. Code will be written that runs the display programme on both the web and ship for built-in flexibility, allowing easy changes to content and format. User interactivity will be designed with a web display programme. NERC-NOCS Ferrybox web pages will comply with the Jerico Community Hub and the passenger display. The aim is to establish guidelines and pave the way for other Ferrybox operators (and for operators of other observing platforms) to set up similar end-user information systems (D 6.1.3). The application developed will have the potential for application elsewhere.

SubTask 6.1.4. On going maintenance, support, hosting. Jerico Community Hub and JERICO datatool hosting, hardware and software maintenance and support. JERICO data will be made accessible via the web with user interactivity (e.g. query based with FAQs, and user input to include comments and suggestions and other forms of appropriate input). The hub will show the data being collected, provide information on how and why it is collected, what it means for life in the oceans and for society at large, how the public can engage with JERICO to contribute to improved knowledge about the oceans, information on how to improve future environmental status and how these data can be used for decision making and for both informing and meeting the needs of policy. The portal would be further developed during the lifetime of the project to reflect feedback (T6.1.5) in order to increase its effectiveness. Potential benefits include attracting support from shipping companies (cruise liners, ferries) and of raising public awareness. Opportunities to promote output from the web-site to other service providers (e.g. Tripadvisor) will be identified and pursued.

TASK 6.2 -THE JERICO OCEANBOARD (Lead: CEFAS and UoM; Main Partners: CSIC, DELTARES, SYKE; Associated Partners: Open University; Additional partners: IFREMER + all project partners)

Objectives
- To provide informative and educational resources on-line based on project activities, new and existing material targeted at different educational end-users.
- To shape the educational resource is a form suitable for uptake for 2 categories of end-user: professional and public.
- To enhance the Jerico Community Hub as appropriate to implement an outreach strategy for end-user groups.

Methodology / work description
The OceanBoard is proposed as the educational component of the JERICO Community Hub. It will be developed as an online educational resource for a range of users across different age groups, academic levels (including technology and engineering), spheres of the public service (targeting managers and decision makers), and the public in general to reach the wider interests and needs of a knowledge-based society. The JERICO OceanBoard will function as a web publishing platform to disseminate tailormade products to specific levels of society, fitting knowledge needs of more specifically professionals like scientists and decision-makers, and supporting the outreach and uptake of important messages to the public. It will sieve out the essence of project deliverables and related thematics and applications to promote uptake of knowledge, practices, standards as well as to support more widespread use of operational oceanography services and products.

The content layer of the OceanBoard will be achieved through an organised networked effort relying on a structure of regional focal partners (DELTARES for North Sea; UOM for Mediterranean; SYKE for the Baltic Sea; IFREMER for Iberian region) who will be responsible to seek and compile information from the JERICO partners in their region in addition to contributions from sources outside the partnership. These JERICO regional focal points together with CEFAS will compose the editorial group of the JERICO Oceanboard.

SuTask 6.2.1 JERICO-PROF
For the higher level audience and professionals; it will consist of three main modules to inform, teach and promote exchange between diverse categories of audience. The targeted audience includes: (i) scientific and technical staff engaged in coastal observations and operational oceanography in general; (ii) higher educational institutions and researchers; (iii) service providers and persons engaged in downstream applications; and (iv) users, such as environmental managers and public service officers, to improve their knowledge and skill on the use of products and tools deriving from coastal observations, as well as exchange experiences on proven benefits in different areas of application.

SubTask 6.2.2 JERICO-PUB For the general public (as defined earlier).
Its role will be to provide educational material and information about the marine and coastal environment and ecosystem and in doing so to promote the case for coastal observatories as well as to raise awareness and interest on the use of services deriving from operational oceanography.A special activity conducted by CSIC will be dedicated to improve the knowledge of the younger generations about the sea and the new monitoring marine technologies in a changing coastal ocean. Accordingly, focussing on primary school children and secondary education or college students, a simple web-based educational tool will be designed for glider mission follow up in quasi real time, enabling students to follow directly on a daily basis the progress, results, etc. of glider missions. The online system will also include a glossary of names and images for kids as well as a specific Twitter/Facebook for gliders.

TASK 6.3: THE JERICO SUMMER SCHOOL (Lead Partner: UoM; Main Partner: DELTARES)

Objectives
- To use project outputs (data, information, skills and expert knowledge) as the basis of two targeted summer schools.
- To organise and run two summer courses targeting specific groups: (i) scientific and technical staff engaged in the running of meteo-marine observatories, and (ii) environmental managers and policy makers.

Methodology /work description
Two summer courses will be organized during the project lifetime. The courses will be open to participants outside the project partnership, in order to train persons already engaged in related professional activities, providing participants with a broader view of key aspects related to coastal observatories. The courses will also serve to bring project results closer to project partners as well as to specifically targeted users. Each course would have a duration of at least one week and held during June/July or September. The summer school themes will be developed in consultation with the project scientific committeeMaterial from the courses will be used for a wider reach through the JERICO Oceanboard. Key aspects of the courses will include:

SubTask 6.3.1 COURSE 1: (lead by Deltares, to be held in the Netherlands at around M16)
Topic: New technology and methodology in coastal observations; the course will primarily serve to promote and disseminate the JERICO label to a wider group of responsible engaged in meteo-marine observations in various countries, and will engage participants from outside the JERICO partnership.

SubTask 6.3.2 COURSE 2: (lead by UOM, to be held in Malta at around M28)
Topic: Linking research to management needs and targeting to train decision makers and environmental managers, especially those engaged in coastal domains, in the use of products and services deriving from observations and forecasting. The course will promote a science-based approach and aim to improve performance and efficiency through informed decisions. The courses will also be open to non-EU partners.

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
2	SYKE	0.35
7	DELTARES	1.80
10	UOM	8.00
12	NERC	6.00
16	CEFAS	7.40
18	CSIC	1.00
21	BL	8.50
	Total	33.05

WT3:
Work package description

List of deliverables

Delive-rable Number [61]	Deliverable Title	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
D6.1	Design and launching of JERICO OceanBoard V0	16	6.00	P	PU	6
D6.2	Jerico Community Hub	16	5.00	P	PU	12
D6.3	Summer school 1	7	4.00	R	PU	15
D6.4	Development and implementation of suite of web-based interactive tools	16	8.00	D	PU	24
D6.5	Summer school 2	10	4.00	R	PU	27
D6.6	Final version of JERICO OceanBoard	16	6.05	P	PU	30
		Total	33.05			

Description of deliverables

D6.1) Design and launching of JERICO OceanBoard V0: Task 6.2 - Design and launching of JERICO OceanBoard V0 [month 6]

D6.2) Jerico Community Hub: Task 6.1 - Web-based Jerico Community Hub. [month 12]

D6.3) Summer school 1: Task 6.3 - Organisation of specialised JERICO course I in Netherland [month 15]

D6.4) Development and implementation of suite of web-based interactive tools: Task 6.1 - Development and implementation of suite of web-based interactive tools. Web-based displays with documentation [month 24]

D6.5) Summer school 2: Task 6.3 - Organisation of specialised JERICO course II in Malta. [month 27]

D6.6) Final version of JERICO OceanBoard: Task 6.2 - Final version of JERICO OceanBoard [month 30]

Schedule of relevant Milestones

Milestone number [59]	Milestone name	Lead benefi-ciary number	Delivery date from Annex I [60]	Comments
MS20	Summer School 1	16	16	First summer School report
MS21	Summer School 2	16	28	Second summer School report

WT3:
Work package description

Project Number [1]	262584	Project Acronym [2]	JERICO

One form per Work Package

Work package number [53]	WP7	Type of activity [54]	SUPP
Work package title	SERVICE AND DATA ACCESS		
Start month	18		
End month	48		
Lead beneficiary number [55]	1		

Objectives

Objectives

This workpackage embodies the ultimate goal of the coastal observatories, i.e. the provision of useful data. All operating partners in this WP will provide free access to observations and well referenced metadata, with all technical requirements. Beyond these “raw” data, which have an interest per se, three targeted operations will demonstrate more elaborated applications aiming respectively at the marine environmental awareness of the public at large, the improvement of coastal operational oceanography systems and the scientific evidence of the complementarities of acquisition strategies.
In practice, data assembly will be targeted to be compliant with SeaDataNet standards and MyOcean requirements, as designed in the WP5. The added-value of JERICO is to provide data coming from different infrastructure types to be processed together.
The three Targeted Operation Phase (TOP) are proposed to offer access to data and value-added products, including:
- Multi parameters maps on a monthly basis, provided by a set of coastal observatories (moored buoys, floats),
- Data and demonstrative products on a monthly basis, collected from sensors on board fishing vessels,
- Data from buoys and collocated Ferry Box line, respectively in the south Aegean Sea and in the Kattegat.

Modality of data access common to all WP7 installations :

All the data of the dedicated installations, available during the SA time scale (1 or 2 years), will be freely accessible on the JERICO portal via communication network. The access will be open to any user who has right of access by giving information of Identity, institute address and summary of task to perform with the required data (no restriction will be done as the identity of user is known. Unlike SeaDataNet, JERICO includes measurement costs in the operational costs of the service activities. The data policy can include requirements e.g. on registration/identification of users, on dissemination and on acknowledgement of the use of data etc. however there should be no restriction.

Support offered under this proposal to all WP7 infrastructures

JERICO will grant the open access to the data not only to the teams that operate the coastal observatories and the scientific community in general but also to a wider public community according to the recommendations of European directives for environmental data: WFD, MSFD and Inspire. This Service Activity will provide access to a unique and comprehensive dataset coming from a set of complementary observatories with very few equivalents in the world. The provided support includes delivery of data, in real time or in delayed mode, depending on the specific usage. Delivery implies the set up of several components including: transmission from the sea to the shore using adapted transmission, quality control, data distribution to users, processing of some value-added products to ease various data usages.

From the users side, provided services will be dedicated to data access including :
- data discovery via adapted metadata catalogues which describes both observatories, conditions of observations (deployments, …) and observational data;
- data download which allows users to get a copy of data files;
- advanced data services (web services) to display, map or get access to data subsets.Adapted protocols will be made available for users communities needs: ftp server (computer to computer real time distribution), web portal (access on demand), web services (computer to computer data exchange and sub-setting).

Outreach of new users

This Service Access Activity provides open observations from a range of various coastal observatories in comprehensive and integrated data set. Several measures will be taken to insure a wide knowledge of the opportunities to access data made available, such as advertising in selected scientific media and forums related to the field. A particular attention will be paid to contact scientific teams and expert groups which traditionally have not access to such facilities due to the involved costs, e.g. small research laboratories with local knowledge and expertise, experts of professional organizations which are directly impacted by the quality of environment (aquaculture, fishery), etc.. An effort will be undertaken to involve the public at large and to allow it to follow the activities of the different observatories by visiting the web pages of the project (see also Dissemination Action Plan). Specific web pages will be dedicated to this purpose.

Monitoring of data access common to all WP7 installation

The use of data repository and data access will be continuously monitored to evaluate the intensity of the usage of data and related services. The following indicators will be maintained in order to estimate the amount of available data and the audience of data services:
- number of data made available in real time and in delayed mode in data archives,·
- number of downloaded data,
- number of requests of information, data and products using the web portal. The unit of usage will be the number of “hits” onto the portal.

JERICO will use the indicator tools developed by the SEADATANET consortium.

Description of work and role of partners

INFRASTRUCTURES AND SERVICES PROPOSED FOR SERVICE ACCESS (SA)

Name of the Infrastructure: MOLIT & Mesurho buoys
Name of Installation: MOLIT & Mesurho buoys
Short name of Installation: MOLIT/MESURHO Buoy (1&2)
Location: European regional seas
Legal name of organisation: IFREMER
Location of organisation : Brest France
Web site address: http://www.ifremer.fr

Annual operating costs of the infrastructure (€) 46829

Description of the infrastructure (dedicated to SA)
MOLIT is a buoy of the MAREL series specially designed for very demanding coastal environment. Its main features include:
· Sampling both surface and bottom waters, or any depth in demand up to 50 m,
· One single set of sensors ,
· Fast deployment by towing to the site using local boat of convenience,
The measuring system is constituted of a flow through chamber in which any type of sensor can be mounted. Protection against fouling is provided by a specific chlorination system.
Installation 1) The MOLIT buoy is currently moored in the bay of Vilaine. The measured parameters are : Sea SurfaceTemperature, Conductivity (salinity), dissolved oxygen, pH, turbidity and Chlorophyll-a
Installation 2) MESURHO is also a buoy of the MAREL series. It’s a buoy with a float under the surface; the plate form is consequently very stable.
This buoy is moored in the Mediterranean coast, its main features are:
- A sub-surface measurement system (a multi-parameters probe with protection against fouling). The measured parameters are the same as MOLIT
- Weather measurement (wind speed and direction, air temperature)

Specific modality of access:
Duration of service activity: 2 years.
Specific support offered:
- data discovery via adapted metadata catalogues;
- data download; advanced data services (web services) to display, map or get access to data subsets

Name of the Infrastructure: RECOPESCA
Name of Installation: IFREMER RECOPESCA probes
Short name of Installation: RECOPESCA
Location: North Atlantic, Mediterranean Sea
Legal name of organisation: IFREMER
Location of organisation : Brest France
Web site address: http://www.ifremer.fr

Annual operating costs of the infrastructure (€) 66 220 €

Description of the infrastructure (dedicated to TOP2 SA)
RECOPESCA is a network of measurement systems adapted to be installed on fishing vessels. The measurement system is composed of small and low cost temperature and salinity sensors deployed on the fishing gears and a concentrator mounted on the bridge of the vessel to collect the data transmitted automatically by the sensors (bluetooth transmission) and to transmit this information via GPRS link to a shore station together with ship position and time.
The RECOPESCA system can be operated on passive fishing gears such as nets, traps and on active fishing gears such as trawls. Installation is done by a technical team from Ifremer both on board the fishing vessels and at the shore data centre. Data are collected and transmitted automatically during fishing operations and can be graphically displayed.

Specific modality of access:
Data provided from research vessels are often sporadic or specific to a particular campaign or process study. On the other hand, fishing vessels ply Europe's coastal seas at all times of year and in almost all weather conditions. In that sense, fishing vessels are under-utilized resources in terms of recovering oceanographic data.
The RECOPESCA initiative led by IFREMER in France and the Fishery Observing System (FOS), developed and conducted by CNR in Italy, have led to routine recovery of such data from fishing vessels on a pilot basis. The approach is quite novel, and further developments are still expected to enhance both for sensors (new parameters, e.g. fluorescence) and data transmission from sea to shore (from GSM to satellite). However, times are mature enough to organize the data in the JERICO server and to link them to the existing regional ocean observing system portals (MOON and IBI) so making them available to the coastal operational systems.
Duration of service activity: 1 year.
Specific support offered:
One year of data and demonstrative products on a monthly basis
JERICO will provide, using RECOPESCA and FOS sensors of two fishing fleet (one in the Irish Sea and one in the Adriatic Sea), data which will be available on JERICO server. In this respect:
Common procedures will be run to check the quality of the data before aggregating them in a common database accessible on the JERICO server. A report on quality control procedures for temperature and salinity database originating from fishing vessels (Irish Seas) will also be issued.
· Demonstrative products, such as maps of Temperature and Salinity, will be prepared and distributed through the JERICO server.

Name of the Infrastructure: Alg@line
Name of Installation: Alg@line
Short name of Installation: Alg@line
Location: Baltic Sea
Legal name of organisation: Finnish Environment Institute, SYKE
Location of organisation: Helsinki, Finland
Web site address: www.itameriportaali.fi/en/tietoa/algaline_seuranta/en_GB/algaline_seuranta

Annual operating costs of the infrastructure (€) 83 253,5

Description of the infrastructure dedicated to SA
Algaline/SYKE – ferrybox monitoring system
In the Baltic Sea, SYKE operates 3 ferrybox systems; the ferry Finnmaid travelling twice a week across the Baltic Proper from Helsinki to Travemünde, the ferry Silja Serenade, travelling nightly between Helsinki and Stockholm and the ferry Kristina Brahe travelling along the coast of the Gulf of Finland and Archipelago Sea.
Ferries operate similar ferrybox systems with the water inlet about 5 m below the surface to measure chlorophyll-a and phycocyanin fluorescence turbidity, temperature and salinity with geo-referenced logging,

The ferrybox system further includes a sequence water sampler storing 24 one litre water samples according to a predetermined sampling scheme (usually every 50 miles). Inorganic nutrients, phytoplankton species composition and chlorophyll-a are determined from the water samples. The flow-through measurement data from Finnmaid is transferred every hour through a satellite connection from and every morning from Silja Serenade through GSM/GPRS modem to the institute's FTP box. Also FRRF measurements are recorded onboard Finnmaid and R/V Aranda.
A coastal ferry Kristina Brahe operating along the coast of the Gulf of Finland during summer months and R/V Aranda are also equipped with ferrybox system, but do not include the NRT data transfer connection yet. In autumn 2009 a new ferrybox line with the ferry Transpaper is established from Kemi to Goteborg in cooperation between SYKE (Finland) and SMHI (Sweden).

Specific modality of access:
Duration of service activity: 2 years.
Specific support offered:
All data is stored in MySQL relational database and long term data series for chlorophyll, salinity and temperature. Phytoplankton species composition analysis (microscopy) reveals the dominant and potentially toxic/harmful species. Chlorophyll-a, nutrients, temperature, and HAB alert are available trough the Baltic Sea Portal (www. balticseaportal.fi).

Name of the Infrastructure: Coastal Research Station
Name of Installation: CRS
Short name of Installation: CRS
Location: Lubiatowo, Poland, south Baltic Sea
Legal name of organisation: Institute of Hydro-Engineering of the Polish Academy of Sciences (IBW PAN)
Location of organisation : Gdańsk, Poland
Web site address: www.ibwpan.gda.pl/lubiatowo

Annual operating costs of the infrastructure (€) 71722
Description of the infrastructure
The IBW PAN Coastal Research Station (CRS) is located at Lubiatowo (Poland), approximately 75 km NW from Gdańsk, at the open sea shore between Łeba and Władysławowo (about 20 km eastwards of Łeba). The laboratory was established in 1970 in an old building of the former coastal rescue station. Situated in a coastal forest, about 100 m from the beach, the building was adapted for the needs of scientific research. At present, it houses office and laboratory rooms, a garage, an electro-mechanic shop and a few residential rooms.
The Station is prepared to activities related to observations of meteorological, hydrological, hydrodynamic and litho-dynamic phenomena occurring in the Baltic coastal zone. It encompasses measuring towers arranged in a row, perpendicular to the shoreline. Their role is to accommodate sensors and measuring devices. The towers are cable connected to the data recording and processing centre. At times, smaller structures are built in the sea nearby the towers to ensure installation of measuring equipment at other locations, as required by specific investigation programmes. In these cases, the control of devices and the data registration are also maintained via the measuring towers. Besides, autonomous battery-powered sensors with built-in memory have been used for many times, as well as gauges with radio data transmission systems.
Within routine measurements, winds parameters at the laboratory are registered continually, as well as some other hydro-meteorological parameters, e.g. air humidity, air and water temperature, etc. Long-term variability of dune and beach is monitored regularly every month since 1983. State of the sea can be observed by the camera installed on the beach. Sea bottom topography in the near-shore zone may be measured in the area 2.6 km along shore ´ about 1km offshore.

Specific modality of access:
Duration of service activity: 2 years.
Specific support offered:
The following data from CRS Lubiatowo are proposed within core SA:
- hydrodynamic data (wave buoy records, near-shore wave records);
- basic on-line hydro-meteorological information (camera view, wind parameters, rainfall, humidity, water temperature);
- on-line deep-water wave data and near-shore water quality parameters (after installation of a wave buoy and a water quality sensors - anticipated in late spring 2011).

Name of the Infrastructure: Norwegian Ferrybox Network (NorFerry)
Name of Installation: Norwegian Ferrybox Network

Short name of Installation: NorFerry (1&2&3)
Location: Barents Sea, Norwegian Sea, North Sea
Legal name of organisation: Norsk Institutt for Vannforskning, NIVA
Location of organisation : Oslo, Norway
Web site address: www.ferrybox.no

Annual operating costs of the infrastructure (€) 492200

Description of the infrastructure
The present Norwegian Ferrybox network (NorFerry) consists of four lines operated by the Norwegian Institute for Water Research (NIVA). Three of these routes, covering the following areas, are proposed in the Core SA:
Installation 1 - Barents Sea entrance (Tromsø-Longyearbyen) – Norbjørn Line,
Installation 2 - the Norwegian Coast from Bergen to Kirkenes – Trollfjord Line,
Installation 3 - the Norwegian Coast/Skagerrak region (Bergen-Hirtshals) – Bergensfjord Line
The core sensors system uses, as standard, a thermosalinograph (SBE-45), a inlet temperature sensor (SBE-38), an AADI oxygen sensor (optode), a Polymetron turbidity sensor and a TriOS Chl-a fluorescence sensor. In addition, TriOS yellow substance and cyanobacteria fluorescence sensors are for example used on the Oslo–Kiel route. The acquisition unit logs data every minute (i.e. approximately every 300–500 m). Data are transmitted to NIVA in real-time through internet or GPRS connection and made available on a web map server (www.ferrybox.no).

Specific modality of access for installations 1 to 3 for Core SA:
Duration of service activity: 2 years.
Specific support offered for installations 1 to 3 for Core SA:
Specifically NorFerry contributes with actually offering:
· Routine real-time/near real-time observations for a range of parameters: Temperature, Salinity, Chl-a fluorescence, Turbidity, Oxygen and radiative parameters on such lines where the light sensors are established.
· Water sampling along the ship lines of water quality parameters for coastal monitoring and harmful algal warning.

Name of the Infrastructure: Norwegian Ferrybox Network (NorFerry)
Name of Installation: Norwegian Ferrybox Color Fantasy Line
Short name of Installation: Color Fantasy
Location: Skagerrak and Baltic Sea entrance region (Oslo-Kiel)
Legal name of organisation: Norsk Institutt for Vannforskning, NIVA
Location of organisation : Oslo, Norway
Web site address: www.ferrybox.no

Annual operating costs of the infrastructure (€) 492200

Description of the infrastructure
The present Norwegian Ferrybox network (NorFerry) consists of four lines operated by the Norwegian Institute for Water Research (NIVA). The following route, is proposed in the TOP 3 service:
Installation 4 - the Skagerrak and Baltic Sea entrance region (Oslo-Kiel): NIVA is operating a ferrybox system onboard the Color Line Ferry Color Fantasy. The ferry is crusing between Oslo, Norway and Kiel, Germany, and covering the Skagerrak and Baltic Sea entrance region (Oslo-Kiel).

The core sensors system uses is described in the section above.

Specific modality of access for installation 4 for TOP3 SA:
Access will be provided to combined data from moored buoys located on the tracks of a Ferry Box line. This will enable a systematic inter-comparison between the two types of platforms that have different capabilities and observing strategies: buoys provide time-series of high temporal resolution at different depths but their sensors are more vulnerable to biofouling; ferry boxes provide data of high spatial resolution with smaller biofouling problems but only from the surface layer.
The task will focus on two geographical areas of strategic importance which will be used as demonstration models : the Eastern Mediterranean (Aegean sea) and the Kattegat at the frontier between of the BOOS and NOOS domains.
Duration of service activity: 1 year.
Specific support offered for installation 4 for TOP3 SA:

· One year of data from buoys and a collocated Ferry Box line in the Kattegat.
NIVA is operating a ferrybox system onboard the Color Line Ferry Color Fantasy (infrastructure n°4). The ferry is crusing between Oslo, Norway and Kiel, Germany, and covering the Skagerrak and Baltic Sea entrance region (Oslo-Kiel).
The synergies that will be explored include among other: inter-calibration and combination of surface chl-a measurements from the FB system with buoy measurements that can capture the vertical variability in the euphotic zone (e.g. deep chlorophyll maximum); identification of biofouling effects on buoy surface salinity measurements through comparison with relevant FB data; identification of the spatial horizontal and vertical scales involved in the high frequency (sub-synoptic) temporal variability. Chlorphyll fluorescence measurements from both buoy and ferry will be validated against lab analysis of chlorophyll (HPLC).

Name of the Infrastructure: IMR coast observatories
Name of Installation: IMR coast observatories
Short name of installation: IMR Coast
Location: Norway coasts
Legal name of organisation: Institute of Marine Reasearch IMR
Location of organisation : Norway
Web site address: http://www.imr.no

Annual operating costs of the infrastructure (€) 367 906

Description of the infrastructure (dedicated to SA)
The IMR observational system consists of eight hydrographic stations along the Norwegian Coast established between 1935 and 1947. With a frequency of 1-2 times per month these stations are sampled delivering hydrographic data as Sea Surface Temperature and Salinity, turbidity and Chlorophyll-a, which are available on the web after quality control. In addition to that one Ferrybox line covering the Norwegian coast from Bergen to Kirkenes was established in collaboration with NIVA. The core sensors system uses a thermo-salinograph (SBE-45), Chlorophyll fluorescence and a turbidity sensor acquiring data every minute (i.e. approximately every 300-500 m). The observational system offers a large potential for research and for the improvement of technical solutions for observational methodologies. It directly contributes to the efforts undertaken in monitoring efforts on a national basis as well as the Regional Monitoring Systems, such as NOOS and Arctic Roos and the Marine Core Service (the EU supported MyOcean project).

Specific modality of access:
Duration of service activity: 2 years.
Specific support offered:
- data discovery via adapted metadata catalogues;
- data download; advanced data services (web services) to display, map or get access to data subsets

Name of the Infrastructure: OGS-North Adriatic Coastal Observatory (OGS-NACObs)
Name of Installations: Friuli-Venezia Giulia Regional Coastal Marine Monitoring System
Short name of installations: FVG-MMS
Location: Mediterranean Sea (Adriatic Sea)
Legal name of organisation: Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - OGS
Location of organisation : Trieste, Italy
Web site address: http://www.ogs.trieste.it

Annual operating costs of the infrastructure (€) 547796

Description of the infrastructure
The OGS-North Adriatic Coastal Observatory (OGS-NACObs) is an extended, multiple-platform, distributed observing infrastructure incorporating opportunistic elements (a coastal glider and targeted drifter deployments) that is presently operating in the northern part of the Adriatic basin in the Mediterranean Sea. The following installation is proposed within core SA.
Installation 1: Northern Adriatic Sea – The Friuli-Venezia Giulia Regional Coastal Marine Monitoring System (FVG-MMS)
The system was developed, and is being run, by the OGS for the Italian national civil protection agency's local office in the Friuli-Venezia Giulia region in north-east Italy. It comprises a network consisting of three multi-parametric coastal profiling buoys equipped with downward-looking ADCPs, three wave monitoring buoys and two fluvial stations, one for each of the two main rivers present in the area. The fluvial stations

are constituted by upward-looking ADCPs mounted on frames planted in the river beds. The ADCPs are equipped with temperature and pressure sensors. the system was conceived adopting a Service-Oriented Device Architecture (SODA) approach, with a suite of widely varying sensor types integrated into the established regional hydro-meteorological system using VHF radio and GSM networks, and the Internet. Currently, observations relating to meteorology, hydrology, sea-state, marine currents, and riverine streamflow and discharge measurements are being provided at very fine temporal resolutions. The system is open-ended because it can be adapted to account for evolving scientific paradigms of ongoing processes by making appropriate modifications.

Specific modality of access:
Duration of service activity: 2 years.
Specific support offered:
Under the JERICO Core SA initiative, the OGS offers access to the following OGS-NACObs services:
Near-real-time access to data from the Friuli-Venezia Giulia Regional Coastal Monitoring System (installation 1);

Name of the Infrastructure: OGS-North Adriatic Coastal Observatory (OGS-NACObs)
Name of Installation: MAMBO buoy
Short name of installation: MAMBO
Location: Mediterranean Sea (Adriatic Sea)
Legal name of organisation: Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - OGS
Location of organisation : Trieste, Italy
Web site address: http://www.ogs.trieste.it

Annual operating costs of the infrastructure (€) 547796

Description of the infrastructure
The OGS-North Adriatic Coastal Observatory (OGS-NACObs) is an extended, multiple-platform, distributed observing infrastructure incorporating opportunistic elements (a coastal glider and targeted drifter deployments) that is presently operating in the northern part of the Adriatic basin in the Mediterranean Sea. The following installation is proposed within core SA.
Installation 4: Northern Adriatic Sea – The MAMBO buoy (MAMBO)
The MAMBO profiling buoy is moored at the edge of the Miramare Marine Protected Area in the Gulf of Trieste. It is able to provide quality measurements of key meteorological variables and detailed profiles of fundamental hydrological properties repeatedly with a temporal resolution of three hours or less. Immediate access to the acquired information is assured via transmission in real-time to a shore-based receiving station. The buoy serves as a very convenient platform for R&D purposes.

Specific modality of access:
Duration of service activity: 2 years.
Specific support offered:
Under the JERICO Core SA initiative, the OGS offers access to the following OGS-NACObs services:
Real-time access to data from the MAMBO buoy (installation 4)

Name of the Infrastructure: CNR-Marine Platforms and Laboratories (CNR-MPL)
Name of Installation: CNR - Northern Adriatic Monitoring System
Short name of Installation: CNR – NAMS
Location: Mediterranean Sea (Northern Adriatic Sea)
Legal name of organisation: Consiglio Nazionale delle Ricerche CNR
Location of organisation : Rome, ITALY
Web site address: http://www.cnr.it

Annual operating costs of the infrastructure (€)1283000

Description of the Infrastructure
The CNR infrastructure offered to JERICO is made by three components: 11 fixed installations, two laboratories for calibration and validation of chemical sensors, and a system of observation based on instrumented fishing boats (the FOS is described below). Multi-parametric fixed installations are placed along the Italian coasts. Most of them transmit data in real time to the receiving stations, while some are being to be developed in this direction.

The network of buoys, piles and shore stations placed along the coast of Northern Adriatic Sea, is proposed within core SA.
Installation 1: Northern Adriatic Monitoring System. The network comprises the following fixed installations:
- Meteo-marine shore station in the harbour of Trieste (Gulf of Trieste), water depth 6 m. Data: sea temperature (0.4 m, 2.0 m and 6.0 m below s.l.), air temperature, wind speed and direction. Data acquisition and elaboration: 10 minutes. Data Transmission in real time (1h).
- Tide gauge station in the harbour of Trieste (Gulf of Trieste). Parameters: sea level. Data acquisition: 1 minute. Data transmission in real time (5 minutes).
- PALOMA dynamic pylon (Gulf of Trieste, 45°37.097'N, 13°33.913'E), 12 km offshore, bottom depth 25 m. Data: sea temperatures (0.4, 2, 15, 25 m below s.l.), wind speed and direction, air temperature, relative humidity, precipitation, solar radiation, air pressure. Data acquisition and elaboration every 5 minutes. Data transmission in real time (3h). With a monthly frequency the site is visited to collect CTD profiles and biogeochemical parameters (dissolved oxygen, inorganic nutrients, pHT, Total Alkalinity).
– S1 Station (Po Delta, 44.741042°N - 12.456111°E), bottom depth 22.5 m. Multi-parametric buoy operative since 2004. Oceanographic data: temperature, salinity, dissolved oxygen, pH, turbidity, fluorescence, ADCP currents, waves. Meteorological data: air temperature, atmospheric pressure, relative humidity, net radiation, wind speed and direction. Data acquisition 30 minutes/1h. Data Transmission in real time (1h).)
- E1 Station (Torre Predera – Rimini, 44°08.606' N, 12°34.262' E), bottom depth 10.5 m. Multi-parametric buoy operativesince 2006. Oceanographic data: temperature, salinity, dissolved oxygen, turbidity, fluorescence. Meteorologicaldata: air temperature, atmospheric pressure, relative humidity, net radiation, wind speed and direction. Data acquisition 30 minutes/1h. Data Transmission in real time (1h).
– TeleSenigallia pylon (Ancona, 43°44.21'N, 13°13.13'E), 1.2 nmiles offshore, bottom depth 10.5 m. Operative since July 2006. Meteorological data: wind speed and direction, air temperature. Oceanographic data: sea temperature, current speed and direction, sea level. Near real time data transmission at present (manual data recovery via GSM every 2-7 days). Real time data automatic transmission is being implemented and will be available at the end of 2010.

Specific modality of access:
Duration of service activity: 2 years.
Specific support offered:
Two years of data from the fixed installations are offered as a Core Service Activity in real time or delayed mode (see the description above for each installation capability).

Name of the Infrastructure: CNR-Marine Platforms and Laboratories (CNR-MPL)
Name of Installation: CNR - FISHERY OBSERVING SYSTEM
Short name of installation: CNR – FOS
Location: Northern and central Adriatic
Legal name of organisation: Consiglio Nazionale delle Ricerche CNR
Location of organisation : Rome, ITALY
Web site address: http://www.cnr.it
Annual operating costs of the infrastructure (€)1283000

Description of the infrastructure (dedicated to TOP2 SA)
Installation 8) The Fishery Observing System (FOS) is an ongoing activity which started in 2003 in the framework of the EU research program Mediterranean Forecasting System: Toward an Environmental Prediction (MFSTEP); producing georeferenced catch data in Near Real Time, associated to depth and temperature data. Eight fishing vessels operating in central and northern Adriatic sea, have been equipped with electronic logbooks and GPS loggers onboard and a pressure-temperature recorder on the fishing net. Daily catches for each vessel are stored in the electronic logbooks with GPS data. A GPRS modem automatically transmits the recorded catches and the GPS ship track at the end of each fishing day. Pressure and temperature data collected during the trawling activity are presently downloaded monthly.

Specific modality of access:
Same as TOP2 SA RECOPESCA
Specific support offered:
Same as TO2 SA RECOPESCA
· Common procedures will be run to check the quality of the data before aggregating them in a common database accessible on the JERICO server. A report on quality control procedures for temperature database originating from fishing vessels (Adriatic Seas) will also be issued.

· Demonstrative products, such as maps of Temperature, will be prepared and distributed through the JERICO server.

Name of the Infrastructure: POSEIDON Observatory
Name of Installation: POSEIDON BUOY NETWORK
Short name of installation: POSEIDON BUOYS
Location: Eastern Mediterranean Sea
Legal name of organisation: Hellenic Center for Marine Research HCMR
Location of organisation: Athens GREECE
Web site address: www.poseidon.hcmr.gr

Annual operating costs of the infrastructure (€) 718 512

Description of the infrastructure
POSEIDON is an operational marine monitoring, forecasting and information system for the Greek Seas. It was developed by the Hellenic Centre for Marine Research (HCMR, www.hcmr.gr) and collaborating institutes in four phases over the past 12 years.
The following installation is proposed within Core SA:
Installation 1) The basic monitoring infrastructure of POSEIDON comprises of a fleet of 12 oceanographic buoys (SeaWatch and Wavescan types) to support a network of 8 stations (the 4 other buoys are spares) for routine monitoring of:
- atmospheric conditions at sea level (wind speed and direction, atmospheric pressure, air temperature at all sites as well as relative humidity, precipitation and radiation components at selected sites)
- surface wave conditions (height, period, direction)
- surface currents (speed and direction) and hydrological (temperature, salinity) conditions
- water column physical (T, S, currents, turbidity) and biochemical (DO, Chl-a, PAR, pCO2) conditions in selected sites

Specific modality of access for Core SA:
Duration of service activity: 2 years.
Specific support offered for Core SA:
The POSEIDON system is offering services for both, research and technological development activities as well as monitoring activities. Among others, the system is currently offering:
· Routine real-time observations for a wide range of parameters. These data undergo a first level quality control and are made available with minimum delay (~30min) to interested users.
· Near real time (NRT) products currently running pre-operational regional models for general circulation and the ecosystem forecasts. These are daily products that have undergone a more systematic quality control procedure.

Name of the Infrastructure: POSEIDON Observatory (POSEIDON) (See also WP8)
Name of Installation: POSEIDON BUOYS NETWORK
Short name of installation: POSEIDON BUOYS NETWORK
Location: Eastern Mediterranean Sea
Legal name of organisation: Hellenic Center for Marine Research HCMR
Location of organisation : Athens GREECE
Web site address: http://www.poseidon.hcmr.gr

Annual operating costs of the infrastructure (€) 718 512

Description of the infrastructure:
POSEIDON is an operational marine monitoring, forecasting and information system for the Greek Seas. It was developed by the Hellenic Centre for Marine Research (HCMR, www.hcmr.gr) and collaborating institutes in four phases over the past 12 years. The basic monitoring infrastructure of POSEIDON comprises of a fleet of 16 oceanographic buoys (SeaWatch and Wavescan types), a FerryBox system and calibration facilities. The buoys fleet is made by 10 buoys permanently moored as POSEIDON NETWORK, 3 of which are moored in the south Aegean Sea and 6 spare buoys available for being moored on user demand.
The following installation is proposed within Core SA:

Installation 1. POSEIDON BUOY NETWORK: 7 SeaWatch and Wavescan permanently deployed buoys, routinely monitoring:

☐ atmospheric conditions at sea level (wind speed and direction, atmospheric pressure, air temperature at all sites as well as relative humidity, precipitation and radiation components at selected sites)
☐ surface wave conditions (height, period, direction)
☐ surface currents (speed and direction) and hydrological (temperature, salinity) conditions
☐ water column physical (T, S, currents, turbidity) and biochemical (DO, Chl-a, PAR, pCO2) conditions in selected sites

The following installations are proposed within TOP SA:

Installation 2. POSEIDON SOUTH AEGEAN BUOYS: The installation 2 is composed by the 3 oceanographic buoys located in the south Aegean Sea: the Saronikos and Santorini stations (SeaWatch type) and the Cretan E1M3A station (WaveScan type). They routinely monitoring:
☐ atmospheric conditions at sea level (wind speed and direction, atmospheric pressure, air temperature at all sites as well as relative humidity, precipitation and radiation components at E1M3A)
☐ surface wave conditions (height, period, direction)
☐ surface currents (speed and direction) and hydrological (temperature, salinity) conditions
☐ The E1M3A buoy in the Cretan Sea is also equipped with oceanographic sensors for water column physical (T, S, currents, turbidity) and biochemical (DO, Chl-a, PAR, pCO2) conditions

Installation 4. POSEIDON FERRY BOX SYSTEM: The installation 4 is composed by the FerryBox system (4H-JENA) established on the daily route Athens-Heraklion onboard ferry “Kriti II” of ANEK Lines. It is a flow through system with a depth of intake at 5m measuring:
☐ T
☐ S
☐ turbidity
☐ Chl-a.
The system is currently under upgrade and the inclusion of new sensors for dissolved oxygen and pH is considered.

Specific modality of access for TOP3 SA: Same as TOP3 Color Fantasy Infrastructure
Duration of service activity: One year of data from 3 buoys and a collocated Ferry Box line.
Specific support offered for TOP3 SA:
The subsystems offered for JERICO SA TOP3 (POSEIDON BF: Buoys & FerryBox) include the FerryBox platform and the three (3) buoys located in the south Aegean Sea i.e. in the area crossed by the FB line. These sub-systems can offer concurrent data from two types of platforms that have different capabilities and observing strategies.

Name of the Infrastructure: POL Coastal Observatory (COBS)
Name of Installation: POL Coastal Observatory
Short name of Installation: COBS (1 & 3 & 4)
Location: Irish Sea
Legal name of organisation: Natural Environment Research Council NERC (POL)
Location of organisation: Liverpool, UK
Web site address: http://cobs.pol.ac.uk/

Annual operating costs of the infrastructure (€) 912 347

Description of the infrastructure for both WP7 and WP8
The POL Coastal Observatory has three components – measurements; coupled hydrodynamic ecological numerical models; a data management and web-based data delivery system. It has been running since August 2002, initially based in Liverpool Bay, Irish Sea.
There are five measurement strands, each on different complementary space / time scales, and for each of which the goal is at least some (near) real time operation.
Installation 1) Fixed point time series (both in situ and shore-based);
The measurements include shore based tide gauges; a meteorological station on Hilbre Island; two in situ sites, one by the Mersey Bar, measuring waves and the vertical structure of current, temperature and salinity, along with a surface CEFAS SmartBuoy whose measurements include nutrients and dissolved oxygen. Offshore surface data are transmitted in near real time to the laboratory by Orbcomm. River flows are gauged by the UK Environment Agency.

Installation 3) An instrumented ferry on the Birkenhead to Dublin route; along track 100 m resolution. The ferry travels there and back most days measuring temperature, conductivity, fluorescence, turbidity and dissolved oxygen. 15 minute data are available in near real time.
Installation 4) Underwater glider. The glider is being trialled and a programme of operational regular transect is being developed.
These measurements are supplemented by weekly composite (because of cloud cover) satellite images of sea surface temperature, suspended sediment and chlorophyll.

Specific modality of access:
Duration of service activity: 2 years.
Specific support offered:
Data from the installations 1, 3 and 4 are offered as a Core Service Activity in real time or delayed mode (see the description above for each installation capability).

Name of the Infrastructure: Coastal Observation System for Northern and Arctic Seas (COSYNA)
Name of Installation: Coastal Observation System for Northern and Arctic Seas
Short name of Installation: COSYNA_1 & 2
Location: North Sea
Legal name of organisation: HZG Research Centre
Location of organisation : Geesthacht, Germany
Web site address: http://www.cosyna.de
Annual operating costs of the infrastructure (€) 1 500 000
Description of the infrastructure
COSYNA (Coastal Observation System for Northern and Arctic Seas) is an operational coastal monitoring, forecasting and information system for the North Sea. It is being developed by institutes of the German Marine Research Consortium (KDM) and collaborating institutions and is operated by the HZG Research Centre. The infrastructure represents an investment of 9 M €. It is build up in two phases over 6 years:
COSYNA is based on 3 FerryBox lines (Installation 1), three shallow-water wadden sea piles (Installation 2), Even though all observational instruments are already running in continuous mode the emphasis of the next years will be to provide near-realtime, quality-assured operational nowcasts and forecasts of the following parameters by a combination of in situ observations, remote sensing and models (data assimilation):
- atmospheric conditions at sea level (wind speed/-direction, atmospheric pressure, air temperature, global radiation
- surface wave conditions (height, period, direction)
- surface currents (speed and direction)
- surface physical (T, S, turbidity, currents (at fixed stations))
- surface biogeochemical parameters(DO, pH, Chl-a, pCO2, NH4, NO2/NO3, o-PO4, SiO4) in selected sites
- water column (SCANFISH): T, S, turbidity, Chl-a
In the very near future this will be complemented by the parameters alkalinity (SIA), algal groups (optical absorption) and algal species (gene-probe).

Specific modality of access:
Duration of service activity: 2 years.
Specific support offered:
The COSYNA_1 & 2 system is offering services for research, technological development activities and monitoring activities. Among others, the system is currently offering:
· Routine near-real-time observations for the parameters listed in the description of infrastructure. These data undergo a fist level quality control and are made available with minimum delay (30min to several hours (FerryBox)). All data are freely available via Internet (Sensor Observation Service (SOS) of NETCDF).
· Quality-assured (QS) observations for the parameters listed above after a delay needed for QS of 1-3 months are offered to scientific users and monitoring authorities. All data are freely available via Internet (Sensor Observation Service (SOS) of NETCDF).

Name of the Infrastructure: SMHI Marine Observation System
Name of Installation: Instrumented buoys and FerryBox system
Short name of Installation: MOS (1 & 2)
Location: Kattegat
Legal name of organisation: Swedish Meteorological and Hydrological Institute SMHI
Location of organisation : Norrköping and Gothenburg, Sweden

Web site address: http://www.smhi.se

Annual operating costs of the infrastructure (€) 542 278€

Description of the infrastructure (dedicated to SA)
SMHI will contribute near real time data on salinity, temperature and chlorophyll fluorescence from one oceanographic buoy in the Baltic proper and one in the Kattegat. The buoys are fitted with salinity and temperature sensors at several depths and optical sensors near the surface.
Installation 1) a FerryBox system on a cargo vessel covering the Baltic Sea and the Kattegat twice a week contributes near real time data on salinity, temperature, chlorophyll and phycocyanine fluorescence as well as turbidity and oxygen. The systems are operated year around but due to interruptions due to service etc. a 75% delivery rate is expected.
Installation 2) The data from the buoy in the Kattegat
It will be combined with and compared to FerryBox data from the Oslo-Kiel route (NIVA) and the Gothenburg-Kemi-Oulu-Lübeck-Gothenburg route (SMHI in collaboration with SYKE). The buoy in the Baltic will be used to evaluate in situ phycocyanine sensors for detecting cyanobacteria blooms.

Specific modality of access:
Duration of service activity: 2 years.
Specific support offered for installation 1 & 2:
- data discovery via adapted metadata catalogues;
- data download; advanced data services (web services) to display, map or get access to data subsets

Name of the Infrastructure: SMHI Marine Observing System
Name of Installation: Laesoe E Oceanographic buoy
Short name of Installation: Laesoe E
Location: Kattegat
Legal name of organisation: Swedish Meteorological and Hydrological Institute SMHI
Location of organisation : Norrköping and Gothenburg, Sweden
Web site address: http://www.smhi.se

Annual operating costs of the infrastructure (€) 148944

Description of the infrastructure (dedicated to SA)
Installation 3) The Laesoe E. Oceanographic Buoy is part of the SMHI Oceanographic Observing System. It is located off shore in the Kattegat between Sweden and Denmark. The Kattegat is the connection between the Baltic Sea and the North Sea. Water depth at mooring location is ca 70 m. The system is operated year around. Service intervals are approximately 3 months but depend on the biofouling situation. The system makes automatic measurements every hour and transmits data to SMHI using satellite communication. Reference measurements are carried out monthly using the research vessel Argos.

Specific modality of access for installation 3:
Same as TOP3 Color Fantasy Infrastructure
Specific support offered for installation 3:
One year of data

Name of the Infrastructure: SmartBay Galway
Name of Installation: SmartBay Galway
Short name of Installation: SmartBay Buoy
Location: Galway Bay, West coast of Ireland
Legal name of organisation: Marine Institute MI
Location of organisation : Galway, Ireland
Web site address: http://www.marine.ie/home/services/operational/SmartBay/

Annual operating costs of the infrastructure (€) 354865

Description of the infrastructure (dedicated to SA)
The Marine Institute has established the SmartBay infrastructure in Galway Bay, Ireland as a test and demonstration site for new and emerging marine technologies. The infrastructure consists of 3 multi-parameter buoys, several tide gauges, wave rider buoys and HF Radar within Galway Bay. There are plans to include a

cable component to the infrastructure in the 2011 to 2016 period. This element will deliver ample power and internet bandwidth to test and demonstration activities to support innovation and development in the marine sector.

Specific modality of access:
Duration of service activity: 2 years.
Specific support offered:
- data discovery via adapted metadata catalogues;
- data download; advanced data services (web services) to display, map or get access to data subsets

Name of the Infrastructure: EMECO extand
Name of Installation: EMECO Marine Data Tool
Short name of Installation: EMECO MDT
Location: North Sea, Irish Seas, European Sea
Legal name of organisation: Blue Lobster IT
Location of organisation : Lowestoft, United Kingdom
Web site address: www.emecogroup.org

Annual operating costs of the infrastructure (€) 153276

Description of the infrastructure (dedicated to TOP1 SA)
EMECO is a consortium of organisations with responsibility for both monitoring and assessment of status and also for improving understanding through research in European shelf-seas. The European Marine Ecosystem Observatory (EMECO) Data Tool currently provides advanced web services for the regional North Sea and Irish Sea. The tools enable rapid integration and visualisation of multi-platform, multi-parameters and multi-national data in the form of maps (KML and bespoke assessment maps), data (XML and CSV) and time series charts. As part of the EMECO initiative Blue Lobster have developed a suite of web-based tools that enable rapid integration and visualisation of multi-platform, multi-parameter, and multi-national data. The purpose of the Data Tool is to deliver high level information products in a transparent and auditable manner that increases confidence, availability and uptake of in situ and remote sensing observational data.

Specific modality of access:
The JERICO Data Tool (WP 6) will be an enhancement of the EMECO Data Tool to a pan European Scale. The JERICO Data Tool will process European data via WP 5 to deliver value added products for other regional seas, namely Baltic and Mediterranean.
Duration of service activity: 1 year.
Specific support offered:
One year of multi parameters maps on a monthly basis, provided by a set of coastal observatories (moored buoys, profiling floats, gliders)
Users are able to select and view data from novel and traditional monitoring platforms as integrated data sets, time series charts, and maps (KML and bespoke assessment maps). The assessment maps, currently of the OSPAR greater North Sea, are composed of a data “mash-up” displayed in set of policy-defined water bodies. These outputs are generated “on the fly”.
The EMECO Infrastructure will form the basis of the Jerico Data Tool and will be further developed to a pan European Scale and to enable users (e.g. public and education) to import their observational data and visualise it integrated with Jerico and other relevant marine monitoring data:

Name of the Infrastructure: Puertos del Estado Deep Water Network
Name of Installation: Puertos del Estado Deep Water Network
Short name of Installation: PdE-DWN
Location: European Southern West Shelves (Cantabric Sea, NW coast of Iberian Peninsula, Gulf of Cádiz and Canary Islands) and West Mediterranean (Med coast of Iberian Peninsula and Balearic Islands).
Legal name of organisation: Puertos del Estado PUERTOS
Location of organisation : Madrid, Spain
Web site address: http://www.puertos.es

Annual operating costs of the infrastructure (€) 2 027 650

Description of the infrastructure (dedicated to SA)
Puertos del Estado deep water network offered to JERICO is made by fifteen multi-parametric stations

transmitting the measured information in real time by satellite Inmarsat-C (1 hour).
Stations description (installation numbered from 1 to 15)
A - Cantabric Sea and , NW coast of Iberian Peninsula
5 Multi-parametric buoys, all of them measuring meteorological parameters (wind speed and direction, atmospheric pressure and air temperature), directional waves, currents and sea surface temperature and salinity.
- Bilbao buoy (43.64º N / 3.04º W) Depth: 600m. Operative since 1990.
- Cabo de Peñas buoy (43.73 ºN / 6.19 ºW) Depth: 450m. Operative since 1997.
- Estaca de Bares buoy (44.06º N / 7.624º W) Depth: 380m. Operative since 1996.
- Villano-Sisargas buoy (43.49º N / 9.21º W) Depth: 380m. Operative since 1998.
- Silleiro buoy (42.12º N /9.404º W) Depth: 320m. Operative since 1998.
B – Gulf of Cádiz
1 Multi-parametric buoy measuring meteorological parameters (wind speed and direction, atmospheric pressure and air temperature), directional waves, currents and sea surface temperature and salinity.
- Cádiz buoy (36.84º N / 6.98º W) Depth: 450m. Operative since 1996.
B – Canary Islands
2 Multi-parametric buoys measuring meteorological parameters (wind speed and direction, atmospheric pressure and air temperature), directional waves, currents and sea surface temperature and salinity.
- Gran Canaria buoy (28.29º N / 15.81º W) Depth: 780m. Operative since 1997.
- Tenerife buoy (28.00º N / 16.58º W) Depth: 710m. Operative since 1998.
B – West Mediterranean
7 Multi-parametric buoys measuring meteorological parameters (wind speed and direction, atmospheric pressure and air temperature) and directional waves. Some of them also currents and sea surface temperature and salinity.
-Cabo de Gata buoy (36.57º N / 2.32º W) Depth: 540m. Operative since 1998. It measures currents and sea surface temperature and salinity.
- Cabo de Palos buoy (37.65º N / 0.33º W) Depth: 230m. Operative since 2006. It measures currents and sea surface temperature and salinity.
- Valencia buoy (39.52º N / 0.20º E) Depth: 260m. Operative since 2005. It measures currents and sea surface temperature and salinity.
- Tarragona buoy (40.68º N / 1.47º E) Depth: 690m. Operative since 2004. It measures currents and sea surface temperature and salinity.
- Cabo Begur buoy (41.92º N / 3.64º E) Depth: 1200m. Operative since 2001.
- Dragonera buoy (39.56º N / 2.10º E) Depth: 135m. Operative since 2006. Since 2009, measuring also currents and sea surface temperature.
- Mahón buoy (39.72º N / 4.44º E) Depth: 300m. Operative since 1993.

Specific modality of access:
Duration of service activity: 2 years.
Specific support offered:
Data from Deep Water Network are available on the GTS and will be available on JERICO portal

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
1	IFREMER	0.25
5	NIVA	0.25
9	CNR	0.25
11	HCMR	0.25
	Total	1.00

WT3:
Work package description

List of deliverables

Delive-rable Number [61]	Deliverable Title	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
D7.1	Service provision	1	1.00	R	PU	48
		Total	1.00			

Description of deliverables

D7.1) Service provision: Final statistic report on Data access [month 48]

Schedule of relevant Milestones

Milestone number [59]	Milestone name	Lead benefi-ciary number	Delivery date from Annex I [60]	Comments

WT3:
Work package description

Project Number [1]	262584	Project Acronym [2]	JERICO

One form per Work Package

Work package number [53]	WP8	Type of activity [54]	SUPP
Work package title	TRANSNATIONAL ACCESS TO COASTAL OBSERVATORIES		
Start month	1		
End month	48		
Lead beneficiary number [55]	9		

Objectives

Objectives
The primary objective of this WP is to enable scientists and engineers to access, free of charge, original coastal infrastructures that do not exist in the country where they are working. These infrastructures include fixed platforms, buoys, profiling systems, gliders, ferryboxes and associated support facilities (e.g. calibration laboratories).

These access opportunities will also contribute to:
- build a long-term collaboration between users and JERICO's partners and associated, facilitating the staff exchange and scientific collaboration among them,
- build a European facility for science dedicated to innovation (new sensors, new automated platforms), opening the access for users also from countries of common regional interest (South Mediterranean, Black Sea, Baltic Sea),
- promote the infrastructure by transferring know-how from the partners to users and may be future partners (including from non European countries).

General modality of access
Unless otherwise specified, a user or a user group is given access to an infrastructure (or an installation) to collect specific data following the implementation of a specific automated measuring system.
The access can be remote (the measuring system is implemented by the operator of the installation and the presence of the user group is not required), partially remote (the presence of the user group is required at some stage e.g. installing and un-installing) or it is a "in person/hands-on" access (the presence of the user group is required/recommended during the whole operation period).
Depending on the installation, the access can be shared simultaneously by several user groups (with independent measuring systems) or not. In particular, some installations are hosting a permanent user (in general the operator of the infrastructure) including in the frame of SA under this project.
Unless otherwise specified, the measuring system is provided by the user group and its cost is not included in the operational costs of the infrastructure. EU funding may contribute to shipping costs for TNA when necessary (as it may contribute to travel and subsistence costs for "hands-on" access).
When relevant, the start and end of the access will coincide with maintenance operation on the installation for financial efficiency (e.g. limiting costs of boat for offshore operations).
More specific and detailed modalities are specified here below (per class of infrastructure and/or per installation) and will also be addressed by WP1 Task 1.6

General definition of the unit access (UA)
The access will be quantified by its duration, in principle corresponding to the period of installing, operating and un-installing the measuring system.
Depending on the installation, the unit of access (UA) will be a 24 hour day, a 8 hour day, a week (5 x 8 hour days) etc.
When the installation is shared by several user groups, the unit will be shared accordingly: if there are n simultaneous user groups, each group will be accounted for 1/n unit. In particular, some installations are shared with a permanent user; in such case, the actual duration of JERICO use is twice the accounted quantity of access.

In agreement with Annex III to the grant agreement, the unit cost shall correspond to the total eligible operational costs divided by the total quantity of access (the same counting method applying to internal and external users, supported by JERICO or not).

Fixed stations (buoy, pile, platform or shore station)

Modality of access: unless otherwise specified (e.g. shore stations and few offshore platforms enabling field campaigns) remote access is the preferred one. The installation may be shared by several user groups including a permanent one (operator). Some of the buoys can be moved to a particular location at a user's request. Data will be made available to the user group within a 24 hour delay and a full dataset will be provided at the end of the measurement campaign.

Unit of access: 24 hour day of measuring system in place and operational (or month, or half a year).

Ferrybox (automated measuring systems installed on ferry boats or ships-of-opportunity)

Modality of access: both "in person/hands-on" and –partially- remote access is possible, depending on the user needs and on the facility. The "JERICO" user will share the installation with the permanent user (operator). Data will be made available to the user group within 24 hours after the end of each shift campaign.

Unit of access: 24 hour day shift or 4 day shift.

Glider (autonomous vehicles carrying scientific instrumentation for collecting data and transmitting it to shore via satellite communication links at regular programmable intervals).

Modality of access: only remote and unshared access is foreseen during operations. The presence of users is possible to prepare the launch of the measurement campaign. Data will be made available to the user group at the end of the measurement campaign.Unit of access: 24 hour day (measurement or transit at sea) per glider.

Calibration facilities

Modality of access: unlike the general modality here above described, access is offered to in-housed testing facilities with calibration systems to calibrate and validate new measurements systems and with support from local calibration teams; only "in person/hands-on" and unshared access is foreseen. The facility is dedicated to one user group at a time and the data is available to the user group in real time.

Unit of access: 8 hour day or week (5 x 8 hour days) of access to the calibration facility (preparation work, installing, tests and uninstalling).

Support offered under this proposal:
Scientific, technical and logistic support will be offered to the TNA user groups during their measurement or calibration campaign. Due to the diverse nature of the installations, specific support is described here below for some of the installations and will be detailed in the text of the open calls.
A contribution to travel and subsistence costs for TNA users (access in persons) may be offered and will be managed by Ifremer.

Outreach of new users:
Two calls for proposals will be launched during the project and publicized widely through the web-pages of the project and other public access support. The outreach of new users is one of the goals of WP6 [in particular task 6.1].

Review procedure under this proposal:

TNA proposals will be selected on the basis of scientific excellence, innovation and impacts for the research community including in the context of the Marine Strategy Framework Directive. . Early enough and before the proposal submission, the applicants will be invited to send a letter of intent in order to receive the text call,. For transparency purpose, these answers will be made available through the JERICO calls web page. After submission, a preliminary screening of the technical feasibility of the proposals will be done by each relevant provider and results will be communicated to the selection panel. To implement the review procedure, a Selection Panel, composed of independent experts from the scientific community and members from TNA providers, will be set up in agreement with annex III of the grant agreement. The detailed procedures of the review will be defined at the beginning of the project, following the principles of transparency, fairness and

impartiality. The project consortium will define, under Task 1.6, the common rules and access conditions to the infrastructures, ensuring transparency.

Description of work and role of partners

INFRASTRUCTURES AND SERVICES PROPOSED FOR Trans National Activity (TNA)

Name of the Infrastructure: Coastal Research Station (CRS Lubiatowo) (see also WP7)
Name of Installation: CRS
Short name of Installation: CRS
Location: Lubiatowo, Poland, south Baltic Sea
Legal name of organisation: Institute of Hydro-Engineering of the Polish Academy of Sciences (IBW PAN)
Location of organisation : Gdańsk, Poland
Web site address: www.ibwpan.gda.pl/lubiatowo

Annual operating costs of the infrastructure (€) 71722

Description of the infrastructure (common SA and TNA)
The IBW PAN Coastal Research Station (CRS) is located at Lubiatowo (Poland), approximately 75 km NW from Gdańsk, at the open sea shore between Łeba and Władysławowo (about 20 km eastwards of Łeba). The laboratory was established in 1970 in an old building of the former coastal rescue station. Situated in a coastal forest, about 100 m from the beach, the building was adapted for the needs of scientific research. At present, it houses office and laboratory rooms, a garage, an electro-mechanic shop and a few residential rooms. The Station is prepared to activities related to observations of meteorological, hydrological, hydrodynamic and litho-dynamic phenomena occurring in the Baltic coastal zone. It encompasses measuring towers arranged in a row, perpendicular to the shoreline. Their role is to accommodate sensors and measuring devices. The towers are cable connected to the data recording and processing centre. At times, smaller structures are built in the sea nearby the towers to ensure installation of measuring equipment at other locations, as required by specific investigation programmes. In these cases, the control of devices and the data registration are also maintained via the measuring towers. Besides, autonomous battery-powered sensors with built-in memory have been used for many times, as well as gauges with radio data transmission systems.
Within routine measurements, winds parameters at the laboratory are registered continually, as well as some other hydro-meteorological parameters, e.g. air humidity, air and water temperature, etc. Long-term variability of dune and beach is monitored regularly every month since 1983. State of the sea can be observed by the camera installed on the beach. Sea bottom topography in the near-shore zone may be measured in the area 2.6 km along shore ´ about 1km offshore.

Unit of access (UA) : 24 hour day (see fixed stations UA).
This installation is shared with a permanent user: access accounted at 50% to each user in such case.
Modality of access (MO): See fixed stations MO; It is partially remote or in person access. Both measuring systems provided by the host (see below) and by the users can be installed.
Support offered: The measuring devices available at CRS Lubiatowo will be offered to be used by users and will be installed on the measuring towers or on smaller additional temporary structures. Selection of the equipment will depend on the user's preferences. The core part of equipment will comprise the IBW PAN instrumentation for measurements of hydro-, litho- and morphodynamic processes. The structures (towers) are also offered for installation of the sensors and probes provided by the users. Support and installation will be done by the assistance team (professor, engineer, technician).

Name of the Infrastructure: Norwegian Ferrybox Network (NorFerry) (See also WP7)
Name of Installation: Norwegian Ferrybox Network Norbjørn Line
Short name of Installation: Norbjørn
Location: Barents Sea
Legal name of organisation: Norsk Institutt for Vannforskning, NIVA
Location of organisation : Oslo, Norway
Web site address: www.ferrybox.no

Annual operating costs of the infrastructure (€) 492200
Description of the infrastructure (common SA and TNA)

The present Norwegian Ferrybox network (NorFerry) consists of four lines operated by the Norwegian Institute for Water Research (NIVA). Two routes are proposed to TNA, one is (the other is described below):
Installation 1: "Barents Sea" region Ferrybox – Norbjørn Line.
The core sensors system uses, as standard, a thermosalinograph (SBE-45), a inlet temperature sensor (SBE-38), an AADI oxygen sensor (optode), a Polymetron turbidity sensor and a TriOS Chl-a fluorescence sensor.
Unit of access : 24 hour day shift (see ferrybox UA)
This installation is shared with a permanent user: access accounted at 50% to each user in such case.
Modality of access: See ferrybox MO; users are invited onboard for periods of days to weeks, for installation, testing, intercalibration of sensors. It is also planned that, for ex. XBT experts will come onboard to acquire simultaneous XBT profile with operational ferrybox.
Support offered:
Access to ferries requires that NIVA personnel would be onboard together with guests. NIVAs personnel will take care of integration of guest's sensors into NIVA's ferrybox system. Intercalibration, data acquisition, etc. will be made jointly by NIVA and guest users.

Name of the Infrastructure: Norwegian Ferrybox Network (NorFerry) (See also WP7)
Name of Installation: Norwegian Ferrybox Color Fantasy Line
Short name of Installation: Color Fantasy
Location: Skagerrak and Baltic Sea entrance region (Oslo –Kiel)
Legal name of organisation: Norsk Institutt for Vannforskning, NIVA
Location of organisation : Oslo, Norway
Web site address: www.ferrybox.no

Annual operating costs of the infrastructure (€) 492 200

Description of the infrastructure (common SA and TNA)
The present Norwegian Ferrybox network (NorFerry) consists of four lines operated by the Norwegian Institute for Water Research (NIVA). Two routes are proposed to TNA, one is (the other is described above):
Installation 4: "Color Line Ferry Color Fantasy " Skagerrak and Baltic Sea entrance region (Oslo-Kiel) ferrybox.
The core sensors system uses, as standard, a thermosalinograph (SBE-45), a inlet temperature sensor (SBE-38), an AADI oxygen sensor (optode), a Polymetron turbidity sensor and a TriOS Chl-a fluorescence sensor. In addition, TriOS yellow substance and cyanobacteria fluorescence sensors are used on this route.
Unit of access : 24 hour day shift (see ferrybox UA)
This installation is shared with a permanent user: access accounted at 50% to each user in such case.
Modality of access: See ferrybox MO; users are invited onboard for periods of days to weeks, for installation, testing, intercalibration of sensors. It is also planned that, for ex. XBT experts will come onboard to acquire simultaneous XBT profile with operational ferrybox.
Support offered:
Access to ferries requires that NIVA personnel would be onboard together with guests. NIVAs personnel will take care of integration of guest's sensors into NIVA's ferrybox system. Intercalibration, data acquisition, etc. will be made jointly by NIVA and guest users.

Name of the Infrastructure: OGS-North Adriatic Coastal Observatory (OGS-NACObs)
Name of Installations: OGS-Centro di Taratura Oceanografica (Oceanographic Calibration Centre)
Short name of Installations: OGS-CTO
Location: Mediterranean Sea - (Adriatic Sea)
Legal name of organisation: Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - OGS
Location of organisation : Trieste, Italy
Web site address: http://www.ogs.trieste.it

Annual operating costs of the infrastructure (€) 547 796

Description of the infrastructure
The OGS-North Adriatic Coastal Observatory (OGS-NACObs) is an extended, multiple-platform, distributed observing infrastructure incorporating opportunistic elements (a coastal glider and targeted drifter deployments) which is presently operating in the northern part of the Adriatic basin in the Mediterranean Sea. In addition to the fixed platforms (SA), the Observatory includes support facilities offered to TNA:

Installation 5- The Centro di Taratura Oceanografica (OGS-CTO)
The OGS maintains an oceanographic calibration facility, the Centro di Taratura Oceanografica (CTO), with a small team of specifically dedicated technicians geared towards assuring high-quality metrological support for its marine observing efforts. The facility is run applying relevant international guidelines and protocols as much as it is practically possible to do in order to assure conformity or, at least, compatibility with the regulatory standards governing this kind of activity worldwide. Currently, the CTO can provide high-calibre temperature and conductivity/salinity calibrations able to meet the demanding oceanographic measurement specifications for these parameters. It is also capable of performing functional tests and evaluations of instrumentation used for other commonly monitored parameters like turbidity, pH, etc.
Unit of access (UA) : 1 week of 5 days of 8 hours (see calibration facilities UA) to CTO.
Modality of access: see calibration facilities MO, for temperature and seawater conductivity/salinity calibration only, at CTO.
Support offered: Support from the CTO dedicated calibration team here above described.

Name of the Infrastructure: CNR-Marine Platforms and Laboratories (CNR-MPL) (See also WP7)
Name of Installation: Acqua Alta tower
Short name of Installation: ACQUA ALTA
Location: Mediterranean Sea (Northern Adriatic)
Legal name of organisation: Consiglio Nazionale delle Ricerche CNR
Location of organisation : Rome, ITALY
Web site address: http://www.cnr.it

Annual operating costs of the Infrastructure (€) 1283000

Description of the infrastructure
The CNR infrastructure offered to JERICO is made by three components: 11 fixed installations, two laboratories for calibration and validation of chemical sensors, and a system of observation based on instrumented fishing boats (the FOS described at the end of WP7). Multi-parametric fixed installations are placed along the Italian coasts. Most of them transmit data in real time to the receiving stations, while some are being to be developed in this direction. A research tower, two underwater stations, a shore station and two calibration facilities are proposed for Trans National Access in JERICO. Each group is described in a distinct section.
Research tower:
Installation 2: “Acqua Alta” research tower (Northern Adriatic - Gulf of Venice, 45° 18.83’ N, 12° 30.53’E), 15 km offshore, bottom depth 16 m. Operative since 1971. Meteorological data: wind speed and direction, air temperature, humidity, solar radiation, precipitation. Oceanographic data: sea temperature, sea level, waves, ADCP currents, Surface and scuba web cams. Monthly manual collection of nutrients and phytoplankton data and CTD vertical profiles. Wide band intranet connection allowing real time data transmission.
Unit of access (UA) : 24 hour day (see fixed stations UA).
This installation is shared with a permanent user: access accounted at 50% to each user in such case.
Modality of access: Fixed stations MO; both remote and “in person” access; shared with operator.
Support offered:
The “Acqua Alta” tower is a wet and dry laboratory able to host three scientists supported by one technician and two seamen. The high degree of safety (Video surveillance onboard) allows the setup and deployment of high-cost instruments; furthermore with the availability of wideband, connection instruments can be remotely controlled.
The installation is available for Trans National Access to JERICO users for specific experiments, tests of sensors and in-situ validation.
A support team formed by one technician and two sea-men, coordinated by a head scientist will assist the user group, helping during installing/uninstalling operations. The user will have access to the infrastructure by boat, this service will be arranged by the operator. The data will be immediately available to the user accessing the laboratory or also remotely in case of protracted installation of user’s instrumentation.

Name of the Infrastructure: CNR-Marine Platforms and Laboratories (CNR-MPL) (See also WP7)
Name of Installations: Sicily Channel and Corsica moorings
Short name of Installation: MPLS & MPLC (3 & 4)
Location: Mediterranean Sea (Sicily Channel, Tyrrhenian Seas)
Legal name of organisation: Consiglio Nazionale delle Ricerche CNR
Location of organisation : Rome, ITALY

Web site address: http://www.cnr.it

Annual operating costs of the Infrastructure (€) 1283000

Description of the infrastructure
The CNR infrastructure offered to JERICO is made by three components: 11 fixed installations, two laboratories for calibration and validation of chemical sensors, and a system of observation based on instrumented fishing boats (the FOS described at the end of WP7). Multi-parametric fixed installations are placed along the Italian coasts. Most of them transmit data in real time to the receiving stations, while some are being to be developed in this direction. A research tower, two underwater stations, a shore station and two calibration facilities are proposed for Trans National Access in JERICO. Each group is described in a distinct section.
Underwater stations:
Installation 3: Sicily Channel, MPLS, Underwater installation in the western sills of the Sicily Channel (37° 23.0'N 11° 35.50'E), bottom depths 500 m. Operative since November 1993. Data: currents along the water column, sea temperature at four depths (100, 150, 300, 450m) and salinity near the bottom (450m). Data recovery managed twice per year.
Installation 4: North Tyrrhenian - Corsica Channel, MPLC, Underwater installation in the Corsica Channel (43° 1.50'N, 9° 41.0'E), bottom depth 450 m. Operative since July 1985. Data: sea temperature and salinity, currents (depth levels: 70, 120, 320 420). Maintenance managed twice per year. Developments towards real time data transmission are planned.
Unit of access (UA) : 6 month period (see fixed platforms UA)
Installations 3 & 4 are shared with a permanent user: access accounted at 50% to each user in such case.
Modality of access: Fixed stations MO; remote only; shared with operator.
Support offered:
The underwater installations in Sicily Channel and Corsica Channel are available for Trans National Access to JERICO users for specific experiments, tests of sensors and in-situ validation.
A support team formed by one technician, one sea-man and one head scientist will assist the user group, taking also care of installing/uninstalling operations . The user will have access to the infrastructure by boat, this service will be arranged by the operator. The data will be available to the user in delayed mode at the end of the 6 month access period.

Name of the Infrastructure: CNR-Marine Platforms and Laboratories (CNR-MPL) (See also WP7)
Name of Installations: Genoa Marine Station
Short name of Installation: MPL Genoa
Location: Mediterranean Sea (Ligurian Sea)
Legal name of organisation: Consiglio Nazionale delle Ricerche CNR
Location of organisation : Rome, ITALY
Web site address: http://www.cnr.it

Annual operating costs of the Infrastructure (€) 1283000

Description of the infrastructure
The CNR infrastructure offered to JERICO is made by three components: 11 fixed installations, two laboratories for calibration and validation of chemical sensors, and a system of observation based on instrumented fishing boats (the FOS described at the end of WP7). Multi-parametric fixed installations are placed along the Italian coasts. Most of them transmit data in real time to the receiving stations, while some are being to be developed in this direction. A research tower, two underwater stations, a shore station and two calibration facilities are proposed for Trans National Access in JERICO. Each group is described in a distinct section.
Shore station:
Installation 5: Ligurian Sea – Genoa harbour, MPL Genoa, Coastal station placed inside the Genoa harbour (high anthropic impact), with the possibility of monitoring environmental and biological parameters. A meteorological station is operative in this site. Data: air temperature, atmospheric pressure, relative humidity, rainfall, solar radiation, wind speed and direction, dew point temperature and presence of wet film. Data are transmitted daily by wireless communication.
Unit of access (UA) : 24 hour day (see fixed stations UA).
This installation is shared with a permanent user: access accounted at 50% to each user in such case.
Modality of access: Fixed stations MO; both remote and "in person" access; shared with operator
Support offered:

The shore station in the harbour of Genoa is available for corrosion tests on infrastructure materials and for the evaluation of the protective and antifouling performances of coatings using suitable devices for exposition in immersed or in atmospheric marine environment.
A support team formed by one young researcher and one head scientist will assist the user group, taking also care of installing/uninstalling operations. The station is on-land, so the user will have direct access. The data will be available to the user as soon as the user's experiment is completed

Name of the Infrastructure: CNR-Marine Platforms and Laboratories (CNR-MPL)
Name of installation: CNR Calibration facilities
Short name of installation: MPL CAL (6 & 7)
Location: Mediterranean Sea (Trieste - Northern Adriatic, Capo Granitola - Sicily Channel)
Legal name of organisation: Consiglio Nazionale delle Ricerche CNR
Location of organisation : Rome, ITALY
Web site address: http://www.cnr.it

Annual operating costs of the Infrastructure (€) 1283000

Description of the infrastructure
The CNR infrastructure offered to JERICO is made by three components: 11 fixed installations, two laboratories for calibration and validation of chemical sensors, and a system of observation based on instrumented fishing boats (the FOS described at the end of WP7). Multi-parametric fixed installations are placed along the Italian coasts. Most of them transmit data in real time to the receiving stations, while some are being to be developed in this direction. A research tower, two underwater stations, a shore station and two calibration facilities are proposed for Trans National Access in JERICO. Each group is described in a distinct section.
Calibration facilities
Installation 6: MPLCAL6 - Laboratory for chemical analysis of pH, total alkalinity, TCO2, dissolved oxygen, dissolved inorganic nutrients and total/dissolved organic carbon, placed in Trieste (Northern Adriatic).
Installation 7: MPLCAL7 - Laboratory for chemical analysis of Chlorophyll, dissolved and particulate trace metals, stable isotopes (O, C) placed in Capo Granitola (Sicily Channel).
Unit of access (UA) : 8 hour day (see calibration facilities UA)
Modality of access: Calibration facilities MO.
Support offered:
The two laboratories are available for TNA (WP8) as calibration facilities. In particular,
- The laboratory for chemical analysis in Trieste is available for the in situ validation and long term performances evaluation of chemical sensors by means of analytical methods applied on seawater samples. (Installation 6)
- The laboratory in Capo Granitola is available for the calibration of fluorescence sensor vs Clorofill-a data obtained by the analysis of field samples and standards and of additional sensors which could be installed in the Sicily Channel. Moreover, it is available for the analysis of dissolved and particulate trace metals, and stable isotopes (O, C) in seawater samples. (Installation 7)
The service described above can be provided by a dedicated team or directly accessed by the JERICO user with the assistance of this team. The assistance team is formed by one technician and one head scientist for each laboratory. The results will be directly accessible to the user in case of direct access, or remotely accessible in case the operations are conducted by the operator on user demand.

Name of the Infrastructure: POSEIDON Observatory (POSEIDON) (See also WP7)
Name of Installations: POSEIDON BUOYS NETWORK & SOUTH AEGEAN BUOYS
Short name of installation: POSEIDON BUOYS
Location: Eastern Mediterranean Sea
Legal name of organisation: Hellenic Center for Marine Research HCMR
Location of organisation : Athens GREECE
Web site address: http://www.poseidon.hcmr.gr

Annual operating costs of the infrastructure (€) 718 512

Description of the infrastructure:
POSEIDON is an operational marine monitoring, forecasting and information system for the Greek Seas. It was developed by the Hellenic Centre for Marine Research (HCMR, www.hcmr.gr) and collaborating institutes in four phases over the past 12 years. The basic monitoring infrastructure of POSEIDON comprises of a fleet of

10 oceanographic buoys (SeaWatch and Wavescan types) and calibration facilities. The buoys are permanently moored as POSEIDON BUOYS in the Aegean and Ionian Seas, 3 of which are moored in the south Aegean Sea (POSEIDON SOUTH AEGEAN BUOYS).

Installation 1. POSEIDON BUOYS NETWORK: 7 SeaWatch and Wavescan buoys, permanently deployed in Aegean and Ionian Seas routinely monitoring:
☐ atmospheric conditions at sea level (wind speed and direction, atmospheric pressure, air temperature at all sites as well as relative humidity, precipitation and radiation components at selected sites)
☐ surface wave conditions (height, period, direction)
☐ surface currents (speed and direction) and hydrological (temperature, salinity) conditions
☐ water column physical (T, S, currents, turbidity) and biochemical (DO, Chl-a, PAR, pCO2) conditions in selected sites

Installation 2. POSEIDON SOUTH AEGEAN BUOYS: 3 SeaWatch and Wavescan buoys, deployed in Saronikos, Santorini and Cretan Sea routinely monitoring same parameters as installation 1

Unit of access (UA): 1 “buoy month” for installation 1 POSEIDON BUOY (see fixed platforms UA).
This installation is shared with a permanent user. Access accounted at 50% to each user in such case.
Modality of access: Fixed stations MO for installation 1 remote access and shared with operator
Support offered: The TNA offered by the POSEIDON system to the project includes,
- Deployed Buoys, depending on user needs the access can be offered either for one of the existing stations of the network or for several stations for fewer months each.
- As a generic service, the whole system is offered as a test bench for existing and new sensors.

Name of the Infrastructure: POSEIDON Observatory
Name of Installation: POSEIDON CALIBRATION LABORATORY
Short name of installation: POSEIDON CAL
Location: Eastern Mediterranean Sea
Legal name of organisation: Hellenic Center for Marine Research HCMR
Location of organisation : Athens GREECE
Web site address: http://www.poseidon.hcmr.gr

Annual operating costs of the infrastructure (€) 718 512

Description of the infrastructure
POSEIDON is an operational marine monitoring, forecasting and information system for the Greek Seas. It was developed by the Hellenic Centre for Marine Research (HCMR, www.hcmr.gr) and collaborating institutes in four phases over the past 12 years. HCMR offers TNA access to its fleet of oceanographic buoys (installation 1) and to its calibration facilities (installation 3). The two installations are described separately in the following.
Installation 3) The calibration facilities at the HCMR Thalassocosmos complex in Crete include a special designed calibration tank and a number of reference sensors and laboratory equipment for temperature, salinity, chlorophyll-a, nutrients and dissolved oxygen parameters.
Unit of access (UA) : 1 week of 5 days of 8 hours for installation 3 - POSEIDON CAL (see calibration facilities UA).
Modality of access: Calibration facilities MO.
Support offered: The TNA offered by the POSEIDON system to the project includes:
- Calibration laboratories (installation 3): they can be used for calibration of sensors (temperature, salinity, nutrients, chl-a, dissolved oxygen).
The support team consists of the HCMR technicians and scientists who regularly prepare the instrumentation; go to sea (fixed stations); service the instrumented assist the users in the calibration facility.

Name of the Infrastructure: POL Coastal Observatory (COBS) (See WP7)
Name of Installation: POL Coastal Observatory - Fixed platform
Short name of Installation: COBS_1 (POL BUOY)
Location: Irish Sea
Legal name of organisation: Natural Environment Research Council NERC (POL)
Location of organisation : Liverpool, UK
Web site address: http://cobs.pol.ac.uk/

Annual operating costs of the infrastructure (€) 912 347

Description of the infrastructure
The POL Coastal Observatory has three components – measurements; coupled hydrodynamic ecological numerical models; a data management and web-based data delivery system. It has been running since August 2002, initially based in Liverpool Bay, Irish Sea.
There are 3 measurement strands, each on different complementary space / time scales, and for each of which the goal is at least some (near) real time operation.
Installation 1) Fixed point time series (both in situ and shore-based); the Mersey Bar, measuring waves and the vertical structure of current, temperature and salinity transmitted in near real time to the laboratory by Orbcomm. River flows are gauged by the UK Environment Agency.
Unit of access (UA) : 24 hour day (see fixed stations UA).
This installation is shared with a permanent user: access accounted at 50% to each user in such case.
Modality of access: Fixed stations MO [remote only].
Support offered: The installation 1 of the POL Coastal Observatory - fixed stations is available for Trans National Access to JERICO users for specific experiments, tests of instruments and in-situ validation.
The support team consists of the NOC technicians and scientists who regularly prepare the instrumentation; go to sea on RV Prince Madog on a rota (fixed stations); service the instrumented ferry (primarily two), install/uninstall or deploy the gliders (four people) and process the data.

Name of the Infrastructure: POL Coastal Observatory (COBS) (See WP7)
Name of Installation: POL Coastal Observatory - Ferrybox
Short name of Installation: COBS_3 (POL FERRYBOX)
Location: Irish Sea
Legal name of organisation: Natural Environment Research Council NERC (POL)
Location of organisation : Liverpool, UK
Web site address: http://cobs.pol.ac.uk/

Annual operating costs of the infrastructure (€) 912 347

Description of the infrastructure
The POL Coastal Observatory has three components – measurements; coupled hydrodynamic ecological numerical models; a data management and web-based data delivery system. It has been running since August 2002, initially based in Liverpool Bay, Irish Sea.
There are 3 measurement strands, each on different complementary space / time scales, and for each of which the goal is at least some (near) real time operation.
Installation 3) An instrumented ferry on the Birkenhead to Dublin route; along track 100 m resolution. The ferry travels there and back most days measuring temperature, conductivity, fluorescence, turbidity and dissolved oxygen. 15 minute data are available in near real time.
Unit of access (UA) : 24 hour day (see ferrybox UA)
This installation is shared with a permanent user: access accounted at 50% to each user in such case.
Modality of access: ferrybox MO [remote only]
Support offered: The installation (ferrybox) is available for Trans National Access to JERICO users for specific experiments, tests of instruments and in-situ validation.
The support team consists of the NOC technicians and scientists who regularly prepare the instrumentation; go to sea on RV Prince Madog on a rota (fixed stations); service the instrumented ferry (primarily two), install/uninstall or deploy the gliders (four people) and process the data.

Name of the Infrastructure: POL Coastal Observatory (COBS)
Name of Installation: POL Costal Observatory - one glider
Short name of Installation: COBS_4 (POL GLIDER)
Location: Irish Sea
Legal name of organisation: Natural Environment Research Council NERC (POL)
Location of organisation : Liverpool, UK
Web site address: http://cobs.pol.ac.uk/

Annual operating costs of the infrastructure (€) 912 347

Description of the infrastructure
The POL Coastal Observatory has three components – measurements; coupled hydrodynamic ecological

numerical models; a data management and web-based data delivery system. It has been running since August 2002, initially based in Liverpool Bay, Irish Sea.
There are 3 measurement strands, each on different complementary space / time scales, and for each of which the goal is at least some (near) real time operation.
Installation 4) Underwater glider. The glider is being trialled and a programme being developed.
These measurements are supplemented by weekly composite (because of cloud cover) satellite images of sea surface temperature, suspended sediment and chlorophyll. [data made available to users by the NERC/POL]
Unit of access (UA) : 1 “glider day” (see glider UA).
Modality of access: glider MO.
Support offered: The glider is available for Trans National Access to JERICO users for specific experiments, tests of instruments and in-situ validation.
The support team consists of the NOC technicians and scientists who regularly prepare the instrumentation; go to sea on RV Prince Madog on a rota (fixed stations); service the instrumented ferry (primarily two), install/uninstall or deploy the gliders (four people) and process the data.

Name of the Infrastructure: Coastal Observation System for Northern and Arctic Seas (COSYNA) (See WP7)
Name of Installation: Ferrybox
Short name of Installation: COSYNA_1 (FB)
Location: North Sea
Legal name of organisation: HZG Research Centre
Location of organisation : Geesthacht, Germany
Web site address: http://www.cosyna.de

Annual operating costs of the infrastructure (€) 1 500 000

Description of the infrastructure
COSYNA (Coastal Observation System for Northern and Arctic Seas) is an operational coastal monitoring, forecasting and information system for the North Sea. It is being developed by institutes of the German Marine Research Consortium (KDM) and collaborating institutions and is operated by the HZG Research Centre. The infrastructure represents an investment of 9 M €. It is build up in two phases over 6 years:
- Phase I (ICON, 2007-2009) is based on 3 FerryBox lines (Installation 1), three shallow-water wadden sea piles (Installation 2)
- Phase II (2010-2013): 2 gliders (installation 3) complete COSYNA
Installation 1: COSYNA_1 (FB) is based on 3 FerryBox lines
Unit of access (UA): 24 hour day (see ferrybox UA)
The installation is shared with a permanent user: access accounted at 50% to each user in such case.
Modality of access: ferrybox MO.
Support offered: HZG will give access to three ferryboxes. The access will consist in hosting visitors for experiments onboard the ships and also for installation of users’ equipment on FerryBoxes.
The support team consists of technicians and scientists who prepare the instrumentation; go to sea (fixed stations); service the instrumented ferry or deploy the gliders and process the data.

Name of the Infrastructure: Coastal Observation System for Northern and Arctic Seas (COSYNA) (See WP7)
Name of Installation: Fixed Stations (Piles)
Short name of Installation: COSYNA_2 (PILE)
Location: North Sea
Legal name of organisation: HZG Research Centre
Location of organisation : Geesthacht, Germany
Web site address: http://www.cosyna.de

Annual operating costs of the infrastructure (€) 1 500 000

Description of the infrastructure
COSYNA (Coastal Observation System for Northern and Arctic Seas) is an operational coastal monitoring, forecasting and information system for the North Sea. It is being developed by institutes of the German Marine Research Consortium (KDM) and collaborating institutions and is operated by the HZG Research Centre. The infrastructure represents an investment of 9 M €. It is build up in two phases over 6 years:
- Phase I (ICON, 2007-2009) is based on 3 FerryBox lines (Installation 1), three shallow-water wadden sea piles (Installation 2)

- Phase II (2010-2013): 2 gliders (installation 3) complete COSYNA
Installation 2: COSYNA PILE is based on three shallow-water wadden sea piles.
Unit of access (UA) : 24 hour day (see fixed stations UA)
This installation is shared with a permanent user: access accounted at 50% to each user in such case.
Modality of access: fixed stations MO.
Support offered: HZG will give access to three wadden sea piles. The access will consist in hosting visitors for experiments and for installation of users' equipment on piles.
The support team consists of technicians and scientists who prepare the instrumentation; go to sea (fixed stations); service the instrumented ferry or deploy the gliders and process the data.

Name of the Infrastructure: Coastal Observation System for Northern and Arctic Seas (COSYNA)
Name of Installation: Mobile Platforms (gliders)
Short name of Installation: COSYNA_3 (GLIDER)
Location: North Sea
Legal name of organisation: HZG Research Centre
Location of organisation : Geesthacht, Germany
Web site address: http://www.cosyna.de

Annual operating costs of the infrastructure (€) 1 500 000

Description of the infrastructure
COSYNA (Coastal Observation System for Northern and Arctic Seas) is an operational coastal monitoring, forecasting and information system for the North Sea. It is being developed by institutes of the German Marine Research Consortium (KDM) and collaborating institutions and is operated by the HZG Research Centre. The infrastructure represents an investment of 9 M €. It is build up in two phases over 6 years:
- Phase I (ICON, 2007-2009) is based on 3 FerryBox lines (Installation 1), three shallow-water wadden sea piles (Installation 2)
- Phase II (2010-2013): 2 gliders (installation 3) complete COSYNA
Installation 3: COSYNA GLIDER is based on 2 gliders.
Unit of access (UA) : 1 "glider day" (see glider UA).
Modality of access: glider MO.
Support offered: HZG will give access to two gliders. The access will consist in planning and performing assisted glider missions on user demand.
The support team consists of technicians and scientists who prepare the instrumentation; go to sea (fixed stations); service the instrumented ferry or deploy the gliders and process the data.

Name of the Infrastructure: CSIC-IMEDEA Glider facility
Name of Installation: CSIC-IMEDEA Glider
Short name of Installation: CSIC- Glider
Location: Western Mediterranean
Legal name of organisation: Consejo Superior de Investigaciones Cientificas CSIC-IMEDEA
Location of organisation: Esporles, Spain
Web site address: www.imedea.csic-uib/tmoos/gliders

Annual operating costs of the infrastructure (€) 430 173

Description of the infrastructure (dedicated to TNA)
CSIC-IMEDEA has been operating SLOCUM Webb Research gliders since 2005 and at present, 3 Deep (1.000 m) gliders and 1 Coastal glider (200m) are available (http://www.imedea.uib-csic.es/tmoos/gliders). New facilities have been also established (electronics, ballasting and AUV's/Gliders laboratories).
Gliders are underwater autonomous vehicles designed to observe vast areas of the interior ocean (Stommel, 1989). They make use of their hydrodynamic shape and small fins to induce horizontal motions, while controlling their buoyancy. Buoyancy control also allows vertical motions in the water column. The nominal horizontal speed is about 1 km/h. Coastal versions of gliders are limited to operate between 10 and 200 m depth. The long autonomy period at sea is the main advantage of this platform.
Gliders allow autonomous and sustained collection of CTD data and biogeochemical measurements (fluorescence, oxygen, etc) at high spatial resolutions (1km) and at low costs compared to conventional

methods. Novel studies carried out in in the Mediterranean Sea have confirmed the feasibility of using coastal and deeps gliders to monitor the spatial and low frequency variability of the coastal ocean (Alvarez et al., 2007; Ruiz et al., 2009a; Ruiz et al., 2009b). Gliders have proved to be highly robust platforms to monitor the ocean even under adverse meteorological conditions and/or in really challenging oceanic areas such as the Alborán Sea (Ruiz et al., 2009c).
CSIC-IMEDEA glider team has carried out about 15 gliders missions in the western Mediterranean Sea obtaining, so far, about 6000 CTD cast plus oxygen, chlorophyll and turbidity.
Unit of access (UA) : 1 “glider day” (see glider UA) -
Modality of access: glider MO
Support offered: CSIC-IMEDEA can provide access to the IMEDEA gliders facilities, including the use of one glider unit (after a carefully peer-review of proposed missions – feasibility, mission definition, benefits, etc…). Additionally real-time data from all IMEDEA glider missions carried out under the project will be available in real-time.
The proposed mission can consist of:
- Preparation of a fleet of gliders (1 to 3) and its sensors for a specific task and for the area to operate.
- Logistics from the operator facility to the operation site and return
- Launch and recovery of the gliders
- Remote control and programming of the gliders by the operational team
- Data recovery and delivery to the user.
There is a dedicated team composed of technician who prepare and operate the gliders, program and supervise the cruise, format and distribute the data at the end of the cruise.

Name of the Infrastructure: National Glider facility
Name of Installation: National Glider Facility
Short name of Installation: CETSM
Location: Western Mediterranean Sea
Legal name of organisation: INSU/CNRS Institut National des Sciences de l’Univers/ Centre National de la Recherche Scientifique
Location of organisation : La Seyne / mer, France
Web site address: http://www.ego-network.org

Annual operating costs of the infrastructure (€) 504 769

Description of the infrastructure (dedicated to TNA)
The National Glider facility is held by DT-INSU at La Seyne sur mer. It is part of a larger group called EGO (Everyone Glider Organization). It is installed inside the Mediterranean Ifremer center and is part of the CETSM (European Centre of underwater technologies). The glider facility started in September 2008, it is composed of 5 engineers and technicians and 9 gliders. By the end of 2010, there will be 15 gliders.
The facility is fully equipped to operate Gliders:
- A glider ballasting tank in order to prepare the glider,
- A electronic lab for battery change and maintenance
- Servers and communications devices for glider operations
- The ego-network.org web page a collaborative work containing tools for piloting gliders
- Fully trained glider staff (preparation and piloting) working on shift for continuous service
- Strong collaborations are maintaned to have “glider ports” on the Mediterranean coast
Among the gliders you can find the following sensors:
- CTD
- Oxygen Optode
- Fluorimeters (ChlA, CDOM, Phycoerythrine, turbidity)
- Back scattering (from 470 to 880 nm)
Unit of access (UA) : 1 “glider day” (see glider UA) -
Modality of access: glider MO
Support offered: INSU can provide access to users to the DT-INSU gliders facilities, including the use of one or more glider units (after a carefully peer-review of proposed missions – feasibility, mission definition, benefits, etc…).
The proposed mission can consist of:
- Preparation of a fleet of gliders (1 to 5 gliders) and its sensors for a specific task and for the area to operate.
- Logistics from the operator facility to the operation site and return

- Launch and recovery of the gliders
- Remote control and programming of the gliders by the operational team
- Data recovery and delivery to the user.

Additionally real-time data from all DT-INSU glider missions carried out under the project will be available in real-time. There is a dedicated team composed of technician who prepare and operate the gliders, program and supervise the cruise, format and distribute the data at the end of the cruise.

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
1	IFREMER	0.25
3	IBWPAN	0.25
5	NIVA	0.25
8	OGS	0.25
9	CNR	0.25
11	HCMR	0.25
12	NERC	0.25
14	HZG	0.25
18	CSIC	0.25
23	INSU/CNRS	0.25
	Total	2.50

List of deliverables

Delive-rable Number [61]	Deliverable Title	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
D8.1	Trans National Access Provision	9	2.50	R	PU	48
		Total	2.50			

Description of deliverables

D8.1) Trans National Access Provision: Final statistic reports on TNA [month 48]

Schedule of relevant Milestones

Milestone number [59]	Milestone name	Lead benefi-ciary number	Delivery date from Annex I [60]	Comments

WT3:
Work package description

Project Number [1]	262584	Project Acronym [2]	JERICO

One form per Work Package

Work package number [53]	WP9	Type of activity [54]	RTD
Work package title	NEW METHODS TO ASSESS THE IMPACT of COASTAL OBSERVING SYSTEMS		
Start month	1		
End month	42		
Lead beneficiary number [55]	27		

Objectives

In situ and satellite observations in the coastal area are continuously adapted in order to respond to the requirements for the information needed by the scientists and coastal zone managers. Although making observations in the coastal area may be very expensive, and sometimes the data have a very local information content, every single observational platform may significantly contribute to the estimates of the state of the coastal area. In order to extract the most of the information from and to optimize the investments into the coastal observing system it is necessary to evaluate the impact of each individual observing platform so that the observations will be trimmed down to the essential components and the information content be as wide and multi-purpose as possible. Thus it is highly recommended to use objective methods to assess the impact of existing and planned observational instruments on our ability to estimate processes in the coastal zone. A traditional approach to optimise the observational system is based on mainly subjective estimates of the long term characteristics of the dynamical processes in the coastal area. On the other hand, recent developments in other disciplines that consider the evolution of complex dynamical systems like meteorology show that it is essential to use dynamical models combined with advanced data assimilation schemes in order to get a thorough estimate of the impact of each observational system.

Observing System Experiments (OSE) are objective methods that allow estimating the impact of existing observational systems, while Observing System Simulation Experiments (OSSE) estimate the impact of planned observational data sets. OSE and OSSE combine the information from the observations with model dynamics and evaluate how much each observational platform contributes to the accuracy of the forecast. Both methods are based on the integration of observations into dynamical models and thus may provide a reliable estimate of the importance of each observational data set on the quality of the estimates of coastal processes. They represent the state of the art methodology to estimate the impact of observational data sets in the meteorology and are becoming increasingly important in oceanography and coastal areas.

This WP has the following objectives:
- To evaluate at European level the impact of major existing observational data sets on three-dimensional dynamical state estimates by integrating existing observations in high resolution coastal models (OSEs).
- To develop at European level the evaluation of the impact of new observing platforms on three-dimensional dynamical state estimates by integrating simulated observations in high resolution coastal models (OSSEs).

The Pan-European estimation of the impact of observational platforms is achieved by performing OSE and OSSE experiments in several important European coastal areas like the Baltic, the North Sea, The Bay of Biscay, the Adriatic and the Aegean Sea. These areas cover a large spectrum of different coastal processes representative of the northern and the southern European coastal areas.

This WP has the following objectives:
- To evaluate at European level the impact of major existing observational data sets on three-dimensional dynamical state estimates by integrating existing observations in high resolution coastal models (OSEs).
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Biscay, the Adriatic and the Aegean Sea. These areas cover a large spectrum of different coastal processes representative of the northern and the southern European coastal areas.

Description of work and role of partners

Work breakdown

TASK 9.1: SCIENTIFIC COORDINATION (CMCC)
This task organizes WP9 technical meetings for the definition of OSE and OSSE experiments and presents the findings on the impact of existing and future platforms to WP2 and WP10.

TASK 9.2: IMPACT OF EXISTING OBSERVATIONAL PLATFORMS ON ESTIMATES OF COASTAL PROCESSES BY THE USE OF HIGH RESOLUTION COASTAL MODELS (HCMR, CMCC, DMI, DELTARES, MUMM, HZG)

In this task a set of OSE experiments are performed with different existing observational platforms and in different European seas:
- The impact of surface currents measurements from a HF radar installation on the Aegean state estimates is evaluated using a 1/300 resolution ocean model and the SEEK multivariate data assimilation scheme which already assimilates SSH, SST and T/S in situ data. (HCMR).
- Relative impact of in situ observations of temperature and salinity profiles by existing coastal platforms is evaluated for the Adriatic Sea in a period 2007-2009 by the use of 1/500 resolution ocean model and the OceanVar data assimilation scheme which assimilates satellite SLA, VOS XBT and coastal CTD observations. (INGV-CMCC).
- The impact of the coastal observations of temperature and salinity on the operational basin scale data assimilation system of the Mediterranean Sea is evaluated during the Target Observation Period. The model has the horizontal resolution of 1/160 and uses the OceanVar data assimilation scheme. (INGV).
- Relative impact of coastal platforms observing temperature, salinity and water level in the Baltic and North Sea. The ocean model has the horizontal resolution of 1/120 x 1/200 in Baltic-North Sea and 1/720 x 1/1200 in the Baltic-North Sea transition waters, and the assimilaton is performed by the 3DVAR with anisotropic covariances. (DMI).
- A technique based on the Ensemble Kalman Filter is applied to estimate the short term impact of each coastal platform measuring the sea level in the North Sea and the North-Eastern Atlantic Shelf. The storm surge model has the horizontal resolution of 1/400 x 1/600 and the data assimilation is based on the Ensemble Kalman Filter and the Two-Sample Kalman Filter. (DELTARES).
- The impact of existing data from operational FerryBoxes (Dutch Rijkswaterstaat, HZG, others) and Smart Moorings (CEFAS, Dutch Rijkswaterstaat) on the forecasts of suspended matter and chlorophyll in the Southern North Sea and German Bight. The Delft3D biogeochemical model has a horizontal resolution down to1x1 km. Ensemble Kalman filter and Optimal Interpolation techniques can be applied. (DELTARES).
- Using an Ensemble Kalman filter technique, simulations of the existing observational platforms for in situ temperature and salinity data in the North Sea are performed. The oceanographic model has the horizontal resolution of 1/150 . (MUMM).
- The impact of existing Hf radar measurements in the German Bight on current and water level forecasts will be assessed using an Ensemble Kalman Filter technique. A three dimensional primitive equation model with 1/1100 resolution will be used for prediction and the estimation of the background statistics. (HZG).

TASK 9.3: IMPACT OF FUTURE COASTAL OBSERVING PLATFORMS ON THE ESTIMATES OF COASTAL PROCESSES BY THE USE OF HIGH RESOLUTION COASTAL MODELS (DMI, MUMM, HZG, IFREMER, INSU/CNRS, CMCC)

OSSE experiments are developed for several European seas and different observing platforms that may be implemented in the future:
1) Simulated impact of assimilation of positions of surface drifters in the Adriatic Sea is estimated by the use of the ocean model with the horizontal resolution of 1/500 and the OceanVar data assimilation scheme. A historical test case will be made for the selected period of experimental deployment of surface drifters in the Adriatic Sea. (INGV-CMCC).
2) Simulated impact of temperature observations from instruments implemented on fishing nets in the Adriatic Sea. The ocean model has the horizontal resolution of 1/500 and applies the OceanVar data assimilation scheme. A historical test case will be made for the period of MFSTEP observations. (INGV-CMCC).

3) Simulated impact of glider observations in the Baltic Sea. The ocean model has the horizontal resolution of 1/120 x 1/200 in Baltic-North Sea and 1/720 x 1/1200 in the Baltic-North Sea transition waters, and the assimilation is performed by the 3DVAR with anisotropic covariances. (DMI).
4) The impact of observations from moving platforms (e.g., ships of opportunity, gliders, ...) on the quality of southern North Sea high resolution model forecasts will be investigated using an Ensemble Kalman filter. The model horizontal resolution is 1/150. (MUMM)
5) The impact to be expected from additional use of SST and SSS data provided by the FerryBox system is assessed using an Ensemble Kalman filter technique. The data sets are provided by the COSYNA observing system. A three dimensional primitive equation model with 1/1100 resolution is used for prediction and the estimation of the background statistics in the German Bight. (HZG)
6) Using representer-based methods, future coastal observing systems in the Bay of Biscay are designed. The possible improvements of observing networks based on ARVOR-C platforms (vertical T/S pseudo-Eulerian profilers designed for the shelf) and gliders combined with existing measurements from ships of opportunity (RECOPESCA program on fishing boats) will be explored. The model resolution is 1/25° (4Km). (IFREMER)

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
1	IFREMER	2.00
4	DMI	8.00
7	DELTARES	3.00
11	HCMR	5.00
14	HZG	7.00
15	MUMM	9.00
23	INSU/CNRS	1.00
27	CMCC	22.50
	Total	57.50

List of deliverables

Deliverable Number [61]	Deliverable Title	Lead beneficiary number	Estimated indicative person-months	Nature [62]	Dissemination level [63]	Delivery date [64]
D9.1	First scientific report	27	10.00	R	PU	12
D9.2	First report on OSE	11	10.00	R	PU	18
D9.3	First report on OSSE	4	10.00	R	PU	18
D9.4	Second scientific report	27	7.50	R	PU	24
D9.5	Second report OSE	11	10.00	R	PU	36
D9.6	Second report on OSSE	4	10.00	R	PU	36
		Total	57.50			

Description of deliverables

D9.1) First scientific report: Task 9.1 - First annual scientific report [month 12]

D9.2) First report on OSE: Task 9.2 - First report on the status of OSE experiments [month 18]

D9.3) First report on OSSE: Task 9.3 - First report on the status of OSSE experiments [month 18]

D9.4) Second scientific report: Task 9.1 - Second annual scientific report [month 24]

D9.5) Second report OSE: Task 9.2 - Second report on the results of OSE experiments [month 36]

D9.6) Second report on OSSE: Task 9.3 - Second report on the results of OSSE experiments [month 36]

Schedule of relevant Milestones

Milestone number [59]	Milestone name	Lead benefi-ciary number	Delivery date from Annex I [60]	Comments
MS29	Final Report OSE	11	42	For final report WP1
MS30	Final Report OSE	4	42	For final report WP1

WT3:
Work package description

Project Number [1]	262584	Project Acronym [2]	JERICO

One form per Work Package

Work package number [53]	WP10	Type of activity [54]	RTD
Work package title	IMPROVED EXISTING AND EMERGING TECHNOLOGIES		
Start month	1		
End month	48		
Lead beneficiary number [55]	20		

Objectives

Coastal systems are highly dynamic both from a physical and a biological standpoint. They are also highly heterogeneous in space. Coastal ecosystems are also highly productive and more exposed to human perturbations relative to their open ocean counterparts. There are therefore several key issues for the quality improvement of a European observatory of coastal ecosystems.

The first issue is dealing with the improvements and the development of new tools and sensors allowing for:
(1) the measurements of a new set of parameters (including biological ones, which cannot be overlooked in the above mentioned context),
(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 second key issue is dealing with the use and the development of platforms allowing for the optimal deployment of sensors. This includes emerging profiling technology, gliders and ships of opportunity.
A third and last key issue is dealing with the establishment of a sound implementation strategy for long-term coastal observatories. It includes the definition of:
(1) sets of parameters which are to be monitored,
(2) key sites where such monitoring should take place,
(3) temporal and spatial sampling strategy within each of these sites.

Objectives
To examine the extent to which existing technologies can be improved and/or adapted to the benefit of coastal operational oceanography and to document and test emerging technologies that will underpin future operational oceanographic systems in Europe's coastal seas. The work package is sub-divided into tasks including:
- New tools and strategies for monitoring key biological compartments and processes
- Development of new physico-chemical sensors.
- Use of emerging profiling technologies for coastal seas.
- Increased use of ships of opportunity in making coastal oceanographic measurements.
Best practices in coastal observatory implementation.

Description of work and role of partners

TASK 10.1: DEVELOPMENTS OF NEW TOOLS AND STRATEGIES FOR THE MONITORING OF KEY BIOLOGICAL COMPARTMENTS AND PROCESSES (INSU, NIOZ, NIVA)

Biological compartments and processes are essential in the context of sustainable use of coastal ecosystems. Their monitoring is still largely based on time consuming and expensive procedures, which are not suitable for long term monitoring with high frequency acquisition or for extensive spatial coverage. The first aim of JERICO is to develop new procedures, largely based on image analysis, to monitor biological compartments and processes at high frequency and/or over large spatial scales using automated or semi-automated procedures.

Development of new image analysis software

Image analysis techniques are especially promising in terms of developing new monitoring procedures for biological compartments and processes. Sophisticated image acquisition and processing procedures are currently used in the field of species recognition and counting, habitat characterization, monitoring of biological activity, and assessment of biologically induced processes such as bioturbation. However, the corresponding software development is still restricted partially due to the fact that they are conducted independently in each of the above mentioned fields. In JERICO, existing expertise in various fields of image analyzing techniques will able to develop and test new software specifically designed to automatically process: (1) in situ video imaging of the water sediment interface using ROV or other mobile carriers to infer the abundance of suprabenthos (2) in situ sediment profile images to infer the ecological quality status of benthic habitats using either existing or newly developed indices, (3) in situ recorded videos by fixed cameras to assess the activity and growth of benthic organisms, (4) images derived from laboratory equipments designed to process and assess both phytoplankton (Flowcam, FlowCytoBot) and zooplankton (Zooscan).

Demonstration surveys
Most of the developments described above are dealing with the characterization of phytoplankton (including harmful species). A demonstration survey at a JERICO site where, together with the current monitoring of physicochemical parameters provided by JERICO infrastructure will be proposed. This demonstration survey will deal with sites featuring important aquaculture activities potentially affected by harmful algal blooms and especially those caused by the genus Dinophysis. A potential site meeting those requirements is the Arcachon Lagoon (French Atlantic coast).

TASK 10.2: DEVELOPMENTS OF PHYSICO-CHEMICAL SENSORS AND IMPLEMENTATION ON NEW PLATFORMS (NIVA, NERC, SYKE, SMHI, HZG)
This task includes development of new physico-chemical sensors; Emphasis will be put on sensors that will quantify contaminants and acidification of coastal waters such as pH, pCO2 and alkalinity.

Subtask 10.2.1. Contaminants
JERICO will investigate the potential of emerging sensors for measuring hydrocarbons.This includes the use of optical sensors. JERICO will also investigate the use of passive samplers (SPMD, DGT, etc.) onboard ferries, and will lastly investigate the use of deck-mounted sensors (SST, optical sensors) for the detection and quantification of surface oil.
Subtask 10.2.2. Algal pigments
Existing phytoplankton pigment monitoring (Chlorophyll a, phycocyanin) will be extended to measurements of variable fluorescence and light absorption. The developed technology consists of a fast-repetition rate fluorometer that can be fitted to ships-of-opportunity. These developments will be tested and measurement protocols will be optimized for transect studies. In this subtask a spectral absorption instrument (PSICAM) for the detection of algal pigments (algal groups) as an operational unit for application on FerryBoxes will also be adapted.
Subtask 10.2.3. Carbonate system
This task will provide key tools necessary for autonomous monitoring of ocean acidification and its impacts. The focus is on deployment on FerryBoxes, which provide the most testing of environmental settings, enabling sensors to become as robust as possible. The overall aim of this task is to adapt and deploy a high-precision, spectrophotometric pH sensors for underway continuous use on FerryBox lines running regular routes. These two sensors will be deployed separately and in tandem on at least two FerryBox routes. The linked objectives are:
- Adapt existing pH sensors for automated flow-through system for precise, accurate and high resolution pH measurements using optical approaches.
- Integrate pH systems with FerryBox instrumentation.

TASK 10.3: EMERGIN TECHNOLOGY - PROFILING TECHNOLOGY, INTER-COMPARISON WITH MATURE TECHNOLOGY (OGS, IFREMER, CSIC, MI, INSU, NIVA, NERC)

Although profiling technologies do exist in Europe, (e.g., in the Adriatic Sea, the Ligurian Sea and Estonian waters), there have been limited trials of such equipments in exposed open ocean conditions. Therefore one of the aims of this task is 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. Two case studies will be used to conduct such inter-comparisons.
Intercomparisons will be between: (1) MAMBO buoy, PAGODE profiling floats and ship-based CTD systems in the Northern Adriatic Sea, and (2) the EOL buoy and ship-base measurements in the Ligurian Sea, (3) profiling system in the Bay of Biscay (ocean exposed conditions) compare with those of two FerryBox lines operating in

the area. 2D mapping along these transects will be achieved and in addition a glider will provide 3D mapping of physical parameters.
The activities in the Northern Adriatic Sea will be performed with the logistical assistance of the Ditta Individuale Stefano Caressa that will supply the the vessel support and divers.
XBTs launched from ships-of-opportunity have been operationally used for 8 years in the Western Mediterranean to acquire temperature profiles along transects. During the same period of time FerryBox systems were developed in Northern Europe, to provide continuous and operational physical, geochemical and biological data near the sea surface. An experiment on synergetic use of FerryBox and XCTDs will be lead with the aim of investigating the potential to incorporate a vertical component to FerryBox systems. The experiment and data collection will be conducted in WP8.1 (TNA) from the Oslo-Kiel FerryBox line in the Kattegatt and the Southampton-Bilbao FerryBox line. XBT experts will be invited to perform XBT transects onboard the two ferries. Method development based on the joint dataset will be then conducted as a joint research activity aiming at demonstrating the potential of merging profiling and transect-based operational observation systems for 3D mapping of temperature.
While the field experiments outlined above will provide inter-comparison between key oceanographic measurements carried out using different platforms, a distinct technical challenge remains in ruggedising/modifying existing winch technology to cope with open ocean conditions widely experienced in the NE Atlantic, Arctic Ocean and in Med Sea.
The development regarding mobile underwater platforms will mostly deal with gliders. It will include the improvement of the safety of their navigation in coastal waters and their complementary use with other platforms in establishing 3D transects (TOP in WP 7). There is an urgent need for safer operation of gliders in the coastal area. The identification of vessels and the development preventing collision are of outmost importance in that particular context. The feasibility of installation of the AIS (Automatic Identification System) and establish its reliability in operating gliders in coastal areas will be evaluated.

TASK 10.4: SHIPS OF OPPORTUNITY, NEXT GENERATION FISHING VESSELS PROBES (IFREMER, CNR, CEFAS, MI)

To build on the service access facilitated in WP7, scientists and engineers within the JERICO consortium will engage in a short workshop (linked to other WP10 activities) to:
- identify gaps in terms of observations, and suggest solutions to try and fill them utilizing existing project infrastructure;
- specify and scope out next-generation sensors that could be deployed on ships of opportunity such as fishing vessels to gather nutrient, pH and other necessary data for coastal operational oceanography on a sustained basis.
The discussions and information from the workshop will serve to make appropriate modifications to existing systems to meet identified objectives, to expand and upgrade currently operating ships-of-opportunity initiatives using available state-of-the-art instrumentation, and to test out new emerging technologies that may prove fruitful in future in this type of application. All efforts will be supported by appropriate testing and field trials wherever practically possible, within the limits of the allocated funding.

TASK 10.5:FERRYBOX DATA QUALITY CONTROL ALGORITHM (M6-M42) (NERC, NIVA, HZG)

Objectives
- Review data processing undertaken by relevant partners for FerryBox systems
- Identify points of manual intervention in the data-processing protocols of each relevant partner
- Design algorithms for optimising the FerryBox data-processing (to facilitate utilisation e.g. by models through data assimilation)
- Develop examples of Matlab code to implement the algorithms for use by other partners

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
1	IFREMER	10.00
2	SYKE	10.00
5	NIVA	14.50

WT3:
Work package description

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
8	OGS	9.00
9	CNR	3.00
11	HCMR	10.00
12	NERC	24.00
14	HZG	14.50
15	MUMM	3.00
16	CEFAS	2.50
17	SMHI	4.00
18	CSIC	4.00
20	MI	10.00
23	INSU/CNRS	24.00
	Total	142.50

List of deliverables

Delive-rable Number [61]	Deliverable Title	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
D10.1	Report on trials and deployment	20	20.00	R	PU	36
D10.2	Set of software	23	60.00	R	PU	42
D10.3	Report on data analysis	14	32.50	R	PU	42
D10.4	Report on potential new sensors	1	30.00	D	PU	42
		Total	142.50			

Description of deliverables

D10.1) Report on trials and deployment: Task 10.1 /10.2 - Report on trials and deployment of sensors and recommendations for autonomous measurements [month 36]

D10.2) Set of software: Task 10.1 -Set of specifically designed for the analysis of images obtained using mobile carriers Software specifically designed for the analysis of sediment profile imagesSoftware specifically designed for the assessment of benthic activity and growth Software specifically designed to analyse Flowcam and Zooscan images [month 42]

D10.3) Report on data analysis: Task 10.5 -Report on data analysis, methodological development and 3D T/S structure along FerryBox lines [month 42]

D10.4) Report on potential new sensors: Task 10.3/10.4 -Report on potential new sensors for ships of opportunity, including fishing vessels [month 42]

Schedule of relevant Milestones

Milestone number [59]	Milestone name	Lead beneficiary number	Delivery date from Annex I [60]	Comments
MS22	JERICO workshop on sensors for vessels of opportunity and fish vessels probes (linked to other JERIC	20	12	Workshop report
MS23	Software and manuals for new image analysis techniques (including Flowcan and Zooscan)	21	24	Software
MS24	Recommendations Report for autonomous carbon measurements	20	26	Recommendation report
MS25	Data report on Temperature and salinity measurements from XBT and FerryBox (including methodology)	20	26	Recommendation report
MS26	Report of joint workshop on best practices for coastal observatories and moored and floating profili	20	30	

WT3:
Work package description

Project Number [1]	262584	Project Acronym [2]	JERICO

One form per Work Package

Work package number [53]	WP11	Type of activity [54]	MGT
Work package title	MANAGEMENT OF THE PROJECT		
Start month	1		
End month	48		
Lead beneficiary number [55]	1		

Objectives

To ensure an efficient project coordination adapted to the specifications of the JERICO project and to achieve the project objectives and goals, the management is divided into the following sections:
- Day to day management.
- Financial follow-up.
- Technical reporting.
- Consortium animation.
- Other management related issues.

The management organization is described in detail in Part B.2.1. The management strategies and indicators, internal rules and procedures will be detailed further in the Quality Assurance Plan to be delivered at the beginning of the project.

Description of work and role of partners

TASK 11.1: DAY TO DAY MANAGEMENT (M1 – M48), (IFREMER)

The project Coordinator is responsible for the technical, financial and administrative management on a day-to-day basis. In order to ensure an efficient and active management of these tasks, the project office composed with IFREMER people including the coordinator. IFREMER will be mainly in charge of:
- Managing the delivery and the follow-up of administrative and financial documents.
- Being a permanent contact point for all the partners regarding their participation in the project.
- Organizing the meetings, Kick Off, annual and final ones. Organizing the Steering committees.
- Following up actions and decisions.
- Based on Steering Committee decisions, managing the changes in the grant and consortium agreement.
- Creating common working and reporting tools.
- Following and updating the project indicators (Gantt chart, manpower matrix, deliverables list).

The aim is to ensure that the technical objectives are fulfilled and the project is completed within the approved budget. For the control of costs, the consortium will follow the Commission requirements, including:
- Monitoring cost performance to detect deviations from plan.
- Ensuring that all appropriate changes are recorded accurately in the cost baseline.
- Preventing incorrect, inappropriate, or unauthorized changes (towards contract).
- Informing the EC.

TASK 11.2: FINANCIAL FOLLOW-UP (M1-M48), (IFREMER)
IFREMER as Coordinator will take the necessary measures to ensure the appropriate use of the grant between the participants by providing a time schedule for transferring of funds allocated by the EU within the consortium. The work will be done via agreed procedures in the Consortium Agreement. In accordance to the accounting system, and using the audit certificates system, IFREMER will follow-up the project expenses and track deviations.
IFREMER will implement “easy-to-use” templates for time and cost reporting adapted to the JERICO Project.
IFREMER will consolidate and analyze financial data on a 9-monthly basis to:
- ensure proper use of resources (compare planned versus actual).
- ease processing of certificates on financial statements whenever relevant.
- anticipate any deviations (over or under consumption).

IFREMER will notify the due dates to the partners for financial reporting, provide support for the completion of the yearly financial reports (and certificates on financial statements if relevant) and will collect the documents for submission to EC services. IFREMER will be a day-to-day contact for the whole consortium to provide answers regarding costs eligibility, financial reporting, and official procedures for fund transfer etc. IFREMER will pay attention that EU rules are respected for cost reporting on the basis of the information provided by the partners.

TASK 11.3: TECHNICAL REPORTING (M1-M48), (IFREMER, HCMR, NIVA)Ifremer will organize the Kick off meeting (M1) and the final one (M48).HCMR will organise the first intermediate meeting (M18) and NIVA will organise the first one (M36)IFREMER will ensure an efficient organization for the reporting by:
- proposing common templates adapted to the JERICO project for official progress reporting,
- notifying due dates and reminding deadlines,
- assisting partners,
- collecting the WP leaders contributions (WP leaders will consolidate data at each WP level and IFREMER will consolidate all WP leaders inputs),
- being the partners contact point for checking that data provided are in line with the EU rules and requirements.
IFREMER with the support of the Activities and Work Packages leaders will consolidate the progress, deliverable and milestones reports to be submitted to the Steering Committee for final approval before submission to the EC services. In addition, as a yearly reporting is not sufficient for a good internal follow-up, WP leaders will be requested to up-date the Coordinator every 6 months with a synthetic written report. It is their responsibility to track any deviation and delay and propose appropriate solutions.

TASK 11.4: QUALITY ASSURANCE PLAN (M1-M6) (IFREMER, HCMR, NIVA)
A quality assurance will be deployed during the whole project. Specific quality indicators will be defined at the beginning of the project focused on the durable integration and will be reviewed and adapted by the coordinator and Activity leaders each year according to the new elements and the evolution of the project.

TASK 11.5: CONSORTIUM ANIMATION (M1-M48), (IFREMER, HCMR, NIVA)
To stimulate communication, the consortium will use a dedicated interactive web site that enables its members to share and store documents, follow the execution plan, organise meetings and discuss special issues online. A Project Identity Set will be created in order to promote the JERICO Project and facilitate the dissemination. This set will include mainly the creation of a logo, a brochure and a slide template on the web site.

TASK 11.6: OTHER MANAGEMENT-RELATED ISSUES (M1-M48), (IFREMER, all)
The Project Office in collaboration with the Executive Committee will coordinate other related topics that will be addressed in the course of the project e.g. gender equality, relations with other projects, standardisation and dissemination aspects. The Coordinator is responsible for all issues linked to Consortium Agreement.

Person-Months per Participant

Participant number [10]	Participant short name [11]	Person-months per participant
1	IFREMER	48.00
5	NIVA	1.00
11	HCMR	1.00
	Total	50.00

List of deliverables

Delive-rable Number [61]	Deliverable Title	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
D11.1	Signed consortium agreement	1	2.00	R	PU	2
D11.2	Quality assurance plan	11	5.00	R	PU	3

WT3:
Work package description

List of deliverables

Delive-rable Number [61]	Deliverable Title	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
D11.3	Identity Set	5	2.00	O	PU	6
D11.4	First periodic report	1	12.00	R	PU	18
D11.5	Second periodic report	1	12.00	R	PU	36
D11.6	Final report	1	15.00	R	PU	48
		Total	48.00			

Description of deliverables

D11.1) Signed consortium agreement: Task 11.5 - Signed consortium agreement [month 2]

D11.2) Quality assurance plan: Task 11.4 - Quality assurance plan inc. guidelines, best practices, project handbook [month 3]

D11.3) Identity Set: Task 11.1 - Project Identity Set (logo, brochure, public website) [month 6]

D11.4) First periodic report: Task 11.3 - First periodic reporting (activity, financial) [month 18]

D11.5) Second periodic report: Task 11.3 - Second periodic reporting (activity financial, societal) [month 36]

D11.6) Final report: Task 11.3 - Final reporting (activity financial, societal) [month 48]

Schedule of relevant Milestones

Milestone number [59]	Milestone name	Lead benefi-ciary number	Delivery date from Annex I [60]	Comments
MS1	Kick off meeting	1	1	Kick off meeting report
MS2	First intermediate GA	1	18	First GA report
MS3	Second intermediate GA	1	36	Second GA report
MS4	Final GA	1	48	Final report

WT4:
List of Milestones

Project Number [1]	262584	Project Acronym [2]	JERICO

List and Schedule of Milestones

Milestone number [59]	Milestone name	WP number [53]	Lead beneficiary number	Delivery date from Annex I [60]	Comments
MS1	Kick off meeting	WP11	1	1	Kick off meeting report
MS2	First intermediate GA	WP11	1	18	First GA report
MS3	Second intermediate GA	WP11	1	36	Second GA report
MS4	Final GA	WP11	1	48	Final report
MS5	First steering committee outputs	WP1	23	9	First steering committee report
MS6	Infrastructure available for users	WP1	23	11	Call
MS7	First forum for coastal technology	WP1	23	18	First forum report
MS8	Second steering committee outputs	WP1	23	18	Second steering committee report
MS9	Third steering committee outputs	WP1	23	27	Third steering committee report
MS10	Second forum for coastal technology	WP1	23	30	Second forum report
MS11	Fourth steering committee outputs	WP1	23	36	Fourth steering committee report
MS12	Five steering committee outputs	WP1	23	45	Five steering committee report
MS13	User reports of activities	WP1	23	47	Final report
MS14	Roadmap for the future	WP1	23	48	Final report
MS15	Constitution of a permanent JERICO Working Group for Calibration Activities	WP4	11	30	Working group constitution
MS16	First JERICO management Handbook	WP5	8	8	Handbook
MS17	Launch of service access	WP5	8	18	Call
MS18	Report on activities	WP5	8	46	Final report
MS19	Final JERICO management Handbook	WP5	8	48	Handbook
MS20	Summer School 1	WP6	16	16	First summer School report

WT4:
List of Milestones

Milestone number [59]	Milestone name	WP number [53]	Lead beneficiary number	Delivery date from Annex I [60]	Comments
MS21	Summer School 2	WP6	16	28	Second summer School report
MS22	JERICO workshop on sensors for vessels of opportunity and fish vessels probes (linked to other JERIC	WP10	20	12	Workshop report
MS23	Software and manuals for new image analysis techniques (including Flowcan and Zooscan)	WP10	21	24	Software
MS24	Recommendations Report for autonomous carbon measurements	WP10	20	26	Recommendation report
MS25	Data report on Temperature and salinity measurements from XBT and FerryBox (including methodology)	WP10	20	26	Recommendation report
MS26	Report of joint workshop on best practices for coastal observatories and moored and floating profili	WP10	20	30	
MS27	Report on activities	WP2	6	42	For final report (WP1)
MS28	Report on activities	WP3	14	42	Conclusion report
MS29	Final Report OSE	WP9	11	42	For final report WP1
MS30	Final Report OSE	WP9	4	42	For final report WP1

WT5:
Tentative schedule of Project Reviews

Project Number [1]	262584	Project Acronym [2]	JERICO

Tentative schedule of Project Reviews

Review number [65]	Tentative timing	Planned venue of review	Comments, if any
RV 1	18	GREECE	First GA Organized by HCMR
RV 2	25	FRANCE or BELGIUM	Mid term review Organized by Ifremer
RV 3	36	NORWAY	Second GA Organized by NIVA
RV 4	48	FRANCE	Final Review Organized by Ifremer

WT6:
Project Effort by Beneficiary and Work Package

Project Number [1]	262584	Project Acronym [2]	JERICO

Indicative efforts (man-months) per Beneficiary per Work Package

Beneficiary number and short-name	WP 1	WP 2	WP 3	WP 4	WP 5	WP 6	WP 7	WP 8	WP 9	WP 10	WP 11	Total per Beneficiary
1 - IFREMER	8.00	0.00	2.00	2.00	10.00	0.00	0.25	0.25	2.00	10.00	48.00	82.50
2 - SYKE	2.70	0.00	4.00	2.00	0.00	0.35	0.00	0.00	0.00	10.00	0.00	19.05
3 - IBWPAN	1.00	0.00	6.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	7.25
4 - DMI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00	8.00
5 - NIVA	8.00	0.00	5.00	3.00	1.00	0.00	0.25	0.25	0.00	14.50	1.00	33.00
6 - IMR	0.00	8.25	0.00	0.00	2.10	0.00	0.00	0.00	0.00	0.00	0.00	10.35
7 - DELTARES	0.00	4.00	0.00	0.00	0.00	1.80	0.00	0.00	3.00	0.00	0.00	8.80
8 - OGS	1.00	0.00	4.00	6.00	17.00	0.00	0.00	0.25	0.00	9.00	0.00	37.25
9 - CNR	11.00	0.00	7.00	7.00	2.00	0.00	0.25	0.25	0.00	3.00	0.00	30.50
10 - UOM	0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00	0.00	0.00	0.00	8.00
11 - HCMR	7.00	0.00	8.00	17.00	10.00	0.00	0.25	0.25	5.00	10.00	1.00	58.50
12 - NERC	2.00	0.00	13.00	10.00	0.00	6.00	0.00	0.25	0.00	24.00	0.00	55.25
13 - INGV	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00
14 - HZG	2.50	0.00	16.00	6.00	0.00	0.00	0.00	0.25	7.00	14.50	0.00	46.25
15 - MUMM	0.00	0.00	3.00	2.00	3.00	0.00	0.00	0.00	9.00	3.00	0.00	20.00
16 - CEFAS	2.60	0.00	8.00	4.00	0.00	7.40	0.00	0.00	0.00	2.50	0.00	24.50
17 - SMHI	0.00	7.00	4.00	4.00	3.00	0.00	0.00	0.00	0.00	4.00	0.00	22.00
18 - CSIC	1.00	0.00	5.50	5.50	0.00	1.00	0.00	0.25	0.00	4.00	0.00	17.25
19 - NIOZ	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00
20 - MI	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	16.00
21 - BL	0.00	0.00	0.00	0.00	0.00	8.50	0.00	0.00	0.00	0.00	0.00	8.50

WT6:
Project Effort by Beneficiary and Work Package

Beneficiary number and short-name	WP 1	WP 2	WP 3	WP 4	WP 5	WP 6	WP 7	WP 8	WP 9	WP 10	WP 11	Total per Beneficiary
22 - TECNALIA-AZTI	0.00	3.00	3.70	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.20
23 - INSU/CNRS	8.00	0.00	7.00	2.00	0.00	0.00	0.00	0.25	1.00	24.00	0.00	42.25
24 - IH	0.00	2.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00
25 - IO-BAS	1.50	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.50
26 - PUERTOS	0.00	0.00	6.50	6.50	4.00	0.00	0.00	0.00	0.00	0.00	0.00	17.00
27 - CMCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.50	0.00	0.00	22.50
Total	61.30	36.25	104.70	84.50	52.10	33.05	1.00	2.50	57.50	142.50	50.00	625.40

WT7:
Project Effort by Activity type per Beneficiary

Project Number [1]	262584	Project Acronym [2]	JERICO

Indicative efforts per Activity Type per Beneficiary

Activity type	Part. 1 IFREMER	Part. 2 SYKE	Part. 3 IBWPAN	Part. 4 DMI	Part. 5 NIVA	Part. 6 IMR	Part. 7 DELTARE	Part. 8 OGS	Part. 9 CNR	Part. 10 UOM	Part. 11 HCMR	Part. 12 NERC	Part. 13 INGV	Part. 14 HZG
1. RTD/Innovation activities														
WP 9	2.00	0.00	0.00	8.00	0.00	0.00	3.00	0.00	0.00	0.00	5.00	0.00	0.00	7.00
WP 10	10.00	10.00	0.00	0.00	14.50	0.00	0.00	9.00	3.00	0.00	10.00	24.00	0.00	14.50
Total Research	12.00	10.00	0.00	8.00	14.50	0.00	3.00	9.00	3.00	0.00	15.00	24.00	0.00	21.50
2. Demonstration activities														
Total Demo	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3. Consortium Management activities														
WP 11	48.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Total Management	48.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Work Packages for Coordination activities														
WP 1	8.00	2.70	1.00	0.00	8.00	0.00	0.00	1.00	11.00	0.00	7.00	2.00	0.00	2.50
WP 2	0.00	0.00	0.00	0.00	0.00	8.25	4.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00
WP 3	2.00	4.00	6.00	0.00	5.00	0.00	0.00	4.00	7.00	0.00	8.00	13.00	0.00	16.00
WP 4	2.00	2.00	0.00	0.00	3.00	0.00	0.00	6.00	7.00	0.00	17.00	10.00	0.00	6.00
WP 5	10.00	0.00	0.00	0.00	1.00	2.10	0.00	17.00	2.00	0.00	10.00	0.00	0.00	0.00
WP 6	0.00	0.35	0.00	0.00	0.00	0.00	1.80	0.00	0.00	8.00	0.00	6.00	0.00	0.00
Total Coordination	22.00	9.05	7.00	0.00	17.00	10.35	5.80	28.00	27.00	8.00	42.00	31.00	5.00	24.50
4. Other activities														
Total other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WT7:
Project Effort by Activity type per Beneficiary

Work Packages for Support activities														
WP 7	0.25	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.25	0.00	0.25	0.00	0.00	0.00
WP 8	0.25	0.00	0.25	0.00	0.25	0.00	0.00	0.25	0.25	0.00	0.25	0.25	0.00	0.25
Total Support	0.50	0.00	0.25	0.00	0.50	0.00	0.00	0.25	0.50	0.00	0.50	0.25	0.00	0.25
Total	82.50	19.05	7.25	8.00	33.00	10.35	8.80	37.25	30.50	8.00	58.50	55.25	5.00	46.25

WT7:
Project Effort by Activity type per Beneficiary

Activity type	Part. 15 MUMM	Part. 16 CEFAS	Part. 17 SMHI	Part. 18 CSIC	Part. 19 NIOZ	Part. 20 MI	Part. 21 BL	Part. 22 TECNALI	Part. 23 INSU/ CN	Part. 24 IH	Part. 25 IO-BAS	Part. 26 PUERTOS	Part. 27 CMCC	Total
1. RTD/Innovation activities														
WP 9	9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	22.50	57.50
WP 10	3.00	2.50	4.00	4.00	0.00	10.00	0.00	0.00	24.00	0.00	0.00	0.00	0.00	142.50
Total Research	12.00	2.50	4.00	4.00	0.00	10.00	0.00	0.00	25.00	0.00	0.00	0.00	22.50	200.00
2. Demonstration activities														
Total Demo	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3. Consortium Management activities														
WP 11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00
Total Management	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00
Work Packages for Coordination activities														
WP 1	0.00	2.60	0.00	1.00	3.00	2.00	0.00	0.00	8.00	0.00	1.50	0.00	0.00	61.30
WP 2	0.00	0.00	7.00	0.00	0.00	0.00	0.00	3.00	0.00	2.00	7.00	0.00	0.00	36.25
WP 3	3.00	8.00	4.00	5.50	0.00	2.00	0.00	3.70	7.00	0.00	0.00	6.50	0.00	104.70
WP 4	2.00	4.00	4.00	5.50	0.00	2.00	0.00	2.50	2.00	3.00	0.00	6.50	0.00	84.50
WP 5	3.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	52.10
WP 6	0.00	7.40	0.00	1.00	0.00	0.00	8.50	0.00	0.00	0.00	0.00	0.00	0.00	33.05
Total Coordination	8.00	22.00	18.00	13.00	3.00	6.00	8.50	9.20	17.00	5.00	8.50	17.00	0.00	371.90
4. Other activities														
Total other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WT7:
Project Effort by Activity type per Beneficiary

Work Packages for Support activities														
WP 7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
WP 8	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	2.50
Total Support	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	3.50

Total	20.00	24.50	22.00	17.25	3.00	16.00	8.50	9.20	42.25	5.00	8.50	17.00	22.50	625.40

WT8:
Project Effort and costs

Project Number [1]	262584	Project Acronym [2]	JERICO

Project efforts and costs

Beneficiary number	Beneficiary short name	Estimated eligible costs (whole duration of the project)							Total receipts (€)	Requested EU contribution (€)
		Effort (PM)	Personnel costs (€)	Subcontracting (€)	Other Direct costs (€)	Indirect costs OR lump sum, flat-rate or scale-of-unit (€)	Access costs (€)	Total costs		
1	IFREMER	82.50	642,965.00	198,200.00	171,130.00	405,067.95	27,293.00	1,444,655.95	0.00	1,048,135.59
2	SYKE	19.05	174,783.00	0.00	45,000.00	139,826.40	24,976.00	384,585.40	0.00	278,362.61
3	IBWPAN	7.25	14,000.00	0.00	12,000.00	15,600.00	37,879.98	79,479.98	0.00	59,976.98
4	DMI	8.00	59,805.00	0.00	5,585.00	59,446.00	0.00	124,836.00	0.00	94,523.00
5	NIVA	33.00	246,371.00	4,800.00	43,280.00	384,711.76	119,447.40	798,610.16	0.00	517,850.53
6	IMR	10.35	106,290.00	0.00	22,241.00	57,396.60	18,395.00	204,322.60	0.00	155,923.00
7	DELTARES	8.80	85,473.00	0.00	41,585.00	69,233.00	0.00	196,291.00	0.00	141,436.62
8	OGS	37.25	169,453.00	13,000.00	17,620.00	134,884.10	71,263.20	406,220.30	0.00	289,800.78
9	CNR	30.50	183,546.00	2,400.00	67,499.00	146,102.49	174,360.69	573,908.18	0.00	434,874.69
10	UOM	8.00	26,250.00	0.00	32,589.00	35,303.40	0.00	94,142.40	0.00	62,957.73
11	HCMR	58.50	266,800.00	4,800.00	93,100.00	216,108.00	131,220.26	712,028.26	0.00	538,262.76
12	NERC	55.25	278,366.00	4,800.00	31,233.00	304,860.00	125,069.45	744,328.45	0.00	513,805.06
13	INGV	5.00	19,815.00	0.00	4,975.00	14,874.00	0.00	39,664.00	0.00	26,525.00
14	HZG	46.25	247,528.00	2,400.00	27,500.00	193,111.30	69,627.60	540,166.90	0.00	394,221.30
15	MUMM	20.00	99,892.00	34,050.00	33,767.00	80,195.40	0.00	247,904.40	0.00	187,790.13
16	CEFAS	24.50	116,348.00	20,000.00	34,000.00	155,934.00	0.00	326,282.00	0.00	187,608.25
17	SMHI	22.00	121,000.00	0.00	24,585.00	98,010.00	31,582.00	275,177.00	0.00	191,122.95
18	CSIC	17.25	91,744.00	0.00	18,185.00	81,652.16	103,182.30	294,763.46	0.00	226,476.33
19	NIOZ	3.00	18,551.00	0.00	5,800.00	14,284.00	0.00	38,635.00	0.00	26,055.00
20	MI	16.00	80,000.00	0.00	51,750.00	64,000.00	17,743.00	213,493.00	0.00	171,691.00

WT8:
Project Effort and costs

Benefi-ciary number	Beneficiary short name	Estimated eligible costs (whole duration of the project)							Total receipts (€)	Requested EU contribution (€)
		Effort (PM)	Personnel costs (€)	Subcontracting (€)	Other Direct costs (€)	Indirect costs OR lump sum, flat-rate or scale-of-unit (€)	Access costs (€)	Total costs		
21	BL	8.50	89,857.00	0.00	20,000.00	21,971.40	30,655.00	162,483.40	0.00	148,201.99
22	TECNALIA-A	9.20	38,669.00	0.00	15,662.00	17,787.74	0.00	72,118.74	0.00	58,134.00
23	INSU/CNRS	42.25	190,726.00	2,400.00	101,900.00	175,575.60	103,533.60	574,135.20	0.00	443,750.05
24	IH	5.00	27,000.00	0.00	9,965.00	2,700.00	0.00	39,665.00	0.00	39,552.00
25	IO-BAS	8.50	10,625.00	0.00	6,950.00	3,515.00	0.00	21,090.00	0.00	18,805.25
26	PUERTOS	17.00	64,470.00	0.00	3,350.00	40,692.00	44,608.00	153,120.00	0.00	117,175.40
27	CMCC	22.50	99,125.00	0.00	6,875.00	63,600.00	0.00	169,600.00	0.00	126,982.00
	Total	625.40	3,569,452.00	286,850.00	948,126.00	2,996,442.30	1,130,836.48	8,931,706.78	0.00	6,500,000.00

WT9:
Summary of transnational access / service provision per installation

Project Number [1]	262584	Project Acronym [2]	JERICO

Summary of transnational access / service provision per installation

Part. num.	Org. short name	Short name of infrastructure	Installation									
			Num.	Name	Operator country code	Unit of access	Total Estimated costs	Estimated unit cost	Min. quantity of access to be provided	Access costs charged to the GA	Est. num. of users	Est. num. of proj.
1	IFREMER	MOLIT Buoy - MESURHO Buoy	1	MESURHO	France		46,829.00	0.00	0.00	7,024.50	0	0
			2	MOLIT	France		46,829.00	0.00	0.00	7,024.50	0	0
1	IFREMER	RECOPESCA	1	RECOPESCA	France		66,220.00	0.00	0.00	13,244.00	0	0
2	SYKE	ALGALINE	1	ALGALINE	Finland		166,507.00	0.00	0.00	24,976.00	0	0
3	IBWPAN	CRS Lubiatowo	1	CRS	Poland	24 HOUR DAY	329,157.00	342.87	54.00	18,514.98	5	4
3	IBWPAN	CRS Lubiatowo	1	CRS	Poland		143,444.00	0.00	0.00	19,365.00	0	0
5	NIVA	NorFerry	1	Norferry 1 Norbjorn	Norway	24 HOUR DAY	281,881.00	939.60	15.00	14,094.00	2	4
			4	color Fantasy	Norway	24 HOUR DAY	399,709.00	1,332.36	15.00	19,985.40	2	4
5	NIVA	NorFerry	1	NorFerry 1 Norbjorn	Norway		140,940.00	0.00	0.00	21,421.00	0	0
			2	Norferry 2	Norway		164,133.00	0.00	0.00	24,480.00	0	0
			3	Norferry 3	Norway		164,133.00	0.00	0.00	24,480.00	0	0
5	NIVA	NorFerry	4	Color Fantasy	Norway		99,917.00	0.00	0.00	14,987.00	0	0
6	IMR	IMR Coast	1	IMR Coast	Norway		735,811.00	0.00	0.00	18,395.00	0	0
8	OGS	OGS-NACObs	5	OGS-CTO	Italy	WEEK OF 5 DAYS OF 8 HOURS	322,742.00	2,521.42	10.00	25,214.20	5	4
8	OGS	OGS-NACObs	1	FVG-MMS	Italy		611,644.00	0.00	0.00	30,582.00	0	0

WT9:
Summary of transnational access / service provision per installation

Part. num.	Org. short name	Short name of infrastructure	Installation									
			Num.	Name	Operator country code	Unit of access	Total Estimated costs	Estimated unit cost	Min. quantity of access to be provided	Access costs charged to the GA	Est. num. of users	Est. num. of proj.
			4	MAMBO	Italy		309,341.00	0.00	0.00	15,467.00	0	0
9	CNR	CNR MPL	2	ACQUA ALTA	Italy	24 HOUR DAY	902,576.00	618.20	50.00	30,910.00	5	4
9	CNR	CNR MPL	3	MPLS	Italy	6 MONTHS	195,639.00	24,454.85	0.50	12,227.42	5	2
			4	MPLC	Italy	6 MONTHS	195,639.00	24,454.85	0.50	12,227.42	5	2
9	CNR	CNR MPL	5	MPL Genoa	Italy	24 HOUR DAY	121,552.00	83.25	65.00	5,411.25	10	4
9	CNR	CNR MPL	6	MPL CAL 6	Italy	8 HOURS DAY	178,818.40	745.08	10.00	7,450.80	3	4
			7	MPL CAL 7	Italy	8 HOURS DAY	178,818.40	745.08	10.00	7,450.80	3	4
9	CNR	CNR-MPL	1	CNR - NAMS	Italy		426,720.00	0.00	0.00	85,344.00	0	0
9	CNR	CNR FISHERY OBSERVING SYSTEM	8	CNR - FOS	Italy		266,781.00	0.00	0.00	13,339.00	0	0
11	HCMR	POSEIDON	1	POSEIDON BUOYS (1 & 2)	Greece	1 BUOY FOR 1 MONTH	2,292,261.00	4,775.54	3.00	14,326.62	3	4
11	HCMR	POSEIDON	3	POSEIDON CAL	Greece	5 DAYS 0 8 HOURS	60,990.00	3,811.88	3.00	11,435.64	3	4
11	HCMR	POSEIDON	1	POSEIDON BUOYS	Greece		859,606.00	0.00	0.00	68,768.00	0	0
			2	POSEIDON BF (2 & 4)	Greece		244,599.00	0.00	0.00	36,690.00	0	0
12	NERC	COBS	4		United Kingdom	24 HOUR DAY	258,511.00	646.28	30.00	19,388.40	4	4

WT9:
Summary of transnational access / service provision per installation

Part. num.	Org. short name	Short name of infrastructure	Installation									
			Num.	Name	Operator country code	Unit of access	Total Estimated costs	Estimated unit cost	Min. quantity of access to be provided	Access costs charged to the GA	Est. num. of users	Est. num. of proj.
				COBS 4 POL GLIDER								
12	NERC	COBS	1	COBS 1 POL BUOY	United Kingdom	24 hour day	2,975,764.00	2,038.19	5.00	10,190.95	5	4
12	NERC	COBS	3 POL	COBS 3 FERRYBOX	United Kingdom	24 HOUR DAY	329,908.00	305.47	30.00	9,164.10	3	4
12	NERC	COBS	1	COBS 1 & 3 & 4	United Kingdom		1,726,525.00	0.00	0.00	86,326.00	0	0
14	HZG	COSYNA	3	COSYNA_3 (GLIDER)	Germany	24 HOUR DAY	493,150.00	410.96	80.00	32,876.80	4	2
14	HZG	COSYNA	2	COSYNA_2 (PILE)	Germany	24 HOUR DAY	275,972.00	229.98	30.00	6,899.40	4	2
14	HZG	COSYNA	1	COSYNA_1 (FB)	Germany	24 HOUR DAY	440,179.00	366.82	20.00	7,336.40	4	4
14	HZG	COSYNA	1	COSYNA_1 & 2	Germany		357,380.00	0.00	0.00	22,515.00	0	0
17	SMHI	Marine Observation System	1	MOS 1 & 2	Sweden		1,084,556.00	0.00	0.00	27,114.00	0	0
17	SMHI	SMHI Marine Observing System	3	Laesoe E	Sweden		148,944.00	0.00	0.00	4,468.00	0	0
18	CSIC	CSIC-Glider	1	CSIC-Glider	Spain	24 HOUR DAYS	1,719,707.00	1,146.47	90.00	103,182.30	4	2
20	MI	SmartBay buoy	1	SmartBay buoy	Ireland		709,730.00	0.00	0.00	17,743.00	0	0
21	BL	EMECO	1	EMECO MDT	United Kingdom		153,276.00	0.00	0.00	30,655.00	0	0

WT9:
Summary of transnational access / service provision per installation

Part. num.	Org. short name	Short name of infrastructure	Installation									
			Num.	Name	Operator country code	Unit of access	Total Estimated costs	Estimated unit cost	Min. quantity of access to be provided	Access costs charged to the GA	Est. num. of users	Est. num. of proj.
23	INSU/ CNRS	National Glider Facility	1	CETSM	France	24 HOUR	1,932,637.00	431.39	240.00	103,533.60	4	2
26	PUERTOS	PdE-DWN	1	Puertos del Estado Deep Water Network	Spain		4,055,300.00	0.00	0.00	44,608.00	0	0
						Grand Total	26,614,775.80			1,130,836.48		

1. Project number

The project number has been assigned by the Commission as the unique identifier for your project. It cannot be changed. The project number **should appear on each page of the grant agreement preparation documents (part A and part B)** to prevent errors during its handling.

2. Project acronym

Use the project acronym as given in the submitted proposal. It cannot be changed unless agreed so during the negotiations. The same acronym **should appear on each page of the grant agreement preparation documents (part A and part B)** to prevent errors during its handling.

53. Work Package number

Work package number: WP1, WP2, WP3, ..., WPn

54. Type of activity

For all FP7 projects each work package must relate to one (and only one) of the following possible types of activity (only if applicable for the chosen funding scheme – must correspond to the GPF Form Ax.v):

• **RTD/INNO =** Research and technological development including scientific coordination - applicable for Collaborative Projects and Networks of Excellence

• **DEM =** Demonstration - applicable for collaborative projects and Research for the Benefit of Specific Groups

• **MGT =** Management of the consortium - applicable for all funding schemes

• **OTHER =** Other specific activities, applicable for all funding schemes

• **COORD =** Coordination activities – applicable only for CAs

• **SUPP =** Support activities – applicable only for SAs

55. Lead beneficiary number

Number of the beneficiary leading the work in this work package.

56. Person-months per work package

The total number of person-months allocated to each work package.

57. Start month

Relative start date for the work in the specific work packages, month 1 marking the start date of the project, and all other start dates being relative to this start date.

58. End month

Relative end date, month 1 marking the start date of the project, and all end dates being relative to this start date.

59. Milestone number

Milestone number:MS1, MS2, …, MSn

60. Delivery date for Milestone

Month in which the milestone will be achieved. Month 1 marking the start date of the project, and all delivery dates being relative to this start date.

61. Deliverable number

Deliverable numbers in order of delivery dates: D1 – Dn

62. Nature

Please indicate the nature of the deliverable using one of the following codes

R = Report, **P** = Prototype, **D** = Demonstrator, **O** = Other

63. Dissemination level

Please indicate the dissemination level using one of the following codes:

• **PU =** Public

• **PP =** Restricted to other programme participants (including the Commission Services)

• **RE =** Restricted to a group specified by the consortium (including the Commission Services)

• **CO =** Confidential, only for members of the consortium (including the Commission Services)

• **Restreint UE =** Classified with the classification level "Restreint UE" according to Commission Decision 2001/844 and amendments

• **Confidentiel UE =** Classified with the mention of the classification level "Confidentiel UE" according to Commission Decision 2001/844 and amendments

• **Secret UE =** Classified with the mention of the classification level "Secret UE" according to Commission Decision 2001/844 and amendments

64. Delivery date for Deliverable

Month in which the deliverables will be available. Month 1 marking the start date of the project, and all delivery dates being relative to this start date

65. Review number

Review number: RV1, RV2, ..., RVn

66. Tentative timing of reviews

Month after which the review will take place. Month 1 marking the start date of the project, and all delivery dates being relative to this start date.

67. Person-months per Deliverable

The total number of person-month allocated to each deliverable.

Proposal PART B (V20/12/2010)

TITLE: TOWARDS A JOINT EUROPEAN RESEARCH INFRASTRUCTURE NETWORK FOR COASTAL OBSERVATORIES

Acronym: **JERICO**

Type of funding scheme: **Capacities – Research Infrastructures**

Coordinator organisation: **Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER)**

Coordinator: Patrick FARCY - E-mail: jerico@ifremer.fr - Phone: +33 – (0)298224408
Fax: +33 – (0)298224545

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1 - CONCEPT AND OBJCTIVES, PROGRESS BEYONG STATE-OF-THE-ART, S/T METHODOLOGY AND WORK PLAN

1.1 - Concept and objectives

1.1.1 - Context of coastal observatories

The rationale behind the collection of observations in our coastal seas is a better understanding of both natural and "anthropogenic" variability in biological, chemical and physical. Such data are needed to better inform policy as well as science. Measurements include sea-level for understanding and predicting tidal cycles, temperature for understanding circulation patterns and ecosystem community structure from plankton to fish. Since the 1970s, time consuming *in situ* manual water sampling measurements, followed by laboratory analysis, have been the methodologies employed and continue to be used in most environmental monitoring programmes to this day. Technologies now exist which allow many of these measurements to be undertaken in autonomous ways from a range of observing platforms. However, integrating and coordinating such observations in an optimal way has not yet been realised. It is time now for doing so.

Many European institutions have already implemented infrastructures to enable automatic measurements to be made. During the last few decades, technical and methodological advances have brought about:

- new sensors for in-situ measurements,
- automated acquisition devices,
- digital data storage,
- real-time transmission (e.g. acoustical transmission, GSM, satellite,…),
- immediate use of the data to validate and enhance forecasting systems.

This later capability arose from the rapid expansion of operational oceanography, which calls for reliability at all stages of the data flow. Hence, JERICO focuses on a clear definition of the terms "coastal observatories: systems that deliver high frequency *in-situ* or near shore marine data whether physical or biological, from the sea-shore to the shelf break.

Pre-existing coastal observatories in European waters are composed of platforms such as moored buoys, piles, profiling systems, gliders, shore-based HF radars, "Ferryboxes", and automated systems on board fishing boats. JERICO encompasses all the sensors that can be hosted on these platforms and comprises bench tests for innovative instrumentation and for calibration purposes. These pre-existing observatories also run data flow procedures and disclose their measurements through various dissemination strategies. JERICO infrastructure is conceived as the framework to harmonize and strengthen all these initiatives.

Indeed, around European coastal seas, an increasing number of such observing systems is being implemented for both research and monitoring activities. Moreover, these observing systems require reliable, high-quality and comprehensive observations collected on **automated** systems (both platforms and sensors) operating over long time periods. A key aspiration is that the *in-situ* data, combined with remote sensing and model output, can then be used to detect, understand and forecast physical, biogeochemical and biological processes within the various national/regional marine environments. A recent European wide assessment produced by the EMODNET initiative values the total assets of existing coastal observatories at several million Euros. Furthermore, additional investments are foreseen to upgrade existing networks and develop new systems in the coming years.

To harmonize and standardize European marine observing services, initial steps towards a common reference basis have been taken (e.g., as side targets of the EU-funded projects *ENCORA*, *ECOOP*, *SeaDataNet*, *MyOcean)*. Most of these activities only focus on physical parameters of the global/regional ocean, whereas the coastal seas require knowledge of controls on water quality (and related issues/phenomena, both natural and anthropogenic) which are underpinned by physical, chemical and biological processes .

Up to now, the expansion of "coastal observatories" has been driven by domestic interests and mainly undertaken through short-term research projects. **Therefore the main challenge for the research community is now to increase the coherence and the sustainability of these dispersed infrastructures by addressing their future within a shared pan-European framework.** Hence, JERICO is an ambitious infrastructure network initiative involving all the regional seas around continental Europe (corresponding to the so-called eco-regions defined in the Marine Strategy FD).

1.1.2 - What area for a coastal observatory

Coastal observation is an essential part of the marine research set of activities and applications. **JERICO's ambition is to design the infrastructure organisation devoted to the automated *in situ* coastal and shelf seas observation**, completing observations from satellites (handled by GMES) and to the automated *in situ* oceanic systems (such as those developed under the ESFRI projects EURO ARGO and EMSO). Figure 1 hereunder gives a schematic view of the operational remit of JERICO infrastructure positionning (*white rectangle in Figure 1*) as well as core contribution to other activities and services. As part of its activity, the JERICO infrastructure intends to contribute to the international and global effort on climate change research (GEOSS), to provide coastal observations for operational oceanography, and also to perform effective environmental monitoring.

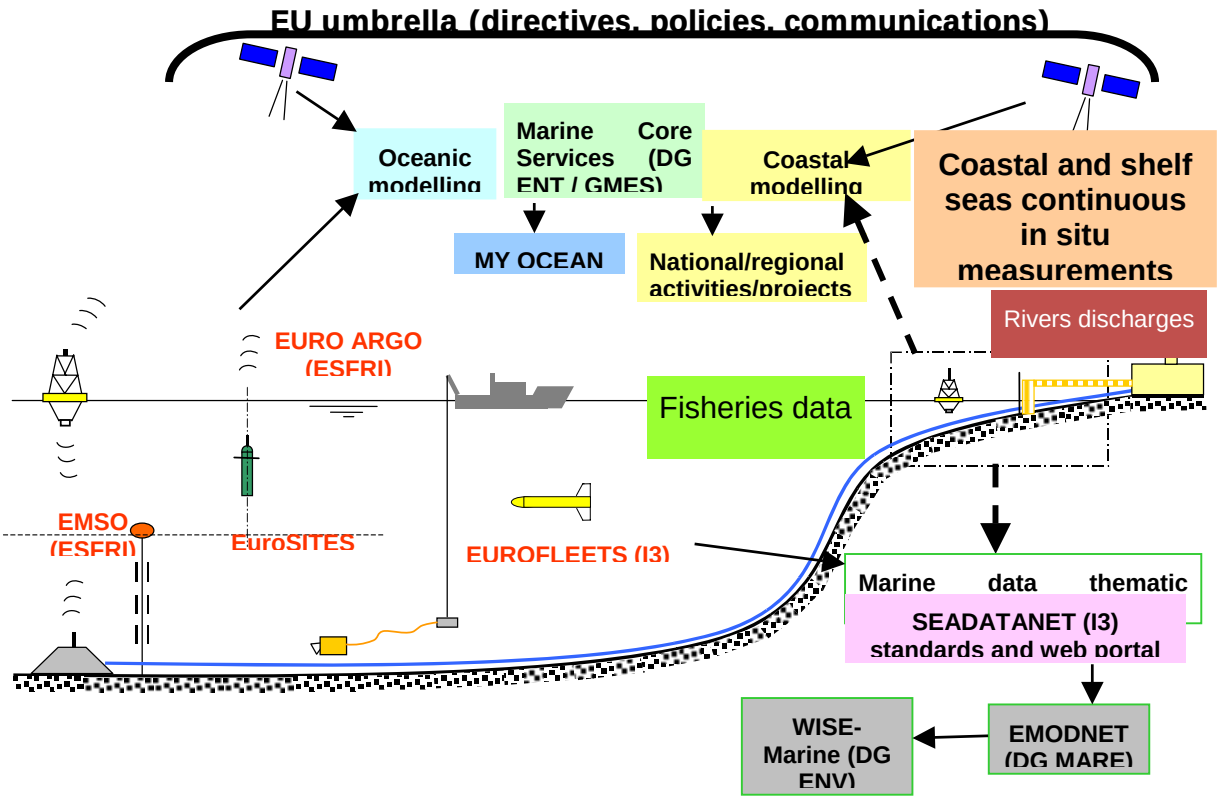


Figure 1: position of JERICO in the maze of EU marine projects and initiatives

Data acquisition in the open ocean has benefited meteorological and climate change studies in which a limited number of essential variables are monitored, namely temperature and salinity. The coastal component of this global network has been, up to now, far less coordinated and requires datasets comprising many more variables and at higher frequencies.

Many stakeholders have thus initiated coastal observatories, aiming to provide scientifically sound information as part of ICZM (Integrated Coastal Zone Management) approaches. However, a lack of comprehensive and comparable methodologies and missing standards hinder these initiatives, leaving many open questions:

- what is the reliability of these data?
- how sustainable are the data series?

- how affordable are the maintenance costs?
- how consistent are the different deployment strategies?
- what is the adequacy of the emerging technologies?.

Using these questions as a basis, the JERICO project will design a new kind of research infrastructure for coastal regions which has high societal relevance.

JERICO can also be considered as an opportunity for EUresearch funding to support a coordinated action for coastal observatories. Europe needs consistency and cost-efficiency in coastal monitoring while enforcing the Water and the Marine Strategy Framework Directives. Hence JERICO consolidates unprecedented efforts driven by member states to significantly add value to environmental observations in the coastal zone (in line with GMES or EMODNET initiatives).

1.1.3 - The overall objectives of JERICO project

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 lift 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 monitor environment and biodiversity, to understand climate change and to better predict 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	• Develop International cooperation including outside of Europe
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 - Progress beyond the state of the art

A strategic infrastructure for an end-to-end concept

Global real time knowledge of the state (physical and biological) of the seas has grown dramatically in the last two decades, and expectations are even higher for short term predictions and environmental assessments with respect to global change. Nevertheless, in this striking evolution, coastal observations can be considered as the weakest link, due to several scaling factors:

- intrinsically, efforts are first initiated over national areas, in limited contexts;
- phenomenologically, processes are more complex in coastal than in deep seas (more variables to collect);
- traditionally, deep sea oceanographers formed a better organized community than coastal environmentalists.

This led to the present lack of consistency of the institutional efforts deployed in Europe and as a consequence, the multiplication/replication of single sited apparatus and a divergence of approaches, methods and technology developments among the EU member states.

To address these issues, the concept carried by JERICO is:

- to rationalize the process of continuously collecting, processing and disseminating *in situ* data related to the water quality and hydrodynamics in European seas,
- to propose future (5-10 years) systems for the operational monitoring of the marine environment, thanks to common progress initiated on sensors and platforms, on both technological and methodological issues,
- to assess the optimal design of future deployments, without overshadowing the maintenance costs.

JERICO parameters include those dedicated to environmental monitoring and of direct relevance to both the Water Framework Directive (WFD) and the Marine Strategy Framework Directive (MSFD).

The JERICO priority parameters include not only the standard **Temperature & Salinity**, but also **"dissolved O_2, pCO_2, pH, Turbidity, Chlorophyll-a"**. A complimentary set of important variables for which much effort will be undertaken includes **nutrients, sea level and plankton species identification.**

Due to the time scale of the project and the limited resources available, JERICO will *a priori* devote less intensity to the following variables: Contaminants, nectoplankton, wave and sea state.

The aim of JERICO, as a network of observatories, is to ensure regular and standardized observations in order to provide long term time series of high quality data. This needs to combine **operationality, innovation and sustainability** for high quality European research.

JERICO will be a key player in composing the end-to-end chain, from the observation to dissemination: see Figure 2.

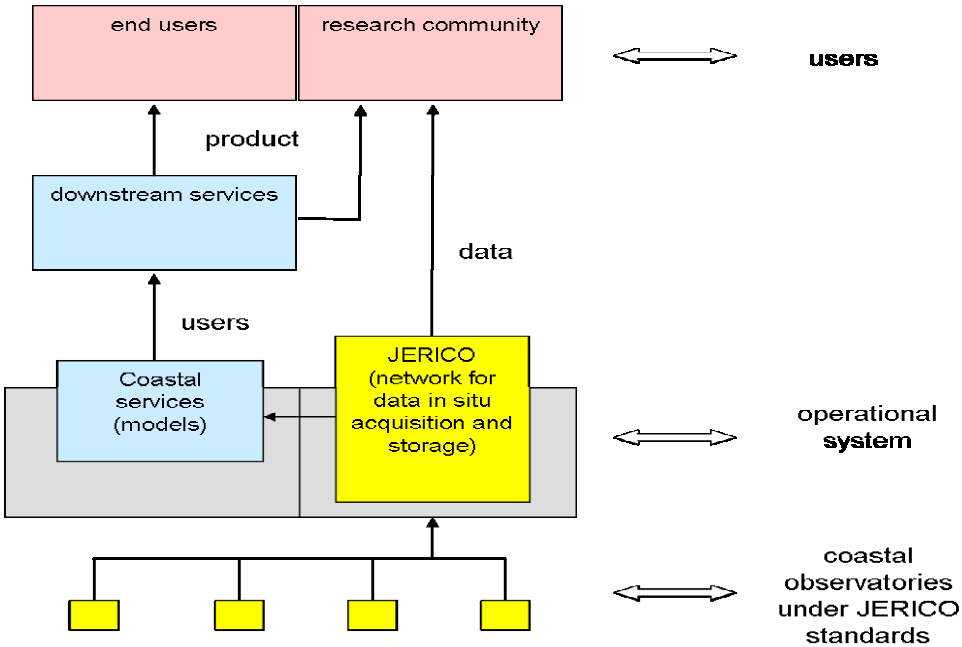


Figure 2: JERICO unifies the dataflow from coastal observatories to research and GMES operational usage

1.2.1 - Management

The management of the JERICO project will be based on the objective of a pan-European coordination between existing coastal observatories. The large scope of the infrastructure and the format of an I3 project require an extensive management component: therefore, a strong management WP is defined together with its implementation capacity. The JERICO project will be driven by a steering committee (SC) composed of core partners together with representatives of EuroGOOS, EEA and ESF/Marine Board. Core partners are defined as representative institutions in their country: CEFAS, CNR, CSIS, HZG, HCMR, IFREMER, INSU/CNRS, MI, NIVA and SYKE. This restricted set compensates for the large total number of partners, and will form an efficient executive body.

Two advisory committees will assist the SC:

- a scientific advisory committee will lead the scientific strategy for JERICO;
- meanwhile, the economic impact will be fostered by the Forum for Coastal Technology (FCT). The FCT will help to create a market for European oceanographic instruments/techniques and better engage managers with the industry to ensure technology pull through for coastal oceanographic systems:
  - to ensure that technology developed by industry satisfies the needs of long term oceanographic systems,
  - to create more market opportunities for European SMEs,
  - to define a "label" for coastal instrumentation,
  - to better link SME and academic user,
  - to communicate the value of ocean science and ocean observatory systems to business decision making.

One task of the management WP will be to help non-partners to join the pan-European network by advising them on achieving the **"***coastal observatory label***"**. This will help to reinforce a global coastal observatory network,.

Finally, in its WP structure, the JERICO proposal follows the I3 activity rules: it will catalyse networking activity through partners and associated partners; it will open the infrastructure to external user groups and will carry out a joint research activity to develop new methodologies or systems.

1.2.2 - Networking activity

♦ **Minimize the fragmentation of European coastal observatories**

Within the framework of EuroGOOS, the Regional Operational Observing Systems (ROOSs) are pre-existing forums which issue recommendations for their respective regions, i.e. for the Arctic Sea, Baltic Sea, North West Shelf, coastal Atlantic (Iberian, Biscay & Irish Sea), Mediterranean Sea and Black Sea. These forums, dedicated to operational oceanography, are built on national institutions doing their best to harmonize approaches and cooperation. JERICO aims to build a real network and a strong consortium to strengthen and structure the actions initiated by EuroGOOS, in the coastal areas, and to propose the development of a common strategy among and through these regions.

The JERICO vision for better coordination, harmonization and deployment strategy of coastal networks

JERICO will address this in WP1 and WP2, where it will:

- extract the specific regional coastal needs from each ROOS, and from this inventory, identify the main gaps,
- define the rules for a better coordination of Europe's regional coastal systems,
- provide cross-regional integration and demonstration,
- suggest a roadmap for a deployment strategy during the next decade.

♦ **Reduce the lack of synergy in methodologies and measuring systems in observing facilities**

JERICO will undertake several important initiatives to foster common technological developments, share benchmarking, collect best practices and design innovative maintenance protocols. This deep vision of hard core technical issues will also enable a realistic cost assessment for the development and maintenance of optimally designed future networks.

The JERICO networking vision for pan-European cooperation

JERICO will address this in WP3 and WP4, where it will:

- provide best practices for the operational use of technological systems such as FerryBoxes, gliders and fixed buoys,
- define a procedure for harmonizing and merging quality assessment,
- provide best practices and training in conducting operations, calibration and maintenance,
- tackle many aspects of the big breaking factor, namely biofouling,
- propose procedures to be followed by operators in Europe and evaluate running costs.

♦ **Fulfil the needs for data exchange and communicate the results of the infrastructure**

JERICO can be seen as a coastal data provider for the existing marine data centres: standardised data flow has already been implemented in the framework of Seadatanet and for the GMES/Marine Core Services "My Ocean". For this reason, JERICO will set up its data flow to be interfaced with SeaDataNet for data assembly and long term archiving and with MyOcean for instant operational usage.

The JERICO plan for data assembly and dissemination

JERICO will address this in WP5 and WP6, where it will:

- develop common procedures for data uncertainty estimation and pre-processing of the data,
- harmonize the delayed mode data management in accordance with the SeaDataNet project outcomes,
- provide an interface with operational oceanography forecasting systems (MyOcean and coastal systems),
- build a portal following SeaDataNet standard to provide direct access to data.

The JERICO Networking Activity work packages (NA WPs) will to define what the concept of **operationality** should be for each type of parameter. For the priority parameters described at the beginning of §1.2, NA WPs will propose a step by step approach to become operational. By the definition of a "**coastal observatory label**" and the consolidation of a **pan-European strategic roadmap**, JERICO will contribute to helping the observatories to be funded nationally or regionally, thus guaranteeing the **sustainability** of the network.

1.2.3 - Trans National Access (TNA) and Service Activities

For obvious practical reasons (e.g. if limited geographical interest), only parts of the JERICO infrastructure will be proposed for Trans National Access (TNA) through open calls (WP8). Indeed, the present heterogeneity of the existing national facilities induces a strict selection of those facilities. In this respect, the members of the JERICO consortium will focus on the more relevant platforms for the scientific community. Proposals for using these selected facilities will be presented by non partner (with respect to the nation of the institution owning the facility) teams to a selection panel and evaluated on the basis of science relevance (as regard coastal environment issues) and scientific merit. These TNA opportunities will foster coordination between regions, including possible exchange of scientists and services, improved geographical coverage and organisation of joint operations (for example joint surveys with gliders). TNA offer will include mobile systems, "Ferryboxes" and bench tests. Access to some of those facilities will be made available through targeted operations (e.g. access to buoys or to a set of fishing boat sensors).

Two types of activities will be proposed:

- access to data provided by all the JERICO partners facilities (SA, WP7). In this case, the service activity will aim to:
  - secure access to coastal data,
  - demonstrate direct applications, such as maps of ecosystem indicators over European seas, or model validations with respect to *in-situ* data.
- access to selected facilities (TNA, WP8) e.g. for testing or adapting sensors to new platforms

1.2.4 - Joint Research Activities

The JERICO research infrastructure also requires dedicated research efforts in order to improve its capabilities. The project offers an opportunity to undertake common subjects, both in the methodological and technological fields. However, the project can only tackle a limited set of questions. The two main issues identified by the consortium are:

- to develop and improve the design of fit for purpose and cost-efficient networks;
- to make research and monitoring of advanced automated data acquisition technologies.

The JRA WP9 will propose methodologies (Observing System Simulation Experiments, statistical techniques) to **optimize** the spatial and temporal design of coastal observatories. This work-package is of utmost importance for establishing a medium term deployment strategy.

Innovation will be undertaken in the JRA WP10, by developing application of emerging. Inter-comparison between mature and emerging technologies will also be led in WP10.

By the integration of emerging methodology and technology, JERICO will proceed towards automated monitoring at high temporal and spatial resolution of wider areas, and towards new thematic fields including biodiversity. This trend is expected for the implementation of the Marine Strategy Framework Directive.

1.3 - Scientific and technological methodology and associated work plan

JERICO is a European initiative of 27 organisations to improve substantially the coordination and efficiency of EU regional seas observing systems. JERICO will be open to other institutes.

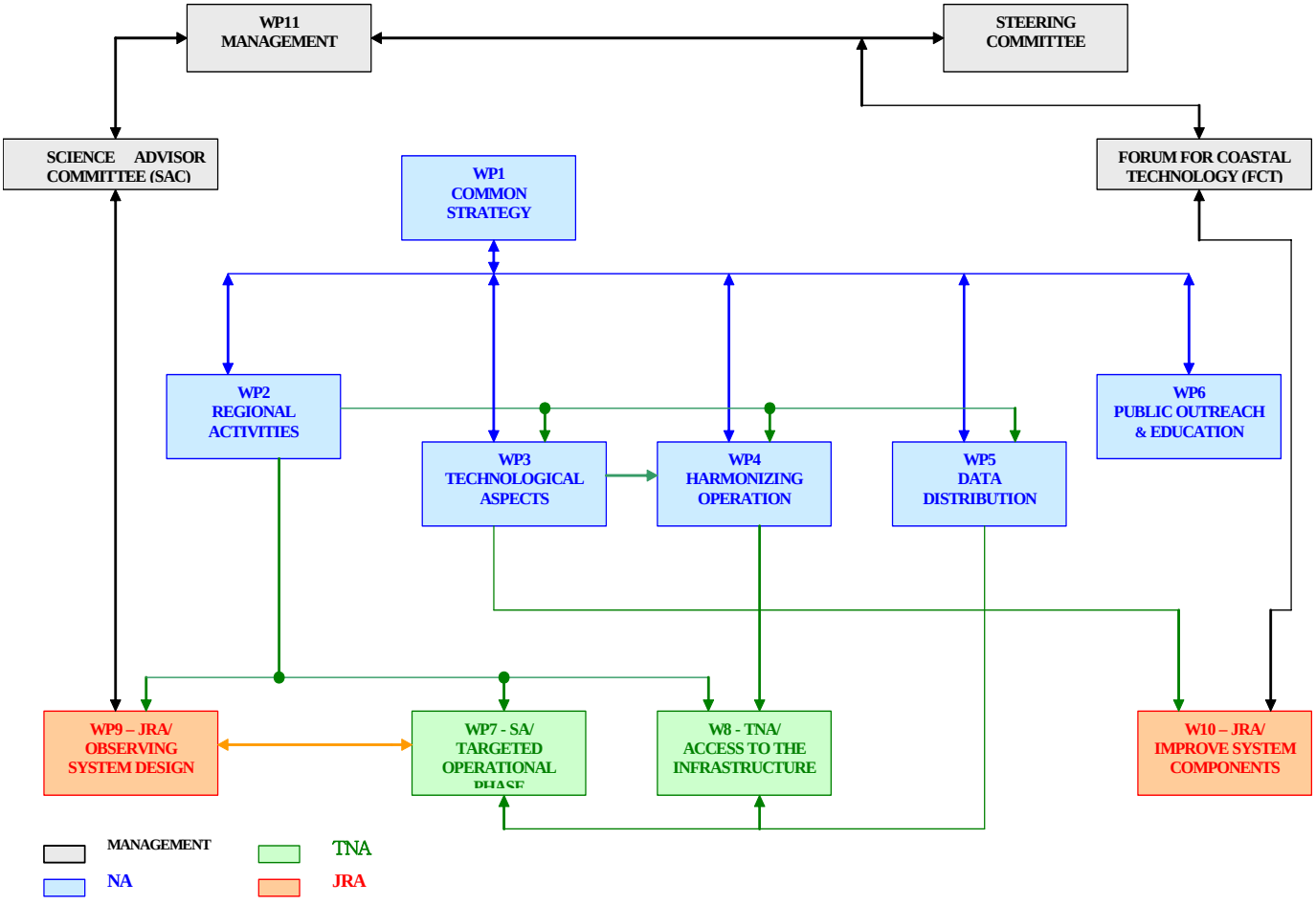
The JERICO project is expected to have a lasting legacy after the end of the project. To improve the universality of the project, the consortium will be open to associate new partners before the end of the project. These partners will be associated partners who comply with the goals proposed, i.e. to be labelled by JERICO.

In order to reach its ambitious objectives, JERICO refers to standard I3 structure to define the coordinated activities (i.e. NA, TNA and JRA) embedding 10 work packages, under a coordinated management scheme (WP11):

- Activity 1 **- 6 Networking actions** (WP 1 to 6)
  - NA 1 A common strategy,
  - NA 2 Strengthening regional and trans-regional activities,
  - NA 3 Observing system technology aspects
  - NA 4 Harmonization of operation and maintenance methods,
  - NA 5 Data distribution
  - NA 6 Public outreach and education**.**
- Activity 2 **- Two Trans-national Access** and Service Access programs (WP 7 and 8):
  - SA 1 Data accesss & targeted operational phases
  - TNA 2 Access to trans-national facilities.

  Common modalities for access and enhanced services are developed in NA1 and NA5.
- Activity 3 **- Two Joint Research Activity actions** (WP9 and 10).
  - JRA 1 : Observing system design
  - JRA 2 : Improve the system components.

JERICO – WP LINKS



TIMING

		year 1				year 2				year 3				year 4			
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
WP11																	
MGT - Management of the project	T11.1 - Day to day managment																
	T11.2 - Financial follow-up																
	T11.3 -Technical reporting																
	T11.4 - Quality assurance plan																
	T11.5 - Consortium animation																
	Contract update																
	T11.6 - Other management-related issues																
WP1																	
NA1 - A common strategy	T1.1 - Set up the scene and implementation plan																
	T1.2 - JERICO label																
	T1.3 - Forum for coastal technology																
	T1.4 - Definition strategy and interfaces with the monitoring of marine biodiversity																
	T1.5 - Roadmap for the future																
	T1.6 - User modality access for the Trans National Actiivities																
WP2																	
NA2 - Strengthening regional and trans-regional activities	T2.1 - State of the Art in the coastal observing systems																
	T2.2 - Cross regional integration and demonstration																
WP3																	
NA3 - Harmonizing technological aspects	T3.1 - Ferrybox																
	T3.2 - Gliders																
	T3.3 - Fixed platforms																
WP4																	
NA4 - Harmonizing operation and maintenance methods	T4.1 - Calibration																
	T4.2 - Bio fouling prevention																
	T4.3 - End to end quality assurance																
WP5																	
NA5 - Data management and distribution	T5.1 - Create value for measured data																
	T5.2 - Harmonization of delayed mode data management procedures wtih SeaDataNet																

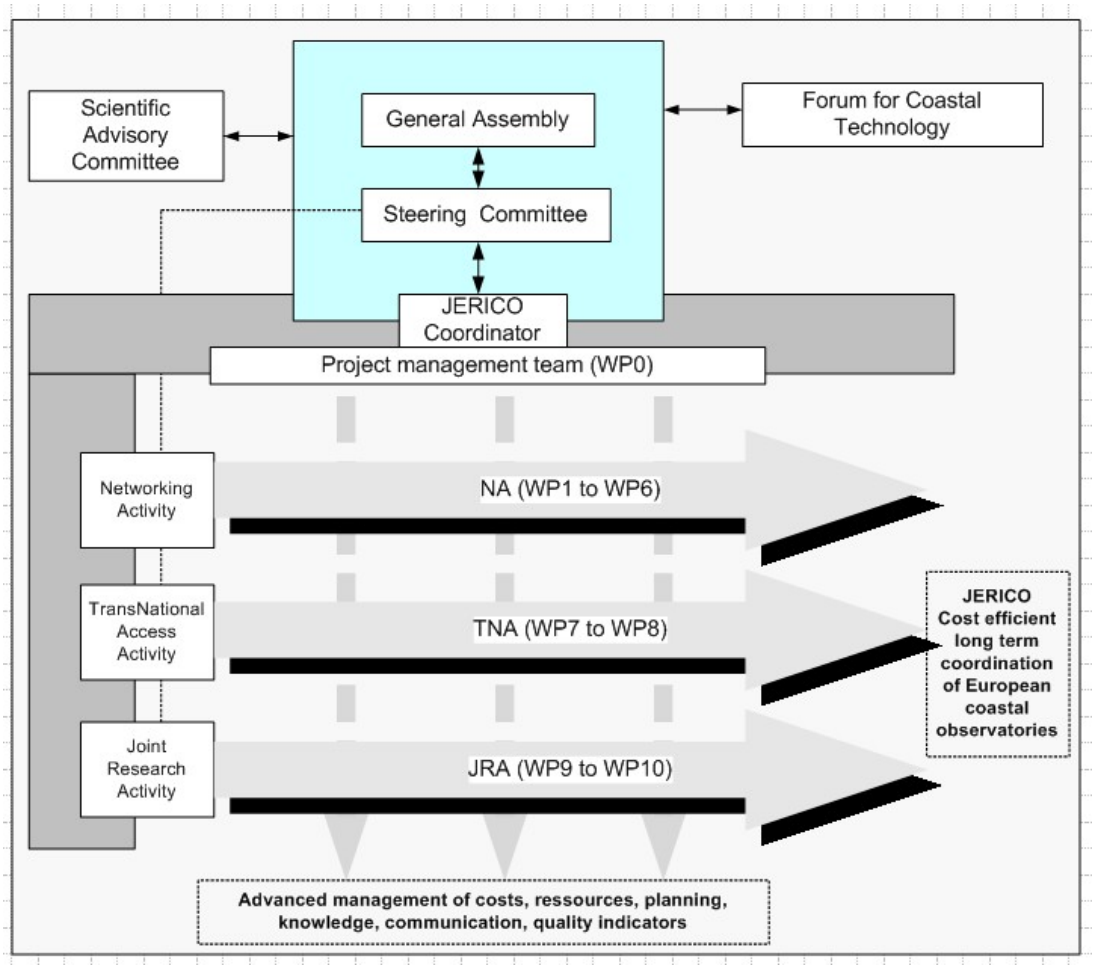
	T5.3 - Harmonization of real-time data management procedures with MyOcean and EuroGOOS and the institution	
WP6		
NA6 - Outreach	T6.1 - Development of end-user products and services	
	T6.2 - The JERICO OceanBoard	
	T6.3 - The JERICO Summer School	
WP7		
TNA1 - Services and data access	T7.1 - Data access preparation and handling	
	T7.2 - TOP 1 Processing Value added products	
	T7.3 - TOP 2 Integrating data from fishing fleets into regional observing systems portals	
	T7.4 - TOP 3 Combined buoys and ferry box data	
WP8		
TNA2 - Access for users including from non-EU countries	T8.1 - Call and peer review	
	T8.2 - Access implementation and reporting	
WP9		
JRA1 – New methods to assess the impact of coastal observing systems on the estimates of dynamical processes in the coastal area	T9.1 - Scientific Coordination	
	T9.2 - Impact of existing observational platforms on estimates of coastal processes by the use of high resolution coastal models	
	T9.3 - Impact of future coastal observing platforms on the estimates of coastal processes by the use of high resolution coastal models	
WP10		
JRA2 - Improved existing and emerging technologies	T10.1 - Developments of new tools and strategies for the monitoring of key biological compartments and processes	
	T10.2 - Developments of physico-chemical sensors and implementation on new platforms	
	T10.3 - Emerging technology - profiling technology, inter-comparison with mature technology	
	T10.4 - Ships of opportunity, next generation fishing vessel probes	
	T10.5 - FerryBox data Quality Control Algorithm	

2 - IMPLEMENTATION

2.1 - Management structure and procedures

2.1.1 - Project organisational structure and decision making process

The project is structured to ensure a global management:



JERICO management structure

In order to achieve and even exceed the foreseen scientific and technological objectives, the project organizational structure has to be extremely efficient and allow a rapid, coherent and well-accepted decision-making process. Therefore, two different decision levels will be set up:

- **Strategic level,** represented by the **General Assembly (GA)** to develop plans, *to provide scientific & technical directions*, to allocate the community funds to achieve the final objectives of the project **and the steering Committee (SC)** for the review of project progress and resources and resolution of potential conflicts of Activities (NA, TNA, JRA).
- **Operational level**, represented by the **Project management Team** and **Work Package Leaders (WPLs)**, *to implement the strategic decisions and scientific & technical activities* necessary to reach the goals of the project.

In addition, specific committees i.e. **Scientific (SAC)** and **Forum for Coastal Technology (FCT) Advisory groups** are implemented to address these important issues in the project.

A **coordination team** will support the General Assembly, the Steering Committee and the Work package leaders in order to ensure an efficient day-to-day management of the project.

This management structure is justified by the size and the nature of the consortium: the strategic and operational level will be closely related and communication and **decision-making processes** will be eased.

In particular, specific decisions will be taken according to the following rules (to be developed in the Consortium Agreement):

- In general, matters concerning changes to the project budget and changes to the EU contract have to be decided by a majority of GA over 75% (20 votes over 27) or SC (10 votes over 13).
- All other matters require a simple majority (14 votes over 27 for GA & 7 votes over 13 for SC).
- In the case of a split vote, the Project Coordinator will carry the deciding vote.
- Specific voting rights along these general principles will be detailed in the Consortium Agreement.

All the participants are used to collaborating with international groups to reach common ambitious scientific objectives; nonetheless conflicts do sometimes arise during the life of a project. Two main possibilities are anticipated: 1 partner vs. the project and 1 partner vs. 1 or few partners.

To **resolve the conflicts**, the following steps are proposed:

- Mediation via the Coordinator or its representatives within 1 month after being officially informed.
- European Commission consultation.
- Vote by the Steering Committee (if an extraordinary session is needed, at the expense of the parties).
- If no other solution is possible, exclusion of the party(-ies).

2.1.2 - Project governance

The paragraphs below give some information about the governance of the project; detailed modalities will be defined in the Consortium Agreement. From the wishes clearly expressed by the consortium members, the governance has been simplified as far as possible to enable efficiency and to avoid unnecessary complexity.

a. The Coordinator

The JERICO Coordinator, Mr. Patrick FARCY from IFREMER, will assume the responsibility of the technical, financial and administrative management of the project on a day-to-day basis, according to the contractual guidelines. In this activity he will be supported by a project office (see below). As senior Engineer, Mr. Farcy has a considerable experience in management of projects. He was previously Head of the CERSAT project (Acquisition and processing of ERS satellite data), deputy director of the spatial oceanography laboratory and then deputy director of the Fleet and Submarine direction. He is now coordinator for technology development at IFREMER. Within JERICO he will be the chairman of the General Assembly and the Steering Committee, the sole interface between the European Commission and the consortium. He will administer the Community contribution, regarding its allocation between contractors and activities, in accordance with the EC contract and the consortium agreement.

b. The General Assembly (GA)

The General Assembly, chaired by the Coordinator of JERICO is responsible for strategic policy and decision making. The General Assembly consists of high level representatives of all the partners. Their main role is to oversee the strategy of European coastal networks and the coordination of the participants' activities. Technical re-orientations, validation of project review and exploitation issues as well as possible changes of the consortium are also part of the GA's responsibilities that will be detailed in the consortim agreement. The GA will make sure that the adopted strategy is respected in order to achieve outcomes of excellence. The GA will meet four times during the life time of the project: at M1 (Kick off meeting), M18, M30 and M48 (final meeting). Otherwise, the GA will be assisted by the Steering Committee, who will have a meeting every 6 months. If it is necessary, the Coordinator can call on the GA by e-mail or, if there is the need, he can organize an extraordinary session at the expense of the parties.

c. The Steering Committee (SC)

A **Steering Committee (SC) will be** composed of the representatives of the core partners, i.e., partners who have a major role in the project. These 10 partners are: Ifremer, HZG, CEFAS, NIVA, Marine Institute, INSU/CNRS, CNR, CSIC, HCMR & SYKE. Three invited external experts will be proposed to be members of the SC: one representative from the EEA, one representative from EuroGOOS and one representative from the ESF Marine Board. The SC will take decisions concerning every aspect of the project: technical, financial, scheduling, partnerships, dissemination and exploitation.

TheSC will :

- review project progress and resources status,
- decide on allocation of funds (received and distributed by the Coordinator),
- decide on dissemination, exploitation and standardisation, in accordance with the decisions of the corresponding managers and committees and validation of the General Assembly,
- resolve conflicts on technical, financial and strategic issues.

The Executive Committee will meet every 6 months. Extraordinary meetings could be called for, should the need arise.

d. Advisory committees

- **The Scientific Advisory Committee (SAC)** comprises representatives from marine research organisations. A representative from the SAC will participate in the Steering Committee meetings and advise on scientific issues. The aim is to maintain communication and coordinated actions with research and other marine organisations to ensure cost effective marine research and to avoid duplication of effort.
- **The Forum for Coastal Technology Advisory Committee (FCTAC)** consists of representatives from the Industry involved in coastal technology. Its role is:
  - to set up common tasks and working groups of mutual interest,
  - to advise on the development of high tech tools able to improve marine research,
  - to advise the General Assembly and Steering Committee of new directions of collaborations and enhancement of relationships among industry, marine research and infrastructures,
  - to use and exchange high tech equipment for advanced research,
  - to organise workshops.

  The forum will be managed by the Marine Institute and IFREMER, with the French “pole Mer” as a contact point for a European network of competitive industries, mainly SMEs.

e. Project Management Team

The Project Management team is under the responsibility of the Project Coordinator and it is in constant communication with the Steering Committee and with the Work Package Leaders. The operational Management Team will assist the Coordinator in the management of administrative, contractual and financial aspects, the organisation of inter- and intra-consortium communication, internal web site, reporting, consortium management, in order to ensure an efficient project organisation towards EC requirements. The scientific coordination team is composed by Dominique Durand (NIVA), Patrick Raimbault (INSU/CNRS) and Ingrid Puillat (Ifremer).

f. Work Package Leaders

Whilst the Steering Committee decides on scientific objectives, the Work Package Leaders (WPLs) are involved in defining how to achieve these objectives. Therefore, the Coordinator will rely on them for the technical follow up of the project. WPLs are nominated for each work package (see the description of the different work packages; more details will be given in the Consortium Agreement) and they are committed:

- To control the timely progress of the scheduled work within the work package in terms of technical achievement planned deliverables and expenses
- To assess the quality of the outputs from their WP including the level of quality of their own deliverables.
- To initiate and participate actively in the technical meetings necessary for work progress, and report minutes.
- To refer to the coordinator in the case of major issues those affect the completion of the planned work.

WP	Activity	Leader	WP	Activity	Leader
WP11	MGT	**IFREMER**			
WP1	NA1	**INSU/CNRS**	WP6	NA6	**CEFAS**
WP2	NA2	**IMR**	WP7	TNA1	**IFREMER**
WP3	NA3	**HZG**	WP8	TNA2	**CNR**
WP4	NA4	**HCMR**	WP9	JRA1	**CMCC**
WP5	NA5	**OGS**	WP10	JRA2	**MI**

2.1.3 - Project internal procedures and associated tools

In order to ensure an efficient launch of the project activities, dedicated management procedures and tools will be established by the Management Team, Further information may be found in the dedicated work package sections.

- **Dissemination and Exploitation**: as with all successful R&D projects, the consortium anticipates generating important knowledge, especially within the proposed JRAs, which will be appropriately disseminated and used to feed exploitation policies.

- **Internal reporting:** project progress will be shared, presented, reviewed and analysed regularly on the following basis:
  - **18 & 36-monthly meetings:** All participants, EC reviewers – the objective will be to assess project progress on the basis of deliverables produced.
  - **9-monthly basis**: internal activity reports, Steering Committee and Work package leaders reporting.
  - **24-monthly mid term review** : EC reviewers, Steering Committee and Work package leaders.

- **Operational project coordination:** a dedicated team (the Project Management Team) will manage the coordination activities focusing on four main areas,:
  - **Contract management**: EC grant and consortium agreement amendments.
  - **Reporting management**: in order to track participants' activities, the resources mobilised and the results generated, adequate internal reporting procedures will be proposed.
  - **Partnership management**.
  - **Quality management**: an internal quality policy (standards of documents, proofreading, validation workflow, project charter, quality indicators) will be proposed during the first months of the project.

- **Quality policy and project performance**

The quality plan and risk assessments will follow the standards on product and service quality ISO 9001:2000 and via a Quality Assurance Plan for the project.

The quality plan will be proposed by the coordinator with the assistance of HCMR (task 0.4 in the WP0)

- **Communication and reporting**

An efficient communication across the project will keep all the participants fully informed of the project status, the planning and all other issues, and therefore the synergy of the co-operation between them will increase. The following procedures and tools will be adopted:

- A web based collaboration platform will be implemented (WP6). This web site will be secure, and will enable the consortium to have a very efficient diffusion of the information.

- Regular meetings of the Steering Committee: these meetings will be coupled with technical meetings. Meetings will be chaired by the Coordinator.

- **Consortium agreement**

A Consortium Agreement (CAg) will be prepared. It will be validated by the Steering Committee and signed before the contract starts. The CAg will include in particular provisions for the organisation and governance rule of the consortium, the grant distribution, management of IPR and dissemination and exploitation of results.

2.2 - Beneficiaries

IFREMER		RTD	Number of employees	1 500	Turnover *(M€)*	235

IFREMER, the French Research Institute for the Sustainable Exploitation of the Sea**,** is a national marine research institute whose missions are to improve knowledge about the oceans and their resources, monitor the coastal and marine environment and the sustainable development of marine activities. It designs and deploys observational, experimental and monitoring tools and manages the French ocean research fleet on behalf of the entire scientific community.

IFREMER'S MISSIONS

> Finalized research in the prospect of answering to social expectations (climate change effects, marine biodiversity, pollutions prevention, seafood quality…). The results are scientific knowledge and technological innovations, but also ocean observation and exploration systems. The partnership is public, private or both.

> Oceans, seas and coastal water monitoring, in support of public policy for the environment and its resources. In the form of notices or study reports, the results provide information about the state of the environment state or the evaluation of a resource and permit the expertise on sea-related questions.

> Development, management and open access of large research infrastructures – fleet, calculation means, data centres, experimental facilities – available to the whole National and European scientific community, as well as to private partners.

The departments of "coastal environment dynamics" and "physical and space oceanography" are yet involved in global and coastal operational oceanography. They have a major role in the development of European operational networking activities in Europe (MyOcean, EuroGOOS) and in Data management (CORIOLIS, SeaDataNet, and PREVIMER).

Role within the project and relevant experience

Ifremer brings all its experience in coastal observing systems, research and technology. Within its two technological departments, Ifremer is one of the leaders in definition, development and use of technological observing systems such as profilers, Recopesca probes for fishing boats, gliders and buoys. Ifremer will be the coordinator.

Description of key people involved in the project

Patrick Farcy, Senior Engineer, coordinator of the JERICO Project and leader of the WP7 JERICO Service Access. He was previously Head of CERSAT project (Acquisition and processing of ERS satellites data), deputy director of the spatial oceanography laboratory and then deputy director of the Fleet and Submarine direction at Ifremer. He is now technological coordinator of Ifremer

Ingrid Puillat, PhD, member of the coordination team. PhD in Oceanography ("Marine environment science"), deputy coordinator of the FP6 Network of Excellence ESONET, the European Seas Observatory NETwork. She has experiences in project Management and research in Oceanography.

Sylvie Pouliquen, senior engineer, leader of task 5.3 – Interface with MyOcean. Sylvie Pouliquen graduated from « Institut National des Sciences Appliquées » in 1983. She entered IFREMER in 1992 to take responsibility of the satellite Data Centre CERSAT. Since March 2001, she is the leader of Coriolis. She is the coordinator of the in situ workpackage in the GMES Marine Core Service MyOcean and the Data Management task in Euro-Argo EU FP7 projects.

Gilbert Maudire, SeaDataNet coordinator, senior engineer, leader of task 5.2 – Interface with SeaDataNet. Gilbert Maudire is presently in charge of the Marine Data Centres programme for Ifremer. He has been involved or in charge of the development and operation of several data management systems: French National Oceanographic Data Centre (SISMER), Quadrige (Quality of French coastal water), Coriolis (Global data centre for Argo international program), Medar (Climatology of Mediterranean Sea), Mersea (Sea circulation modelling), Biocean (Observation of deep sea ecosystems).

Yannick Aoustin, project engineer. As an engineer in hydrodynamics, he has designed generations of marine measuring instruments and platforms. He has a long experience and knowledge of operation of systems in real sea environment He is in charge of the developments of innovative instruments for operational monitoring.

Finnish Environment Institute SYKE	SYKE		**Number of employees**	**633**	**Turnover** *(M€)*	**48,2**

SYKE is the research and development institute of the environmental administration of Finland. Its tasks include monitoring and assessment of the state of the environment, pollution loading, land use changes, water resources and marine environment. There is a strong emphasis at SYKE to provide scientific support to the decision making processes concerning large scale environmental problems with loss of biodiversity, air pollution, climate change, eutrophication of the Baltic Sea and the effects of agriculture on aquatic and terrestrial ecosystems in Finland. The SYKE Marine Research Centre (MRC) conducts wide-ranging research on the ecosystems, marine life and state of the open Baltic Sea and the coastal waters around Finland, also assessing the factors that shape the marine environment.

Role within the project and relevant experience

SYKE will provide expertise on implementation of actions of the Baltic Maritime Environment Protection Commission (HELCOM). SYKE is a participant in BOOS and has a strong contribution on regional activities in the Baltic. SYKE has carried out ferrybox monitoring in the Baltic Sea since 1992, is currently operating 3 ferrybox lines and is establishing a new ferrybox line in cooperation with SMHI. SYKE has also wide experience in bio-optical and remote sensing research.

Description of key people involved in the project

Dr Seppo Kaitala, PhD in aquatic ecology, has a considerable expertise in the monitoring of basin-scale processes. He manages contribution to Alg@line.

Timo Pyhälahti has a MSc in electrical engineering, space technology with 14 years experience in remote sensing development. He is an expert specialized in remote sensing and monitoring system integration of water quality parameters

Dr. Stefan Simis studies the spatial distribution and ecophysiology of algae and cyanobacteria, focusing on upscaling ship-based measurements of phytoplankton ecophysiology from the satellite field-of-view.

Dr. Jukka Seppälä, PhD 2009 on fluorescence properties of Baltic Sea phytoplankton. He has 16 years experience on ecological phytoplankton and its bio-optics research in the Baltic Sea.

Hanna Piepponen has an MSc in geography. She has studied relationships between optical properties and water colour in the Gulf of Finland and has experience in remote sensing and GIS.

Jenni Attila has been participating in operative remote sensing of water quality and research since 1998. Recently, she has been developing methods for atmospheric correction of turbid waters and water quality analysis for the Baltic Sea.

IBWPAN	IBW PAN	**RTD**	**Number of employees**	**50**	**Turnover** *(M€)*	**1.5**

The Institute of Hydro-Engineering of the Polish Academy of Sciences (IBW PAN) was established in 1953 due to the needs of the national water resources management and industry. In 2006, IBW PAN was awarded the highest, 1st, category by the Ministry of Science and Higher Education and so belongs to a group of the best scientific institutions in Poland. In the year 2002-2005 IBW PAN had the status of the EU Centre of Excellence (Centre for Environmental Engineering and Mechanics).

At present, the research is carried out by three departments:

- Department of Coastal Engineering and Dynamics;
- Department of Wave Mechanics and Structural Dynamics;
- Department of Geomechanics.

IBW PAN employs 50 persons, including 3 professors, 11 associate professors (doctors of science), 9 researchers with the PhD degree, 5 assistants, technical staff and administrative personnel.

In the last 5 years (2004-2008) Institute was involved in 9 projects financed by EU, 17 projects financed by the Ministry of Science and Higher Education and over 50 commercial projects.

Role within the project and relevant experience
The entire infrastructure of CRS Lubiatowo will be open to TNA (WP8). Aside from the IBW PAN equipment, the other monitoring devices (provided by the project partner and non-partner organisations) will be mounted on the measuring towers or included into the CRS nearshore installation in the other way. The planned measuring campaigns will require intensified maintenance of some parts of the infrastructure and the upgrade of the installations at CRS Lubiatowo. These works will be carried out within WP3 (Harmonizing Technological Aspects: 'Fixed platforms – piles for shallow water applications') and WP4 (Harmonizing Operation and Maintenance Methods). The upgrade of CRS will lead to establishment of a permanent coastal observatory centre collecting data representative for the south Baltic coastal conditions (WP2 – Strengthening Regional and Trans-Regional Activities and WP9 – Objective Assessment and Optimal Design of Coastal Observing Systems). The data collection and processing systems (including software) will be modernised and developed, as well as the CRS web page, so that collected data will be better stored and easily available on-line via internet, together with the archival data (WP5 – Data Distribution and Interface with Models: 'Data provision to Oceanography Forecasting Systems').
Description of key people involved in the project
Rafał OSTROWSKI (1962): MSc (1986), PhD (1994), DSc (2006). Career: junior and then senior scientist in IBW PAN (since 1987), Deputy Head of the Dept. of Coastal Engineering and Dynamics (1998-2002, 2009-), Specialist on European Integration at IBW PAN (1.09.2004-31.12.2006). Experience: coastal dynamics and protection, applied research on hydrodynamics and sediment transport in the coastal zone. International experience. 1994-1996 (Assistant Project Manager); MAST III – INDIA 1997-2000 (key IBW PAN researcher), 5th FP – HUMOR 2001-2004 (team leader), INTERREG IIIC – InterMareC – ASTIR c/17/k 2005-2007 (team leader). **Zbigniew PRUSZAK** (1947): MSc (1970), PhD (1977), DSc (1990), Professor (2000). Career: junior scientist in the Dept. of Marine Hydraulics (1970-1982), head of the Section of the River and Water Reservoirs Dynamics (1982-1985), deputy head (1990-1998) and head (1998-) of the Dept. of Coastal Engineering and Dynamics. Member of the Scientific Council of the Institute of Oceanology PAS (1999 -), Member of the Polish Scientific Committee on Oceanic Research (1993-). **Małgorzata ROBAKIEWICZ** (1959): MSc (1983), PhD (1991: junior scientist in IBW PAN (1983-1991), Head of the Dept. of Hydrodynamics of Reservoirs, Rivers and Estuaries (2002-2006).– project contact person/deputy co-ordinator. **Marek SZMYTKIEWICZ** (1948): MSc (1972), PhD (1986), DSc (2003). Experience: coastal engineering, coastal dynamics and protection, applied research on hydrodynamics and sediment transport in coastal zones. Project leader of two Polish-Dutch Projects 1992-1993 and 1996-1998. **Marek SKAJA** (1952): BSc (1976) Career: research engineer in IBW PAN (since 1976), Head of IBW PAN Coastal Research Station in Lubiatowo. Experience: coastal dynamics and protection, mathematical modelling of hydrodynamics and sediment transport in coastal zones, field measurements and monitoring. International experience. **Grzegorz RÓŻYŃSKI** (1962): MSc (1986), PhD (1993), DSc (2005). Career: junior and then senior scientist in IBW PAN (since 1986). Experience: coastal hydro- and morphodynamics (shoreline and seabed change, wave climate variability), application of advanced statistics to nearshore hydro- and morphodynamics; analysis of slow varying components of wave climate in nearshore regions (infragravity waves), analysis of long term (decadal) shoreline and seabed change.

Danish Meteorological Institute	**Logo**		**Number of employees**	**400**	**Turnover** *(M€)*	**40**
DMI was founded in 1872. DMI provides meteorological, oceanographic and related services for the community within the large geographical area of the Kingdom of Denmark (Denmark, the Faroe Islands and Greenland), including surrounding waters and airspace. DMI's area of activity comprises forecasting and warning services as well as continuous monitoring of weather, sea state, climate, and related environmental conditions in the atmosphere, over land and in the sea. The purpose of these activities is to assist in the protection of life and property as well as to provide a basis for economic and environmental planning (aviation, national defence, shipping, agriculture, sporting and recreational events, etc.). Through scientific research and development DMI secures the optimum accomplishment of its tasks and serves the community with up-to-date information.						

Role within the project and relevant experience
DMI's major tasks in the project is to work on quantitative assessment and optimal design of JERICO observing network, including both dynamic (OSEs, OSSSEs) and statistical approaches, with its expertise in weather, ocean and climate modeling, ocean data assimilation, and especially in quantitative assessment and optimal design of ocean networks.
Description of key people involved in the project
Jun She, Ph.D. in Climate Dynamics in 1991. Research Director at the Centre for Ocean at Ice (COI), expertise in 3D ocean modelling, optimal observing system design and regional oceanography cooperation, also involved in EU projects ODON (coordinator), MERSEA, ECOOP, BOSS4GMES YEOS (coordinator), DevCoCast, MyOcean (Board member). He is also a member of GEO STC. **Jacob L. Høyer**, PhD in physical oceanography. He has worked with data assimilation of satellite observations and validation of SST and altimetry observations. He has developed the multiplatform 3-D SST optimal interpolation scheme and has worked with statistical assessment of observational networks. Involved in ODON, ECOOP IP (Workpackage leader), Marcoast project and chairing the BOOS remote sensing working group. Member of the Jason-2/OSTM science team, the GHRSST science team and chairing the GHRSST High Latitude Technical Advisory Group (HL-TAG) **Weiwei Fu**, Ph.D. in dynamic meteorology in 2006. Worked since 2001 on 3D ocean modelling and ocean data assimilation, broad experience in data assimilation schemes (3DVAR, EnOI, etc) and in numerical modelling with global and regional ocean models, involved in EU projects ECOOP, BOSS4GMES and MyOcean.

NIVA	Logo		Number of employees	240	Turnover *(M€)*	23

The Norwegian Institute for Water Research (NIVA) is a private, non-profit research foundation with a staff of 240 employees, including 130 researchers, and is the largest interdisciplinary applied water research centre in Norway. NIVA is conducting fundamental and applied research on consequences of environmental pollutions in the marine and freshwater environments. NIVA is designing and operating innovative operational observing systems for cost-effective, realtime or offline, monitoring of environmental pollutions, including ship-mounted (Ferrybox) and at-sea systems. The NIVA Group, comprising NIVA, the subsidiary consultancy companies Akvaplan-niva in Northern Norway, AquaBiota As in Sweden,has an annual turnover of €23 million. NIVA's research programmes are supported through contract with public authorities and private clients in Norway and abroad. The EU research programmes, the Norwegian Development Agency (NORAD), the World Bank, and the European Development Bank fund a major part of international projects.

Role within the project and relevant experience

In JERICO, NIVA is part of the core group of partners, contributing to most of the WPs. NIVA is leading or contributing to all the tasks related to Ferrybox. In particular NIVA will lead the networking activity task 3.1 on ferrybox technology, as well as TNA task 8.1 on transnational access within the consortium. In NA-WP4 NIVA will mostly contribute to improving maintenance of optical sensors and system and running costs for ferrybox. In WP5, NIVA will contribute in developing uncertainty assessment from in-situ measurements. In WP6, NIVA will contribute on dissemination and summer school. Through WP7 (SA) NIVA will provide data from all their ferrybox lines, to the project and to the consortium. Though WP8, NIVA will give access to two of its ferrybox line for testing of new sensors, intercalibration of sensors and specific scientific experiments run jointly with consortium partners (XBT transects) and interested international research groups.

In WP10 (JRA), NIVA will investigate in collaboration with JERICO partners, emerging technologies for Ferrybox (quantification of contaminants, acidification and eutrophication in the coastal zone, new imaging technologies).

NIVA will also participate in WP1 on development of common strategies, and in WP11 on project management.

NIVA has a long experience with projects (since FP4), in different role such as project coordinator, WP leader or as simple PI. The personnel involved in JERICO have all long experience with coastal observatories and have been participating in different projects.

Description of key people involved in the project

Dominique Durand, PhD is research director at NIVA, leading the department of oceanography and remote sensing. He is a member of the Regional Operational Oceanography Systems (NOOS and Arctic-ROOS) and is coordinating the Earth observation programme of the Norwegian Polar Environmental Centre. He is/was deputy manager or PI for several

European projects related to the development of science and service for marine water quality, and is coordinating operational oceanography effort at NIVA.

Kai Sørensen (Senior Scientist & Ferrybox Expert): Kai is a senior scientist at NIVA with 20 years experience in monitoring and analysis of marine water quality, and of using satellite data as supplement to other data for monitoring water quality in coastal waters. He has a B.Sc in chemistry and experience in marine chemistry, biology and marine optical measurements. He was PI for NIVA in the EC-FerryBox project and is presently coordinating Ferrybox operation at NIVA.

Pierre Jaccard (M.Sc. and instrument engineer) is a scientist at NIVA working on design, implementation, maintenance and further development of Ferrybox systems. Pierre has more than 20 years experience with oceanographic instrumentation. He is presently contributing to MyOcean. He is in charge of the operationality of NIVA's ferrybox network.

IMR	HAVFORSKNINGSINSTITUTTET INSTITUTE OF MARINE RESEARCH		**Number of employees**	**700**	**Turnover** *(M€)*	**96**

IMR, with about 700 employees and 2500 ship days pr. year, is a national governmental institution under the Ministry of Fisheries in Norway. The main tasks are to do ecosystem monitoring and research for better management advice on the marine ecosystems of the Barents, Norwegian and North seas and the Norwegian coastal zone, and on aquaculture. In addition IMR has a significant activity in developing countries. IMR has marine experts covering the whole ecosystem from physics to whales. A skilled group of numerical modellers are simulating climate/physics, primary and secondary production, harmful algal blooms, fish larvae growth and distribution, and contaminants with the main aim of understanding the impact of varying climate and lower trophic levels on the dynamics of marine ecosystems/fisheries. IMR holds the Norwegian Marine Data center.

Role within the project and relevant experience

Coordinating the work package for the strengthening regional and trans regional activities. Sharing its knowledge. Holding the Norwegian Marine Data centre. Contribution to and coordination of international groups for the improvement of monitoring methodologies and data dissemination.

Description of key people involved in the project

Henning Wehde: more than 10 years of experience in research on oceanography. His primary interests lay on the improvement of ocean observations and linking in situ and remote sensing observations to physical and ecosystem modeling. He was deputy Coordinator of the EU FP6 project, coordinator of several national projects and was/is PI in several EU as well as nationally funded projects and published 15 papers. He is a member of the Steering Group of the North-west shelf Operational Oceanography System (NOOS) and member of the Arctic ROOS board.

Einar Svendsen: 27 years experience in research on physical oceanography, remote sensing and marine ecology. Of special interest is the development and use of NORWECOM (the Norwegian Ecological Model system, operational from 1994) for studying links between physics (climate) and lower trophic level biology and fish recruitment prediction.

Helge Sagen: Highly skilled data- engineer and manager. Leader of the Norwegian Marine Data center.

Deltares	Deltares Enabling Delta Life	**RTD**	**Number of employees**	**808**	**Turnover** *(M€)*	**103**

Deltares is the Dutch institute for applied research and development on issues related to living and working in delta areas. The mission of Deltares is to develop, acquire, apply and disseminate integral, multidisciplinary knowledge and knowledge products related to living and working in delta (coastal, estuarine, and riverine) areas, on an internationally leading level. With this, Deltares supports public authorities, private parties and society in their operations and ambitions, related to sustainable development of delta regions. The primary task of Deltares is bringing together science and application: translating scientific knowledge into innovative solutions needed in sustainable (clean and safe) development of deltas. It plays an active role in innovation networks with the ultimate goal of creating societal value, by supporting and speeding up innovation. One specific area of expertise of Deltares is monitoring and information systems. Deltares supports the Dutch Ministry of Transport, Public Works and Water Management (Rijkswaterstaat) in its formal responsibilities for the national water monitoring programme.

Role within the project and relevant experience

Role in the project:

Within JERICO, Deltares will have three main roles: (1) Coordinator of NOOS project related activities on inventory of existing observation systems, recommendations for future research and developments, and demonstration of trans-regional product formation (WP2); (2) Development of common tools for data exchange and data access, including outreach and education (WP6) and; (3) Assessment and optimal design of coastal observing systems (WP9).

Experience:

Deltares has a long record of defining monitoring and information strategies as well as developing data management and data dissemination tools. Furthermore, Deltares is a leader in transport related monitoring and modelling and on data-assimilation into hydrodynamic and water quality models. Deltares is active on water quality related assessments within National projects and the EU-framework of EMECO.

Description of key people involved in the project

Kees van Ruiten is currently expert advisor at Deltares and chairman of the NOOS-network. His background is in applied physics (Acoustics) with focus on monitoring (including Earth Observations) and information systems. He is experienced in bringing user needs, monitoring strategies and user involvement together. He is a member of the operational team of the storm surge warning services in the Netherlands

Nicki Villars is currently senior advisor at Deltares in operational monitoring systems. She is leading the Deltares strategic research project on real-time water quality monitoring, focusing on providing operational water quality information from integrated monitoring and modeling. She represents Deltares in EuroGOOS, and participates in the European network EMECO on model supported (integrated) monitoring.

Martin Verlaan is currently senior scientist at Deltares and assistant professor at Delft university of technology. He has 15 years of experience and numerous publications on data-assimilation. He is a member of the operational team of the storm surge warning service in the Netherlands and is involved in the development of numerical models and Kalman filtering for storm surge forecasting. He is also an active participant in NOOS.

OGS		RTD	**Number of employees**	**220**	**Turnover** *(M€)*	**26**

The Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - OGS is an Italian public-sector scientific institution which promotes, co-ordinates and carries out research in the Earth Sciences, with a particular emphasis on the development of new analytical tools and applied technologies in the Marine Sciences and in Seismology, and in the mineral exploration and environmental management fields. Located in Trieste in northeast Italy, the Institute is organized into 5 departments and 4 auxiliary bodies, two administrative and the other two technical. The Department of Oceanography of the Institute presently employs 56 people (including post-doctoral trainees and visiting scientists), and is deeply involved in many of the major European projects concerning the Mediterranean Sea. The Department is currently active in 10 EUROPEANand 4 other international projects.

Role within the project and relevant experience

The OGS has extensive experience and expertise in designing, managing and operating marine observing infrastructure. It has developed, and is presently running, an extensive, distributed real-time marine monitoring system in the northern Adriatic Sea. The OGS will participate in JERICO in the following ways.

As the Leader of **WP5 – Data management and distribution**. The OGS is the National Oceanographic Data Centre (NODC) for Italy in the International Oceanographic Commission's International Oceanographic Data and Information Exchange (IOC/IODE) program. As such, it is already actively involved in collecting, evaluating, archiving and disseminating marine data in a transnational context.

(1) As the Leader of **SubTask 4.1.1 – Physical sensors T, S, DO,Currents, Sea-bed Pressure** of **WP4 – Harmonizing Operation and Maintenance Methods**. The OGS maintains an oceanographic calibration laboratory with a small team of specifically dedicated technicians geared towards assuring high-quality metrological support to the Institute's marine observing efforts.

(2) As a contributor to **Task 4.3 – End-to-end quality assurance**. The OGS owns and operates both fixed platforms

and a Teledyne-Webb coastal Slocum Electric Glider, and can offer practical skills and technical know-how.

(3) As a contributor to **Task 3.3 – Fixed Platforms** of **WP3 – Harmonizing technological aspects**. The OGS has wide experience in designing, deploying and operating oceanographic moorings and other conventional marine monitoring platforms.

(4) As a contributor to **WP7.1 – Data Access (Service Activities)**. The OGS will provide free access to data coming from specific elements of its monitoring infrastructure.

(5) As a contributor to **WP8.2 – Access to the existing infrastructure**. The OGS will allow non-partners to exploit elements of its monitoring infrastructure for tests and in-situ validation of instrumentation.

Description of key people involved in the project

CRISE ALESSANDRO is the Director of the Department of Oceanography of the OGS, and is presently the Institute's representative in the EuroGOOS board and in ESF-MB. Dr. Crise is a well-known biogeochemical modeller, and is also responsible for the Department's activities within the European Projects, MyOcean, CIRCE and SESAME.

GIORGETTI ALESSANDRA is the coordinator of all activities at the OGS relating to its role as the IOC/IODE National Oceanographic Data Centre for Italy. A member of the research staff of the Institute's Department of Oceanography, she has been working on oceanographic data management, scientific validation and processing since 1995.

NAIR RAJESH is a Master Technician with the Department of Oceanography at the OGS. Mr. Nair has nearly twenty years of experience in Oceanography and the Marine Sciences, covering many areas of marine research ranging from plankton studies and biogeochemical cycling to physical oceanography and environmental monitoring.

CONSIGLIO NAZIONALE DELLE RICERCHE		**RTD**	**Number of employees**	**> 8.000**	**Turnover** *(M€)*	**1176**

The CNR Earth and Environment Department covers most marine disciplines, with a multidisciplinary approach: physics, geology, chemistry, biology, fishery studies, satellite oceanography and operational oceanography. Approximately 300 staff members from the institutes (not including administrative personnel) are involved in marine research.

Role within the project and relevant experience

CNR has long experience in the acquisition of data from coastal observatories and in international projects related to marine research and infrastructures. Being one of the core partners, CNR will sit on the Steering Committee of JERICO and will actively participate in the project. One of the main contributions to the project from CNR will be sharing with JERICO its own installations whose value is of the order of 3 M€. Some of these installations are offered for the TNA in WP8, which CNR will lead, and other for scientific services in WP7. As one of the partners in MOON, CNR will be involved in strengthening regional and trans-regional activities and, in particular, to distinguish the implementation of the observing system between the existing observatories and the design of new ones. Due to its consolidated experience in the use and maintenance of instrumentation, CNR will give its contribution in the technological aspects and calibration procedures. Moreover, CNR will contribute to those activities related to the data management.

Description of key people involved in the project

Giuseppe Cavarretta is the director of the Department of Earth and Environment (DTA) at CNR Headquarters in Rome, Italy, since April 2006 when CNR was first reorganized by law into 11 scientific Departments.

Salvatore Mazzola, is the director of the Institute for Coastal Marine Environment of the Italian National Council of Research (CNR-IAMC). In the coordination of the Interdisciplinary Group of Oceanography he has been involved with the interdisciplinary application of Acoustics manly focusing on underwater acoustics.

Fabio Trincardi, is the director of the Institute for Marine Science of the Italian National Council of Research (CNR-ISMAR) and Head of CNR-ISMAR Continental Margin Working Group. Marine geologist, great experience on Quaternary geology and climate change, sequence stratigraphy and sedimentary processes in modern deltas, continental shelves and deep water environments (submarine slides, canyon evolution, bottom-current deposits).

Pier Francesco Moretti is a physicist with experience in innovative instrumentation development, in data acquisition and analysis, and management of automated instrumentations. He is the coordinator of ETNA (ExtraTerrestrial Nanomaterials analysis consortium) and co-investigator of the ADAHELI space mission. He is responsible of the international activities of

the Department of Earth and Environment (DTA) at CNR and supports the Italian delegate to Marine Board.

Stefania Sparnocchia is an experimental physical oceanographer. Her studies encompass the dynamics of ocean circulation in the Mediterranean Sea, water property distributions and budgets, variability and long term trends. The investigated regions are mainly Strait of Sicily, Tyrrhenian, Ligurian and Ionian Seas. She will coordinate the CNR contribution to JERICO.

UNIVERSITY OF MALTA	**Logo**		**Number of employees**	**1630**	**Turnover** *(M€)*	**12**

The IOI-Malta Operational Centre is established within the University of Malta and its main areas of concern include the strengthening of inter-faculty co-operation in marine affairs within the University, the organisation of training courses, sustaining the interaction between local institutions that are active in marine affairs, and promoting an inter-sectorial approach at a national level. It maintains links with international marine organisations such as the UNESCO/Intergovernmental Oceanographic Commission (IOC) and the International Commission for the Scientific Exploration of the Mediterranean Sea (CIESM).

The Physical Oceanography Unit (PO-Unit) constitutes the research arm of IOI-MOC. The Unit undertakes oceanographic research, in a holistic perspective, including operational observations and forecasts, specialised data management analysis and participation in international cooperative ventures. The overarching research themes of the PO-Unit cover coastal meteorology, hydrography and physical oceanography with a main emphasis on the experimental study of the hydrodynamics of the sea in the vicinity of the Maltese Islands.

Role within the project and relevant experience

Co-leader of WP6.

Description of key people involved in the project

Prof Aldo Drago PHD in physical oceanography, is currently the Director of the IOI-Malta Operational Centre (IOI-MOC) and Head of the Physical Oceanography Unit. He is the Maltese delegate to the Intergovernmental Oceanographic Commission (IOC/UNESCO), to the International Commission for the Scientific Exploration of the Mediterranean (CIESM) and the National Representative for the Committee on the International Oceanographic Data and Information Exchange.

Mr Joel Azzopardi is a computer scientist and programmer specializing in the development of frameworks for automated systems in connection with forecasting and related technical services.

Dr. Alan Deidun is recognised as a Chartered Biologist by the Institute of Biology of London.

Dr. Aaron Micallef is a lecturer in marine geology at the Physical Oceanography Unit, International Ocean Institute-Malta Operational Centre, University of Malta. He has taken part in a number of oceanographic surveys in the Mediterranean Sea and the Atlantic Ocean, and has offered consultancy for Environmental Impact.

Hellenic Centre for Marine Research		**RTD**	**Number of employees**	**420**	**Turnover** *(M€)*	**17**

HCMR is a Governmental Research Centre operating under the auspices of the General Secretariat for Research and Technology (Greek Ministry of Education). It has the mandate to promote basic research in all fields of aquatic environment and to deliver comprehensive scientific and technical support to the public. It is composed by the following five Institutes: Oceanography, Marine Biological Resources, Inland Waters (based in Anavyssos), Aquaculture, Marine Biology & Genetics (based in Crete). The HCMR personnel include 217 scientists and 45 technicians while the administrative and auxiliary personnel numbers 43 and 115 persons respectively. HCMR operates the 62m R/V Aegaeo, the 23m R/V Filia, four ROV and the manned submersible THETIS as well as two aquariums in Crete and Rhode Islands.

Role within the project and relevant experience

HCMR as a core partner in JERICO will be actively involved in the project activities. In more detail, through the experience and participation in international bodies it will have a significant contribution in WP1 in setting a common strategy; participate in WP2 through MOON (HCMR is a major partner) ; be involved in WP3 with both Ferrybox and Fixed Platforms; coordinate WP4; be a major contributor in WP5 linking MyOcean activities with JERICO and i help in the analysis of user requirements and JERICO OceanBoard in WP6. In the TNA & SA activities, HCMR will have a leading role providing access to the POSEIDON system that is the largest infrastructure of the project: Under WP7 it will provide service access to all acquired data (in situ and model) of the last 10 years, while under WP8 it will provide Trans National Access by opening the whole infrastructure to potential users. It will participate in the Joint Research Activities of WP9 through the assessment of existing platforms on estimates of coastal processes by the use of high resolution coastal models, and will contribute in WP10 with innovative acoustic sensors (Passive Acoustic Listeners).

Description of key people involved in the project

Kostas Nittis, Ph.D in Physical Oceanography (1993) B.Sc in Physics (1987). Research Director of HCMR/Institute of Oceanography. Main research interests: operational monitoring & forecasting methods; marine technology; ocean dynamics with emphasis on water mass formation processes and inter-decadal variability; air-sea interaction; numerical modelling of hydrodynamics.

George Petihakis, Ph.D in marine ecosystem modelling (2004), M.Sc in applied fish biology (1990), B.Sc in Ecology (1989), elected researcher of HCMR/Institute of Oceanography. Over 15 years of experience in marine science with particular emphasis on marine ecological modelling, operational monitoring, and data analysis.

Gerasimos Korres, Ph.D. in Physical Oceanography (1996). Researcher of the Institute of Oceanography of HCMR and a member of the scientific team of the "Poseidon" system. His research interests and experience include ocean and wave modelling, data assimilation techniques and air-sea interaction processes.

Natural Environment Research Council	**Logo**	NATURAL ENVIRONMENT RESEARCH COUNCIL	**Number of employees**	**2500**	**Turnover** *(M€)*	**500**

The Natural Environment Research Council funds world-class science, in universities and its own research centres, that increases knowledge and understanding of the natural world. NERC is tackling the 21st century's major environmental issues such as climate change, biodiversity and natural hazards. It leads in providing independent research and training in the environmental sciences.

The National Oceanography Centre, Southampton is a joint venture between the Natural Environment Research Council and the University of Southampton. The Centre is the national focus for oceanography in the UK with a remit to achieve scientific excellence as one of the world's top five oceanographic research institutions. NOCS represents an unparalleled investment in marine and earth sciences and technology in the UK. The centre opened in 1995 in a purpose-built, £50 million waterfront campus on the city's Empress Dock. The centre houses around 500 staff and 750 undergraduate and postgraduate students and has an annual turnover of €38M.

The Proudman Oceanographic Laboratory (POL) is a component institute of the Natural Environment Research Council. It conducts strategic research on the physics of coastal and shelf seas, sea level science and space geodesy. POL is committed to training and developing the careers of scientists, skilled marine engineers and technologists and to the supervision of graduate students, thereby contributing to the health of the wider UK science base. POL provides impartial, independent advice to its stakeholders and the public, and it embraces opportunities for knowledge exchange and the promotion of science in society. The laboratory houses 97 staff and has an annual turnover of €7M.

Role within the project and relevant experience

As a leader in developing and running FerryBox systems, NOCS will actively participate in a number of WPs in JERICO. NOCS will contribute to the NA through participation in WP3 (Harmonizing Technological Aspects) and WP4 (Harmonizing Operation and Maintenance Methods). In addition, NOCS has a well developed passenger display of the real-time FerryBox data aboard the MV Pride of Bilbao and will use this experience to actively contribute to WP6 (Outreach and Education. NOCS will also play a major role in the JRA WP10, with its recently built spectrophotometric pH sensor.

POL has operated a Coastal Observatory in Liverpool Bay, Irish Sea continuously since August 2002. The Observatory's overarching science objective is 'To monitor and understand the impacts of natural and anthropogenic forcing of a shelf sea, and to provide a framework for research into the functioning of a shelf sea in a changing climate'. The Observatory will

contribute to the project and includes in situ measurements, regular cruises and an instrumented ferry.

Description of key people involved in the project

Boris Kelly-Gerreyn (NOCS), Ph.D in Biogeochemical Oceanography (2003). MSc in Oceanography (1991) B.Sc in Maths and Biology (1990). Boris is project manager of the ship of opportunity operations at NOCS. He is a senior scientist interested in the impact of climate change. Boris has more than 15 years experience in both modelling and ship of opportunity science, as well as industrial science partnerships and public outreach.

David Hydes (NOCS) Ph.D. in Environmental Science (1974), MSc in Chemical Physics (1971) with interests in physical and biological controls of the nutrient and carbon cycles. He is based at NOCS where he is chief scientist on two ships of opportunity systems making continuous measurements. He led nutrient work in the NERC North Sea t. In 1995 he started work on the development of platforms from which regular measurements could be made in-situ.

Matthew Mowlem (**NOCS**) has a PhD in electrical engineering and has been at the forefront of sensor developments for the last 10 years. He is head of the sensor group (> 10 staff) at NOCS and is project coordinator of a £1.75 million project developing micro-sensors ("lab-on-a-chip") for the marine environment.

Mark Hartman (NOCS), has a degree in Physics and has been directly involved over the last 20 years in the collection of high quality information on the current state of the world ocean. His expertise is in maintenance and calibration of meteorological and oceanographic instrumentation, the analysis, design and over side operations of moorings, nets and towed vehicles through to data processing and presentation.

Jon Campbell (NOCS) has an MSc in systems engineering and has been designing, building and operating oceanographic instrumentation since 1980. Initially specializing in sonar systems, he has also developed optical instruments and more recently a range of data logging and telemetry systems..

Sue Hartman (NOCS) has an MPhil in Chemical Oceanography. She has been making high quality measurements of biogeochemical variables for various projects over the past 20 years (e.g. WOCE and FerryBox) including participation in 10 oceanographic cruises.. She is also responsible for shore based measurements of nutrients, alkalinity and DIC..

Bruce Dupee (NOCS). Database and web project manager with 30 years experience; 17 years at NOCS designing databases in Oracle and MySQL with extensive programming skills for PC, Unix and Web platforms. He has developed web pages for real-time data access from observational platforms including FerryBox.

Mikael Suominen (NOCS) graduated (MEng) in computer science in 2008 and has been working at NOCS as a web developer for one year. He has practical experience of developing 'Ship of Opportunity' web applications and experience in database design within MySQL.

John Howarth (POL) graduated in 1969: Main research interests are studying the response of continental shelf seas to tidal, meteorological and density forcing by the analysis of measurements and their synthesis with theory and modeling. Initiated and led the Coastal Observatory observational programme up to 2008

Matthew Palmer (POL) PhD in physical oceanography (2007). Research scientist at Proudman Oceanographic Laboratory. Responsible for management of the observational programme of the Irish Sea Observatory and scientific analysis or results. Involved in a number of national research projects investigating shelf sea processes.

Phil Knight (POL) graduated in environmental sciences in 1985. As part of the POL Coastal Observatory he is responsible for the web-based data display and delivery system and is now leading the glider project.

INGV	INGV	RTD	**Number of employees**	**823**	**Turnover** *(M€)*	**2.5**

INGV is an independent organization working under the supervision of the Italian Ministry of Education, University and Research (MIUR). INGV is divided into administrative divisions and specific branches. The National Group of Operational Oceanography belongs to the Branch of Bologna and provides the coordination at the national level with eight national institutions (ARPA-EMR, CNR, ENEA, OGS, USAM, IIM, CONISMA, ISPRA). The group mainly deals with Mediterranean nowcasting/forecasting activities ranging from real time data analysis to assimilation techniques development and forecast assessment. In particular its areas of research and operational activities are: 1) Production and dissemination of daily ten days Mediterranean Sea forecasts and once a week daily analyses; 2) Development of optimal estimation techniques for production of analyses for short term forecasting; 3) Study and production of model error statistics and quality indices for analyses and forecasts; 4) Real Time and delayed mode quality control for in situ data; 5) Production of regional high resolution re-analyses with different data assimilation methods. The group coordinates the Mediterranean Operational Oceanography Network which is the EuroGOOS regional sea task team. The group has the responsibility of the Mediterranean Monitoring and Forecasting Center in the Marine Core Service project approved in FP7.

Role within the project and relevant experience

1) Sharing its knowledge and coordinating the work package task for the strengthening of regional and transregional activities in the Mediterranean Sea; WP2

3) Sharing its knowledge and experience in building the information portal. INGV coordinates the Mediterranean Operational Oceanography Network, which brings together 33 institutes in order to consolidate and expand operational oceanographic observations, modelling, data assimilation and applications in the Mediterranean area. INGV has developed a number of operational oceanographic applications with informational interfaces to numerous users in the Mediterranean.

Description of key people involved in the project

NADIA PINARDI, holds a Ph.D. in physical oceanography from Harvard University and she has more than 20 years of experience in numerical modeling of the Mediterranean Sea. She is Associate Professor at Bologna University and holds an associate research position at INGV where she directs the activities of the operational oceanography group. Pinardi is the Director of the Italian National Group of Operational Oceanography, is chairing the Mediterranean Operational Oceanography network (MOON) and has been the scientific coordinator of several EU projects.

HZG Research Centre	Helmholtz-Zentrum Geesthacht Zentrum für Material- und Küstenforschung	**RTD**	**Number of employees**	**750**	**Budget** *(M€)*	**65**

The HZG Helmholtz-Zentrum Geesthacht Zentrum für Material- und Küstenforschung GmbH is one of 15 national non-profit research facilities belonging to the Hermann von Helmholtz Association. HZG has a total staff of approximately 750 employees The three main HZG research areas cover *"Light-weight Structures for Transportation & Energy Technologies", "Regenerative Medicine & Advanced Engineering Materials" and "Water & Climate in Coastal Regions"*. Research at HZG is problem-oriented and covers basic as well as applied research including the establishment of both technical and commercial prototypes. About 85 % of HZG's annual budget is provided by the federal and states governments, while 15 % are generated via EU and national research projects, contract research, and licensing of HZG patents for products and processes. HZG develops automated monitoring systems and sensor systems together with industrial partners. Another main topic is the development and application of "integrated monitoring strategies" which include in situ measurements, satellite remote sensing and numerical modelling.

Role within the project and relevant experience

In the last 10 years the FerryBox and satellite Remote Sensing has been applied for investigations in the North Sea concerning water quality problems. At present the institute is operating the COSYNA-System in the North Sea. Besides the operation, the main tasks are: Improvement of the QS procedures, set-up of new automated stations, application of the system for scientific questions and development of new automated chemical-biological sensors. HZG will bring in this experience into the project, harmonize it with other groups and provide the COSYNA infrastructure to other groups for research and sensor development. HZG is coordinating WP4 and substantially contributing to WP4 and WP10 (development of a combined alkalinity/precision pH-instrument).

Description of key people involved in the project

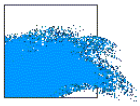
Wilhelm Petersen, Ph.D in Chemistry. Dr. Wilhelm Petersen is in charge of the FerryBox-Project in HZG and leads investigations on two container ship lines in the North Sea. He is involved in investigations on the behaviour of

phytoplankton in the marine environment and in studies of biogeochemical processes.

Rolf Riethmüller, PhD in Physics. Dr. Rolf Riethmüller is heading the group "Coastal oceanographic instruments" at HZG Institute for Coastal Research. His main experience is in oceanographic equipment (e.g. CTD probes, tow fish equipment, gliders and acoustic equipment) and data evaluation. He is in charge of different projects and organises the platforms and instrumentation in the COSYNA project.

Friedhelm Schroeder, PhD in Chemistry. Dr. Friedhelm Schroeder is heading the In Situ Instruments group at HZG Institute for Coastal Research. His main experiences are in the assessment and quantification of biogeochemical processes. He specialized in the development of analytical methods and instruments for the detection of aquatic substances, and in the development and application of automatic and remote-controlled systems for the determination of environmental parameters and contaminants in coastal waters. He is project manager for the COSYNA project.

Friedwart Ziemer, PhD in Physics, is head of the department „Radar Hydrography" at the Institute for Coastal Research. He has long experience in in-situ marine data acquisition, mainly for validation and verification of results attained by remote sensing and numerical modelling. He took part in setting the standard in the operational use of ground based microwave radar for the estimation of wave, current, wind and bathymetric parameters.

RBINS - MUMM			**Number of employees**	**50**	**Turnover** *(M€)*	**5**

MUMM is the department of the Belgian Royal Institute of Natural Sciences concerned with the protection of marine resources. Its strategy is to continually improve the understanding of marine phenomena, by using a.o. mathematical modelling techniques. MUMM's research is oriented towards assistance in decision-making. The nature of MUMM's scientific tasks has led to considerable investments in the verification and validation of results of its mathematical simulations. To this end, MUMM executes and co-ordinates, with various means, extensive seaborne measurements campaigns and strives to ensure the strongest possible links between results and measurements.

Role within the project and relevant experience

MUMM will have an extended suite of real-time measurements, operational from beginning 2010 on board RV Belgica. Additionally a system for automated sampling and storage will be coupled to the system. The setup will be linked to the on-board data acquisition software and frequent (real-time or nearly real-time) transfer of data is foreseen in the near future. With this, the mentioned shortcomings in bio-geochemical observations and phyto-plankton observations will be met to a large extent. MUMM will setup a QA/QC system for proper and continuous operation of this Ferrybox. This will include calibration of the sensors, regular quality checks and maintenance of the system. MUMM's Belgian Marine Data Centre (BMDC) will contribute to the data distribution. Simulations of existing observational platforms for in situ T/S data in the North Sea will be performed with a high resolution model. The impact of observations from moving platforms (e.g., ships of opportunity, gliders...) on the quality of southern North Sea high resolution model forecasts will be investigated. Sampling strategies will be analysed and the representativeness of the different data sets assessed.

Description of key people involved in the project

Patrick Luyten: is responsible for model development at MUMM. He is the main author of the European public domain code COHERENS. His main activities in the last years are the implementation and validation of data assimilation schemes (ODON-FP5), the setup and implementation of the COHERENS-MIRO model for the North and the coordination of international user support and future developments with the COHERENS model as part of several national projects.

Patrick Roose: is head of the Marine Chemistry lab at MUMM and has more than 18 years experience in the field of environmental analytical chemistry, mainly focused on the determination of organic micropollutants. His activities are mostly related to international monitoring (OSPAR, EMSFD, WFD) both at the operational level (monitoring) and the policy level, through participation in expert groups and committees. He is the leading scientist for the development of the underway measurement system (Ferrybox) aboard RV Belgica and the practical implementations of its use (maintenance, quality control, data processing).

Cefas	**Logo**	Cefas	**Number of employees**	**534**	**Turnover** *(M€)*	**65.7**

Role within the project and relevant experience
Cefas is involved with WP 1, 3, 4, 6, 8, 9 and 10. Cefas is an internationally renowned aquatic scientific research and consultancy centre. CEFAS aim to be the prime source of high quality science used to conserve and enhance the UK's aquatic environment, promote sustainable management of its natural resources, and protect the public from aquatic contaminants. CEFAS has a staff complement of over 500 based at two specialist laboratories within the UK, and our own ocean-going research vessel, RV Cefas Endeavour. Cefas works closely with the UK government and international agencies to monitor the marine environment and to demonstrate our compliance with national and international marine legislation. CEFAS is actively looking for methods that can improve our evidence base, are fully transparent at all stages, are robust enough to withstand scrutiny, and are cost-effective. As such, CEFAS has been at the forefront of developing operational oceanographic instruments for measuring the physical and biological environment. Our Wavenet and SmartBuoy systems have been providing high quality in situ data since 2000, and CEFAS is increasingly using integrated data analysis tools to combine in situ, model and satellite measurements.
Description of key people involved in the project
Dr. David Mills – Principal Scientist, experienced in design and deployment of operational instruments, integrated analysis of marine data sets, advice to government **Dr. Jon Rees** – Senior Scientist, manager of Cefas WaveNet programme, experienced in operational system design and measurement of the physical environment **Dr. Naomi Greenwood** – Data Manager, experienced oceanographer with specialist skills in the analysis and quality control of operational data from different platforms **Dr. Kathryn Keeble** – Oceanographer, with specialist skills in web-based tools, design of interfaces and analysis of data **Dr. Rodney Forster** – Biological Oceanographer – with skills in analysis of in situ and remote sensing data products **Mr Dave Sivyer** - SmartBuoy operations manager, 20 years experience of marine research and instrumentation **Dr David Pearce** - Marine Observation Systems Development manager, 10 years experience in marine instrumentation and custom built software. **Dr Liam Fernand** - Physical Oceanographer, 18 years experience in physical oceanography and associated instrumentation

SMHI	SMHI		**Number of employees**	**550**	**Turnover 53** *(M€)*	
SMHI, the Swedish Meteorological and Hydrological Institute, is the Swedish governmental agency, under the Ministry of Environment, for meteorology, climate, hydrology and oceanography. SMHI operates national observational networks and data management systems for the atmosphere, rivers and lakes, and the seas in areas of interest for Sweden. The national observations are supplemented by an extensive international data exchange. SMHI operates six oceanographic buoys in the Baltic and the Skagerrak-Kattegat. Together with the Finnish Environment Institute (SYKE) SMHI operates a FerryBox system on the route Gothenburg-Kemi-Uleåborg-Lübeck-Gothenburg. As part of the Swedish national marine environmental monitoring programme monthly cruises are carried out using the R/V Argos. SMHI runs daily operational meteorological, hydrological and oceanographic forecast models. The forecasts are disseminated to the public and to national and international clients. Warnings and emergency services have the highest priority. Also data products and special investigations are produced for a wide range of clients. SMHI is Sweden's National Oceanographic Data Centre within the IOC's IODE network and within HELCOM, OSPAR and EU-projects. SMHI is responsible for the Swedish participation within WMO, hosts the Swedish IOC-secretariat, and is also participating actively in most major organisations of interest for meteorology, hydrology, oceanography, and related environmental issues. The especially dedicated RTD staff has 60 to 70 full time scientists. The main goal of the RTD divisions is to support the institute with research and development of new production tools, but this also includes involvement in many national research projects.						
Role within the project and relevant experience						

SMHI will contribute to the shared vision for a pan-European ocean observation system with special emphasis on the Baltic Sea and North Sea areas. SMHI will help co-ordinate the data flow within BOOS and NOOS. In addition SMHI will contribute to the establishment of best practices in the use of automated oceanographic observation systems. SMHI will specifically contribute with knowledge on optical sensors and sensors for parameters related to ocean acidification and share experiences from operation of FerryBox systems and fixed platforms.

Description of key people involved in the project

Bertil Håkansson, Associate professor, chair of BOOS and co-ordinator of SMHI's oceanographic operations

Bengt Karlson, PhD, biological oceanographer and Harmful Algal Bloom specialist. Leader of the project on ocean acidification. Bengt has a long experience of work within ICES and the IOC in the ICES/IOC Working Group on Harmful Algal Bloom Dynamics and the Intergovernmental Panel on Harmful Algal Blooms (IPHAB).

Elisabeth Sahlsten. PhD, head of SMHI:s oceanographic laboratory. She also has a large experience in nutrient analyses and issues related to eutrophication

Lennart Funkquist has a long experience in modelling of the Baltic Sea. He is at present leader of the WP on system development in the EU-project ECOOP and also involved in MyOcean.

CSIC		**RTD**	**Number of employees**		**Turnover** *(M€)*	

The Spanish Council for Scientific Research (CSIC) is a non-profit, public body, supported by the Spanish Ministry of Science and Technology. CSIC is the largest public research agency in Spain, organized in more than a hundred dedicated institutes and associated units, together hosting around 2400 scientists, 3900 pre- and post-doctoral researchers and more than 4000 research support personnel. The CSIC has strong links with Spanish universities via their common associated units (more than 130), with other public Spanish and other countries institutions.

Role within the project and relevant experience

CSIC_IMEDEA has more than 15 years of experience on the study of the physical mechanisms that can explain the dynamics of the coastal ocean system and its interactions with the near-shore and the open ocean. CSIC has experience on combining theoretical, observational (in situ and remote) and numerical modelling approaches. CSIC also develops and implements new marine technologies specifically needed to better respond to our scientific objectives introducing new products (i.e., for sampling) or new techniques (i., modelling, visualization or data management). It is important to note that around this core scientific actions have been progressively established: Marine Technologies, Near-shore Processes, Satellite oceanography, Operational Oceanography, Sustainability Science and Integrated Coastal Zone Management.

Description of key people involved in the project

Joaquin Tintoré, oaquín Tintoré is Dr. in Physical Oceanography (1988) and Permanent Research Professor from CSIC (Spanish Council for Scientific Research) at IMEDEA (CSIC-UIB) where he is head of the Department of Marine Technologies and Operational Oceanography, with 25 persons. Since December 2008, he is Director of a Spanish Large Scale Facility, ICTS SOCIB, a new Coastal Ocean Forecasting and Observing System based in the Balearic Islands.

Simón Ruiz, Ph.D. Marine Sciences, 2000. Post-doc stay at Collecte Localisation Satellites (CLS) centre, Toulouse (France). Present position: 5-years post-doc contract at IMEDEA. His research has focused on dynamics of the upper ocean with emphasis on the mesoscale circulation, including bio-physical interactions and the use of autonomous underwater vehicles in bio-physical oceanography.

Ananda Pascual, Ph.D. Physical Oceanography, University of the Balearic Islands, 2003. Post-doc stay at Collecte Localisation Satellites (CLS), Toulouse (2003-2005). Ramon y Cajal post-doctoral researcher at IMEDEA (2003-2005). Currently, she is a tenured scientist of the Spanish Research Council at IMEDEA. Her research has focused in satellite altimetry, mesoscale dynamics, circulation in the Mediterranean Sea and analysis of oceanographic analysis of oceanographic processes combining remote-sensing, numerical simulations and in-situ data..

Jerome Bouffard, Ph.D. in Physical Oceanography, University Paul Sabatier, Toulouse, France (2007). Titular of a Master Degree in Marine Engineering (Major of option), Centrale Marseille Engineering School, France (2004). Also titular of a Master Degree in coastal oceanography. Currently, he is Post -doctorant at IMEDEA.

Royal Netherlands Institute For Sea Research			Number of employees	245	Turnover *(M€)*	20

NIOZ Royal Netherlands Institute for Sea Research is the National Oceanographic Institute of the Netherlands. NIOZ is part of the Netherlands Organization for Scientific Research (NWO). The institute employs 245 people and the annual budget is approximately €20 million. The **mission** of NIOZ is to gain and communicate scientific knowledge on seas and oceans for the understanding and sustainability of our planet, and to facilitate and support marine research and education in the Netherlands and Europe. The basic oceanographic disciplines at NIOZ are physics, chemistry, biology and geology. The institute support oceanographic research in the Netherlands and participates in university education. Multidisciplinary marine research is regarded as one of the main strengths of the institute. Therefore, the research is organised in 5 multi-disciplinary themes: 'Open ocean processes, Sea floor dynamics, Wadden and shelf sea systems, Climate variability and the sea and Biodiversity and ecosystem functioning'.

Role within the project and relevant experience

NIOZ will participate in two work packages. In WP3 NIOZ will obtain and deliver sensor observations from fixed platforms and a ferry in the Dutch Wadden Sea. NIOZ has specialized mechanical and electronic workshops, has developed prototypes of many different instruments, is creating a LTER site in the Wadden Sea with an observatory and has operated a ferrybox on the Texel-Den Helder ferry since more than ten years. In WP10 NIOZ will conduct a feasibility study on coastal observatories for biodiversity research.

Description of key people involved in the project

Dr. Eric Epping marine geochemistry, has a PhD in microbiology and has been responsible for the construction of an underwater robotic bottom sampler.

Dr. Katja Philippart is a marine biologist specialized in long-term observations of coastal ecosystems and responsible for a coastal observation platform (measuring tower) in the Wadden Sea linked to an LTER site.

Prof. Herman Ridderinkhof, deputy director, is a physical oceanographer working on sediment transport and responsible for the ferrybox project of NIOZ.

Prof. Carlo Heip, general director of NIOZ, is a member of the science and policy board of the ESFRI project Life Watch.

Irish Marine Institute			Number of employees	200	Turnover *(M€)*	25

Role within the project and relevant experience

The Marine Institute will assist in setting up the Forum for Coastal Technologies in WP1 having acted as co-chair of the EuroGOOS Technology working group since 2006. Marine Institute will offer a support role in WP4 in relation to cost benefit analysis of different types of oceanographic measurements. The Institute will be involved in WP7 where fishing vessels will be equipped with novel sensors to deliver oceanographic data to coastal operational forecasting. MI will jointly lead WP10 on existing and emerging technologies where various ocean observing technologies will be tested and inter-compared.

Description of key people involved in the project

Dr. Glenn Nolan heads the Oceanographic services group at the Marine Institute. This group conducts most of the coastal ocean observing activity in Irish waters and coastal forecasting. The group maintains the national weather buoy network.

Dr. Guy Westbrook is responsible for the national Tide gauge network around the Irish coast. He has also overseen the deployment of several biophysical buoys in Irish waters and will shortly implement the first ferrybox system in Irish waters. **Michael Gillooly** is director of the Ocean Science Services group having responsibility for the national research vessels and other key national marine infrastructure (eg. ROV, engineering facilities, ARGO). Michael is also responsible for the national seabed mapping programme (INFOMAR) in partnership with the Geological Survey of Ireland.

Blue Lobster I.T.			Number of employees	6	Turnover (M€)	0.25+

Role within the project and relevant experience

Blue Lobster IT are responsible for delivering, hosting, and maintaining the JERICO Community Hub and the JERICO Data Tool as part of WP 6. Blue Lobster IT will also provide pan-European maps for WP 7.2 using the JERICO Data Tool, and consult on deriving the common data format in WP 5.

The JERICO Data Tool will be based on the existing EMECO Marine Data Tool architecture (designed and built by Blue Lobster IT). The JERICO Data Tool will be enhanced to give users the ability to import their data and observations and export integrated data and information products according to the product specifications devised in the user requirements analysis (WP 6.1). The tool will also be adapted to accept further data output from other Work Packages in the JERICO project on a pan-European scale.

Description of key people involved in the project

Blue Lobster IT is well placed to undertake this project and BL has assembled a team for this project that has a significant range of web, development, and oceanographic experience. All team members work within our quality policy, which requires a Partner to "sign off" all outputs generated during the course of the project.

Kathryn Keeble PhD – Partner – Marine Scientist / Analyst

Kathryn has a PhD and 7 years research experience in marine sciences, a first class graduate in Biology and awarded Masters with distinction in Coastal and Ocean Policy. Kathryn has significant technical and analytical ability and has worked on several high profile projects, including the European Marine Ecosystem Observatory (EMECO), in conjunction with Cefas and Defra.

Simon Keeble – Partner – Senior Developer / Project Manager

With over 20 years of working in IT, Simon is an experienced manager within both business and IT with a record of success in delivering business change, implementing and managing structured processes and managing on-going workloads.

Simon has been involved in the development of web sites and applications since the early days of the Internet (having built one of the first Internet Banking applications) and has worked with many high-profile clients, including Cefas.

Jonny Goddard – Senior Web Designer

Originally from an acting and teaching background, it was clear early on in Jonny's career that he had significant flair for creative digital media. Jonny specialises in graphic design, web design, content management systems, and e-commerce applications. Jonny will play a key role in designing and developing the JERICO Community Hub. Jonny will ensure that any website maintenance meets the latest web design standards and adheres to the Quality Assurance procedures.

Oliver Sale – Senior Web Developer

After finishing his degree in creative multimedia, Oliver started his career working for one of the UK's leading web agencies. After several years experience, he moved closer to home and began working for Blue Lobster IT. Over the past year, Oliver has worked with Simon to develop the EMECO Data Tool.

AZTI-Tecnalia	azti tecnalia	RTD	Number of employees	200	Turnover *(M€)*	18

AZTI-Tecnalia is a private non-for-profit research organization. AZTI belongs to the recently created research corporation called TECNALIA that has become the fifth EU private research organization in size. Since 1981, AZTI-Tecnalia has had a large number of clients in companies, institutions, and public administrations for which they carry out research oriented projects geared towards the knowledge generation, and high-added value technological products and services focused on solving specific problems.

The added value of our organization is based on the permanent training of our staff by means of R&D&i and the capacity to develop applications, which means efficient solutions to focus on the demands of public administrations and companies in the private sector. A strong commitment to sustainable development through an environmental policy aimed at pollution prevention, compliance with regulations and continuous improvement.

The Marine Research Unit of AZTI, and specially the Marine Dynamics and Operational Oceanography division, has a long experience in oceanographic studies related to the Bay of Biscay. During the last 5 years this group has been involved in several regional, national and European projects about operational oceanography, marine energy, environmental impacts, fisheries management and aquaculture. The Marine Research Unit has published numerous reviewed articles including a book dedicated to the Oceanography of the Basque Country.

Role within the project and relevant experience

AZTI-Tecnalia operates the Coastal Observatory developed with regional funding from the Basque Government. It is located in the innermost part of the Bay of Biscay around French and Spanish borderline. Anthropogenic pressure and marine activities make this region especially sensitive to oceanographic features. In fact, the observatory leads to provide necessary information in crucial and cross-border issues for coastal populations such as safety and efficiency of marine operations, public health risks, or, ecosystem and marine resources management.

Its experience will be very usefull in WP2

Description of key people involved in the project

Julien Mader is an expert on coastal oceanography. He is currently head of Marine Dynamics and Operational Oceanography Division in the Marine Research Department. His main qualifications and domains of expertise are in oceanographic instrumentation, data processing and modelling in marine dynamics.

Carlos Hernandez is a researcher of OO division, expert on observatories and oceanographic instrumentation. He is currently leading projects for maintaining and developing the Basque Government Oceano-meteorological networks.

Anna Rubio is a physical oceanographer; her research is focused on mesoscale and large scale processes located over the shelf/slope. She has a solid experience on the analysis of observational data form different platforms as well as on the validation and analysis of numerical data from ocean models.

INSU-CNRS			**Number of employees**	**8000**	**Turnover** *(M€)*	**650**

CNRS (National Center for Scientific Research) is the principal organization for fundamental scientific research in France. CNRS carries out research in all fields of knowledge through its 10 thematic institutes. INSU, National Institute for Earth Sciences and Astronomy, as one of the thematic institutes of CNRS, elaborates, develops and coordinates research and projects in astronomy, earth and planetary science, ocean and atmosphere sciences and space sciences. Within its field, INSU undertakes and coordinates research performed at national and international levels by CNRS and other public French research bodies. It develops, pilots and implements instruments for very large facilities: platforms (networks of geophysical and geodesic instruments and borehole measurements), observatories (astronomy, seismology, oceanography, meteorology, geophysical hazards, land use), observation services, software facilities (databanks, community models, centres for satellite data analysis). INSU has a strong involvement in many European EU funded Projects in various fields and in infrastructure projects following national and EU roadmaps. As far as ocean sciences are concerned, INSU is running: (1) a technical platform, which is maintaining and developing sophisticated at sea equipments including a set of gliders, which are part of JERICO infrastructure, and (2) a network of marine stations (Réseau National des Stations Marines), which are running a coordinated monitoring program of inshore coastal ocean (Service d'Observation en Milieu Littoral.

Role within the project and relevant experience

Contributing to the Infrastructure and the transnational access activities through the sharing of its glider fleet. Contributing to the Joined Research Activity by: (1) developing new software and tools for the monitoring of key biological compartments and processes, (2) taking part to a feasibility study regarding the implementation of a monitoring of marine Biodiversity in European waters.

Description of key people involved in the project

Antoine Grémare: more than 20 years of experience in research on biological oceanography. His primary interests are in benthic ecology. He has recently been involved in the development of image analysis software specifically designed to assess the dynamivcs of vertical luminophore profiles to assess sediment reworking rates by benthic communities.

Patrick Raimbault, senior oceanographer has more than 20 years of experience in physical and biological oceanography. He is the WP1 leader and the project manager of the MOOSE programme of INSU/CNRS

Jean Claude Duchêne: 30 years experience in research on biological oceanography. His primary interests are in benthic Ecology. He has been developing a large variety of software in the field of biological instrumentation.

Lars Stemmann: Scientist involved in the development of the submarine video profiler and of the Zooscan. Expert of automated zooplankton identification

Pierre Testor: Scientist in charge of the INSU glider division

Laurent Coppola: Scientist in charge of the EOL profiling buoy

Instituto Hidrografico		**RTD**	**Number of employees**	**360**	**Turnover** *(M€)*	

The Portuguese Hydrographic Institute (IH) is a state laboratory with administrative and financial autonomy dependent from the Ministry of Defence. The Institute employs 360 permanent staff and 14 contracted elements. The research activity covers most of the marine areas in the field of oceanography, marine geology, hydrography, cartography, chemistry and data center.

Supporting resources include calibration facilities, analytical laboratories, a wide range of monitoring systems, computer aided cartography and multibeam systems. Naval resources include two 70 meters long oceanic vessels, and two 35 meters long coastal vessels. Since 1997, IH has been developing a GIS system for the marine environment (SIGAMAR) that integrates chart data with environmental data.

The work done at the IH supports the implementation of public policies for the marine environment, with big impacts in the environment, economy and social areas. The operational products developed aim to support all these activities.

Role within the project and relevant experience

Instituto Hidrografico will actively participate in JERICO. It will contribute to the NA through participation in: WP1-5

Description of key people involved in the project

Antonio Santos Martinho

MsC in Oceanography. Head of Oceanography Division. With 10 years of experience in acoustics and managing oceanographic observatories. He is the manager of several operational oceanography projects.

Sara Almeida

Mathematician, with 30 years of experience in data treatment and management. Responsible of operative working and real time data spreading of Instituto Hidrografico. She has expertise in oceanographic data quality control, analysis and validation from different sources.

Jorge Silva

Physicist, with 25 years of experience in environmental monitoring. He has participated in several international and national projects. He has experience in developing software for oceanographic data acquisition.

IO-BAS		RTD	**Number of employees**	**116**	**Turnover** *(M€)*	**2**

The Institute of Oceanology in Varna (www.io-bas.bg) was founded in 1973 and is affiliated to the Bulgarian Academy of Sciences. The main research activities are focused on the field of marine physics, ocean technique and technology, data management, biology and ecology, coastal dynamics, chemistry, geology and underwater investigations The Institute hosts Bulgarian National Oceanographic Data Centre (BGODC). Traditionally involved in all aspects of marine research it also offers consulting and expert services, environmental impact assessment studies, education and training. IO-BAS is the Regional Activity Centre and Focal Point of BSEP. The Institute participated in NATO SfS TU-fisheries and TU Black Sea projects and is actively participating in NATO SfP ODBMS project. Institute took part in almost all GEF and Black Sea EU programmes implemented in the region. During last five years IO-BAS actively participates in a large number of FP5 and FP6. The institute coordinates two of the Black Sea GOOS related projects ARENA and ASCABOS.

Role within the project and relevant experience
IO-BAS will contribute to several project activities: (1) Coordination of project activity in the Black Sea region; (2) Sharing experience in building strategic view on developing coastal observing systems enforcing public-private and industry-science cooperation; (3) State of the Art in Coastal observing systems in Black Sea; (4) promoting more efficient use of the fixed platforms infrastructures through standardization and harmonization of procedures; (5) harmonizing operation and maintenance methods for fixed platforms; (6) real-time and delayed mode data management and distribution; (7) end users communication. IO developed strategy for building National Operational Marine Observing System in collaboration between government, science, local authorities and industry.
Description of key people involved in the project
ATANAS PALAZOV, Director of IO-BAS, Head of the "Ocean technology" Department and Bulgarian National Oceanographic Data Centre. Associated professor of "Scientific automation". PhD-Technical University, Sofia1987. Key person in development of the first Bulgarian operational automated system for coastal zone meteorological and sea observations "Kamchia". **Nikolay Valchev,** Assoc. researcher in the Coastal zone dynamics Dep. Obtains MSc degree (1997) in both Oceanography and Ecology and Environmental protection in the Naval Academy and PhD degree (2006) in Technical University, Varna. Involved in several projects in the field of operational oceanography. Research interests: coastal dynamics, wave modelling, wave climate, circulation modelling.

Puertos del Estado		**RTD**	**Number of employees**	<200	**Turnover** *(M€)*	
Puertos del Estado (State Ports Authority) is an institution dependent on the Spanish Ministry of Public Works, which has the global responsibility for the state-owned port system, comprising a total of 27 port authorities. It is in charge of co-ordinating the mentioned system and implementing the governmental ports policy. One of the roles of Puertos del Estado is the monitoring of the physical environment affecting the Ports. This work is carried out by a Puertos del Estado department named "Área de Medio Físico" (Physical environment Department), formerly "Clima Marítimo". The services developed by the "Área del Medio Físico" are being used today by a wide range of users and the public in general. The open service to the society provided by the "Área del Medio Físico" is distributed mainly via web page (http://www.puertos.es, under the link "Oceanography and Meteorology"). Several thousands users access daily to the services allocated at Puertos del Estado server.						
Role within the project and relevant experience						
Puertos del Estado will actively participate in JERICO. It will contribute to the NA through participation in: WP1 Common Strategy, WP2 Strengthening regional and Trans-Regional Activities, WP3 Harmonizing Technological Aspects and WP5 Data Distribution and Interface with Models.						
Description of key people involved in the project						
Enrique Alvarez PhD in Physics. Head of "Área de Medio Físico" (operational oceanography group at PdE). With 20 years of experience in numerical modelling, he is co-author of NIVMAR, a storm surge prediction system for the Spanish coasts. He participated in several European projects like PROMISE, HIPOCAS, ECAWOM or VISIMAR. Head of the permanent networks of Puertos del Estado. **Marta de Alfonso** Mathematician, with 20 years of experience in data treatment and management. Responsible of operative working and real time data spreading of Puertos del Estado Deep Water Buoy Network. She has expertise in wave and currents data quality control, analysis and validation from different sources. At this moment, she is in the steering committee of IBI-ROOS. **Begona Perez** Physicist, with 15 years of experience in tide gauge network managing as director of Puertos del Estado Tide Gauges Network. She has participated in international projects like MedGLOSS and has been National Delegate of the COST Action 40 EOSS. She is co-author of NIVMAR, a storm surge prediction system for the Spanish coasts.						

CMCC		RTD	**Number of employees**	**106**	**Turnover** *(M€)*	**8**

The Euro-Mediterranean Center on Climate Change (CMCC) is a newly established research centre, funded by the Italian Ministries of the Environment and Land Protection, of Education, University and Research, and of Economy and Finance, that aims at furthering knowledge in the field of climatic variability, including causes and consequences, through the development of high-resolution simulations and impact models. It represents the most ambitious initiative undertaken in Italy , within the framework of the National Research Plan, and specifically the National Research Plan on Climate. CMCC mission is to improve the understanding of the nature and mechanisms of climate variability, its causes and its impacts, with a special emphasis on the Mediterranean Area. It targets several ambitious objectives. First of all, CMCC produces numerical algorithms for the data assimilation, modelling, simulations, applications and assessments to study the ongoing and future climate change.. CMCC also offers high level training on data assimilation and climate modelling. Second, it establishes a significant computational facility to support Italian climate research and contribute to capacity building in the Mediterranean region. Third, CMCC disseminates the products of its activity to the national and international scientific community. Given that CMCC aims at providing a key contribution to climate research both at national and international level, its organisation is well connected in the international context, both within the European Union and with external partners of the European Union, in particular with the Mediterranean Countries, United States and Japan.

Role within the project and relevant experience

Implementing algorithms for the oceanographic data assimilation and estimates of the impact of observational data sets in the coastal areas. CMCC has completely developed original algorithms and created the software for the data assimilation in the ocean. The software developed by the CMCC is used at the global, regional and costal scales for the data assimilation in applications like the global reanalyses, operational oceanography at the scale of the Mediterranean basin, Mediterranean reanalyses and operational oceanography in the regional seas and coastal areas. In addition a number of published studies have been performed in order to estimate the impact of different observational data sets on the accuracy of the estimates of the state of the ocean. In Jerico the CMCC will engage its major computational facility for the studies of the climate, the atmosphere and the oceans consisting of vector and scalar supercomputers.

Description of key people involved in the project

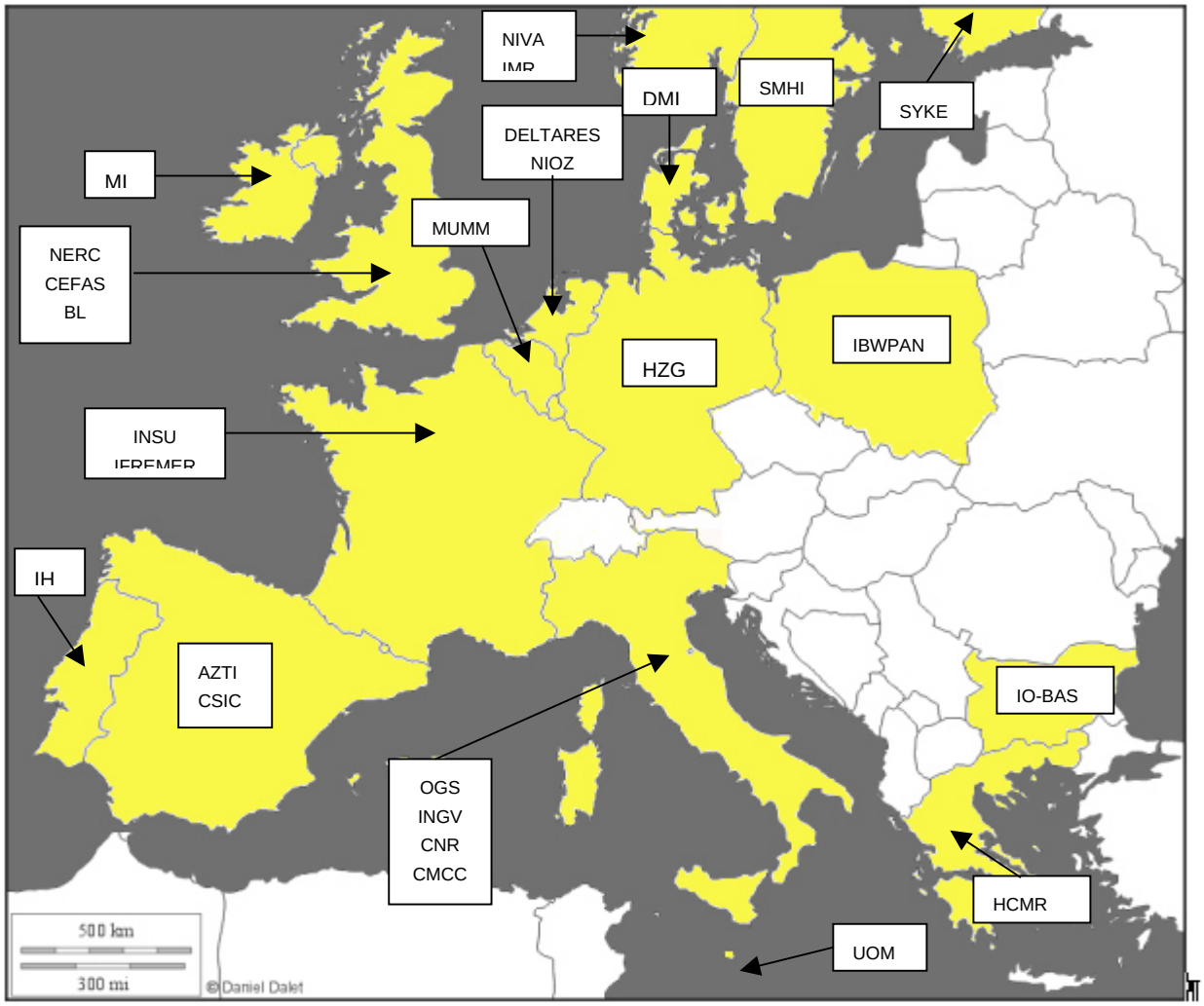
SRDJAN DOBRICIC, researcher at CMCC, has a Ph.D. in Oceanography and Meteorology at the University of Hamburg. With more than 10 years of experience in numerical modeling and data assimilation in oceanography and meteorology, he is responsible for the data assimilation in the Mediterranean Forecasting System and the main author of a data assimilation scheme used by several regional and national operational oceanographic centers. He has actively participated in several EU projects by developing data assimilation applications on global, Mediterranean and coastal scales.

SIMONA MASINA, holds a Ph.D. from Princeton University (USA) in Atmospheric and Oceanic Sciences. She is Director of the Numerical Applications and Scenarios Division at CMCC and Senior Scientist at INGV. Her expertise concerns the study of the role of the ocean in the climate system on different time and space scales. She has more than 10 years of experience in global ocean modelling and ocean data assimilation. She has been PI for several EU projects.

2.3 - Consortium as a whole

2.3.1 - Description and complementarities of the consortium and European dimension

The consortium of the JERICO project involves multi-disciplinary expertise distributed in 27 high quality marine organisations from **17 different European countries** representing a very significant group of marine research actors in Europe and the totality of the eco-regions around Europe (North Sea/English Channel and Irish Seas, Eastern and Western Mediterranean Sea, Bay of Biscay, Atlantic Sea, Baltic Sea and Black Sea) around Europe. It also represents a balanced participation of research Institutes, mixed with some universities and SMEs as partners or sub-contractors. Many of these research institutes have a long tradition of collaboration on other issues, including during previous EU projects. This experience will guarantee a high capacity for co-decision making.



European representation of JERICO

The composition of the consortium strikes a balance with regard to the objectives of the project to create a more coordinated infrastructure approach. Most of the partners are already involved in operational coastal monitoring, and participate in the ROOS forums. However, a key objective of such a network is for it to grow by accepting and integrating new observatories (which will be labelled by JERICO), mainly from regions not yet covered and thereby filling gaps. This is the reason why associated partners will participate in the JERICO consortium, having access to the deliverables and with the opportunity of being invited to participate in the General Assembly meetings and/or workshops.

By being so inclusive (with representations from all major stakeholders/partners and associated partners), the JERICO consortium demonstrates its commitment to coordinate coastal monitoring capacities in Europe, thereby making marine research activities more efficient. JERICO will be able to provide a dynamic impetus in Europe and to structure an open European Coordinated Platform to facilitate homogeneous access for European scientists and industries and also for scientists from third countries. This coordinated and durable effort will permit the optimisation of research efforts, and will prepare investment for the future with the aim of realising cost-effective coastal observatories. As mentioned, the structure is open and future observatories are expected to integrate the efforts for easy trans-national access. The **interaction** required for this infrastructure project will be ensured by the fact that most of the partners have already collaborated in previous research projects.

Indeed, one of the major strengths of the project is the decision to achieve **excellence in common** and to gain **a leading position** in the international context. The strength of the consortium is based on the quality of their research, of the equipment and on the complementary know-how and roles of the different research teams.

2.3.2 - European Dimension of the project

JERICO is aiming to give a European answer to a European issue: how to optimize the capital invested by member states in marine coastal observation. Indeed, the JERICO consortium includes most of the European marine research institutes involved in coastal monitoring. The partners will work together in order to achieve ambitious coordination activities to develop **and implement** a new strategic vision through the definition of a "coastal observatory label", ensuring provision of high quality data accessible to all. JERICO will address the resolution for collective operational issues like interoperability of equipment and the standardisation of procedures across Europe. These breakthrough actions can be reached only by an approach at the European scale involving the top coastal research institutes.

Until now, different cooperation schemes have been established by EuroGOOS to act effectively towards an enhanced use of resources. The regional cooperation is based on the ROOS organisation but their activities are nationally funded, with no approach based on a "common pot". In addition, the ROOSs do not discriminate the coastal observatories from the high seas systems, in a vertical approach encompassing the data transmission systems and the modelling, especially on biological issues. The realm that JERICO will investigate is based on the concept that the groundwork of the overall system has to be strengthened through a larger horizontal initiative for coastal observatories. This concept has been supported by the Marine Board of the ESF and EuroGOOS in a document addressing the further development of EMODNET (EMODNET: a vision statement, Marine Board – EuroGOOS perspective, 2008).

JERICO is an ambitious initiative aiming to introduce a global approach for European coastal observation policy. The objective is to obtain, via optimised and harmonised procedures for networking and trans-national services, the same level of high quality and cost-effectiveness marine coastal monitoring throughout Europe.

2.3.3 - The Ambition of JERICO project

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 and MedGOOS, 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 a necessity, and JERICO will be committed to building bridges with other short term initiatives such as the SEASERA ERANET on marine research, the various FP7 projects and other long lasting initiatives in the field of marine research infrastructures (e.g. EMBRC, EMSO, EuroARGO, EUROSITES SeaDataNet and MyOcean) and research networking programmes (e.g. ESONET).

After completion, it is intended that the JERICO project continues with other funding sources, the structuring efforts being further developed by volunteer groups of coastal observatory managers under centralised or decentralised governance.

2.3.4 - Sub-contacting

Partner sub-contracting task	Task to be sub-contracted	Expected costs of sub-contracted task
IFREMER	WP0 general secretary, logistic assistance to GA organization, portal maintenance and operation (ALTRAN)	39 000€
IFREMER	WP1 Task 1.2 JERICO label and Task 1.1 e-forum	27 000€
IFREMER	WP1 Task 1.3 organization of the "Forum for coastal technology"(Pôle MER _ BRETAGNE & PACA)	45 000€
IFREMER, NIVA, CNR, HCMR, NERC, HZG, INSU	WP0 Task 0.2 audit certificates	2400€ per certificate
IFREMER	WP5 assistance for portal development (Task 6.2 and Task 6.3 software SME or laboratory – IFM Kiel/PANGEA & MARIS)	70 000€
IFREMER	WP10 Task 10.4 technological development (SME, NKE)	10 000€
CEFAS	WP6 task 6.2 Open University of East Anglia	20 000€
OGS	WP10 Task 10.3 vessel hire (Ditta Individuale Stefano Caressa)	13 000€
MUMM	WP5 Task 5.3 Operationnal Data (MDK)	34 050€
Partner sub-contracting task for SA/TNA work package	**Task to be sub-contracted**	**Expected costs (20%max charged to the project)**
CNR	WP7 Boat Hire	14 000€
CNR	WP7 Fishing vessel Hire	28 000€
MI	WP7 Boat Hire	54 000€
IBWPAN	WP8 Maintenance of CRS facility	40 000€
CNR	WP8 Boat Hire	50 000€
CSIC	WP8 Boat Hire to SOCIB	13 000€
INSU	WP8 Boat Hire	12 000€

2.3.5 - Associated Partners

The consortium will have 12 associated partners: EUROSITES, CIESM, IMOS (Australia), TUBITAK (Turkey), MBSS (Italy), PML (Plymouth UK), UPC (Barcelona, Spain), IZOR (Croatia), IEO (Spain), SHOM (France), EuroACT and ESF/Marine Board. Associted partners will not carry out any part of the work of this grant agreement. Associated partners will attend workshops of NA workpakages (1, 2, 3& 4) and access to the JERICO portal and deliverables of these WPs.

2.3.6 - Other countries (non EU countries)

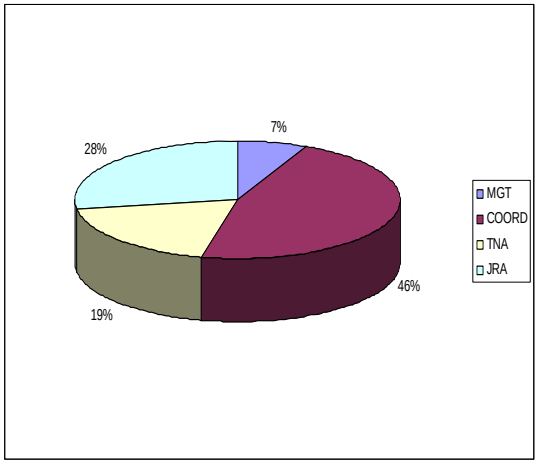
The consortium includes **one associated country:**

- **Norway with IMR** as a work package leader and **NIVA** in the scientific coordination team.

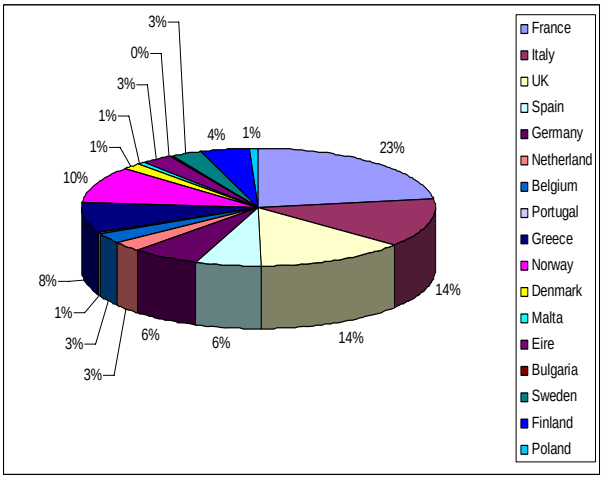
2.4 - Resources to be committed

JERICO will group together 27 research marine organisations in Europe representing the major coastal observatory operators, marine research centres and universities. The strong commitment of the core participants is not only shown through the access offered to their infrastructures and equipment but also by the highly-skilled **and important number of personnel** (see description of partners) they intend to invest to pursue the ambitious goals of stenghening and coordinating the European networking efforts of coastal monitoring.

The next figure represents the distribution of the budget among the different activities of the project. It can be seen that the budget is well balanced among the different activities. 7% of the budget is dedicated to the management, **46%** of the budget is addressed to **Networking Activities**, **JRA represents 28%** of the budget and **19%** is for the **transnational access**. These 19% of the budget commited to SA/TNA is only a few **%** of the global cost of operating the JERICO partner observatories during life-time of the project. Efforts will be shared between 10 WPs of which 6 are dedicated to NA, 2 to TNA/SA, 2 to JRA and 1 to management activities. Additionally, the JERICO **budget** is **well-balanced** among the different European countries participating in the project.



Distribution of budget per activity type (MGT, NA, TNA, JRA).



Distribution of the budget among the partners

Although the balance between the different nationalities was kept in mind, the major criteria for choosing the partners were their excellence in the domain, their proven commitment to the networking of infrastructures and the value of the equipment offered for trans-national access.

Human resources

The consortium will use a **critical mass of human, material resources and facilities**. A critical mass of human resources is necessary to carry out the structured activities (NA, TNA/SA and JRA) to successfully achieve the project's objectives. In the four years of the project, the **27** partners will be totally involved with an effort of **625,4 person-months**. More precisely, **361,9** person-months are allocated to **NA**, **200** person-months to **JRA** and finally, **50 person-months** to **Management activities**. Nevertheless, it has to be noted that this global effort only represents a part of the actual human resources devoted to the project.

Ressources to be commited by work packages

The total direct cost of the project is: 5 947 701 €

	WP1	WP2	WP3	WP4	WP5	WP6
TOTAL direct costs by WP	**699 451 €**	**272 089 €**	**624 418 €**	**537 746 €**	**438 139 €**	**302 951 €**
% of the WP within the project	11,78%	4,58%	10,52%	9,06%	7,38%	5,10%
Manpower	396 596 €	228 809 €	553 777 €	456 377 €	282 589 €	202 858 €
% within the WP	56,70%	84,09%	88,69%	84,87%	64,50%	66,96%
Travel costs	190 855 €	43 280 €	63 729 €	54 939 €	48 500 €	18 924 €
% within the WP	27,29%	15,91%	10,21%	10,22%	11,07%	6,25%
Subcontracts	72 000 €	0 €	0 €	0 €	104 050 €	20 000 €
% within the WP	10,29%				23,75%	6,60%
Equipments & consumables	40 000 €	0 €	6 912 €	26 430 €	3 000 €	61 169 €
% within the WP	5,72%		1,11%	4,91%	0,68%	20,19%
Support costs						
% within the WP						

	WP7	WP8	WP9	WP10	WP11	TOTAL
TOTAL direct costs by WP	**659 016€**	**551 820 €**	**347 036 €**	**1 047 303 €**	**455 294 €**	**5 935 263 €**
% of the WP within the project	11,10%	9,30%	5,85%	17,65%	7,67%	100,00%
Manpower	0 €	0 €	305 836 €	793 215 €	349 394 €	**3 569 451 €**
% within the WP			88,13%	75,74%	76,74%	60,14%
Travel costs	0 €	80 000 €	26 200 €	72 650 €	25 500 €	**624 577 €**
% within the WP		14,50%	7,55%	6,94%	5,60%	10,52%
Subcontracts	0 €	0 €	0 €	23 000 €	67 800 €	**286 850 €**
% within the WP				2,20%	14,89%	4,83%
Equipments & consumables	0 €	0 €	15 000 €	158 438 €	12 600 €	**323 549 €**
% within the WP			4,32%	15,13%	2,77%	5,45%
Support costs	659 016€	471 820 €				**1 130 836 €**
% within the WP	100,00%	85,50%				19,05%

3 - IMPACT

3.1 - Strategic impacts

3.1.1 - Impact for the research community in the field of coastal waters and shelf seas

Being the natural interface between land and ocean, the understanding of the functioning of coastal seas is clearly a challenge due to the variability in their physical, chemical and biological properties. Their fragile equilibrium is moreover threatened by anthropogenic pressures like climate change. In addition, the coastal zone is where important socio-economic activities are take place with direct impacts for local communities. These trends are extensively described in the EEA report "The changing faces of Europe's coastal areas" (EEA Report N°6/006). Due to high societal demand, **a large research community is presently being mobilized to bring better understanding and expertise about these complex eco-systems**. Such a research field cannot make significant progress without a dense and sustained network of coordinated coastal observatories providing quality checked information. Consequently, the JERICO project will:

- organise the network of coastal observatories in order to sustain a spatial density of long-term timeseries, at relevant frequencies, to be **adapted for each parameter**;
- act as an open framework for the operational **deployment of relevant new sensors**
- implement **the coordination of observations at the European scale, in order to focus on the priority issues, e.g. the detection of the effect of climate change, the alterations of the trophic chain or the loss of biodiversity**;
- expand as a multi-site coastal observation infrastructure, linked and coordinated with the oceanic ones (oceanic buoys, profilers, moorings and deep sea-floor stations), that can supply together the core data needed to **interface the ocean and the shelf seas models**;
- help improve the processing **of the remote sensing data (e.g. from satellites, coastal radars) for the sea surface through intercalibration with a permanent and dense network of corresponding in situ data** - especially as algorithms still need specific tuning and related research in the coastal zone;
- develop further **real time** acquisition and data transmission from a growing number of sensors. This feature is required by the coastal operational oceanography systems, which develop at present in the research community;
- Last but not least, this common infrastructure **will foster collaboration among researchers from very different fields (physicists, geophysicists, chemists and biologists)**, providing complementarity when providing systematic descriptions of the coastal sea environment and its living resources.

3.1.2 - Impact on the coastal/shelf water monitoring

Recent institutional developments at the EU level (Water Framework Directive, Marine Strategy Framework Directive, Marine and Maritime Integrated Policy, Marine and Maritime Research Strategy) force member states to implement observations in their neighbouring seas. JERICO's objectives encompass those institutional obligations, within the contexts of both the EU research agendas and the development of operational oceanography. Therefore, JERICO will become:

- **a necessary infrastructure to provide data needed to quantify environmental indicators for the implementation of the European directives**: Water Framework Directive (WFD) and Marine strategy Framework Directive (MSFD), hence contributing to the WISE water information system,
- **an essential infrastructure for the extension of the marine core services developed under GMES (MY OCEAN) to the shelf & coastal seas**. This infrastructure aims to complement the coastal segment of the *in situ* continuous measurements for oceanic waters, together with the *in situ* autonomous oceanic systems, with remote sensing and with the forecast and hindcast capabilities of numerical modelling.
- **one of the core infrastructures with proven quality and cost assessments, needed to consolidate a sustainable European public service of marine data (to be considered by the EC EMODNET initiative)**,

- **a reliable, independent and cross-validated network needed to monitor the costal environment,** for spatial planning and impact assessment within the framework of Integrated Coastal Zone Management.

3.1.3 - Impact on the marine data acquisition cost / efficiency for the coastal research and monitoring

Traditional techniques of data acquisition at sea, based on water sampling and laboratory analysis, require a substantial investment of money and man-power. During the past two decades, a large number of technological development have been achieved in the field of *in situ* submarine sensors, of autonomous mobile platforms and of real time data transmission. They make manageable the acquisition of a larger amount of data, and more affordable. As a result, coastal autonomous research observatories have grown rapidly along most European shorelines, but with such diversity (e.g. in the methodologies and standards) that European coordination is now a timely initiative.

Indeed, the optimal coverage of European coastal waters – spatially, temporally and thematically – remains a challenge. A pre-requisite for data acquisition to be cost- effective is the definition of a global deployment strategy for new observatories. The JERICO network of coastal observatories will enhance cost-efficiency in both research and monitoring activities by:

- acting **to reach consensus about the use of similar instruments and technologies** leading to a better data comparison;
- avoiding the duplication of costly developments by **adopting common specification and design for fixed or mobile instrumented platforms** suitable for use in coastal waters;
- **developing a common strategy** for investments in and deployments of new acquisition systems **for optimal spatial coverage, with a special focus on the countries where the lack of automated observatories limits the development of operational oceanography**;
- **achieving a better ratio of operability** through exchange of best practices in maintenance, for instance on bio-fouling protection;
- creating a framework and soliciting a movement towards **more automatic data acquisition and real time transmission**, by stimulating technological progress in sensors and data transmission;
- extending the networks by involving more and more **private marine infrastructures** (ferry boats, fishing ships, off shore platforms …) **in data acquisition**, for mutual benefit.

3.1.4 - Impact on the European SME's sector devoted to the marine instrumentation and maritime sector

Building the JERICO infrastructure will offer a common and coherent vision of the needs in instrumentation and in maintenance. In practice, the Forum for Coastal Technologies will be a place where industry, research institutions and other stakeholders will meet to debate their needs and to design new standards. A solvent sector might then develop in this niche thanks to the scale effect of a European market, both in manufacturing standardized equipment and in providing new services, like the subcontracted maintenance of in situ networks. This will help with the development of the international market, in which Europe will lead the way for establishing operational oceanography and environmental monitoring in the coastal areas around the world.

The maritime sector as a whole will also benefit from the concerted actions of the professionals of the sea (fisheries, sea transport, harbour zones, offshore oil and gas industry), who are increasingly volunteering to contribute to marine data acquisition and to preserve an healthy marine environment. These common activities will strongly contribute to the mutual understanding of the stakeholders (e.g., between researchers and professionals), in order to share a common vision of the management of the marine environment. JERICO will organize, one year before the end of the project, a widely advertised open workshop inviting stakeholders to share their views about *in situ* observations, where quality and cost issues will be discussed.

3.1.5 - Effective integration in the European Research Area and long-term structuring impact

The fragmentation, isolation and compartmentalisation of existing national efforts lowers their overall impact. Considerable benefits will be gained from **increased synergy** amongst coastal observatories and associated equipment owners and developers across the countries of Europe. The major objective of JERICO is to create a **coordinated strategic long term vision** of European coastal observatories as a whole. This means that the

process will develop well after the end of the project. To achieve this endeavour, JERICO will consolidate its vision by:

- conditioning the integration to the network through a well publicized JERICO label, which accounts for quality, reliability, and also free data policy;
- ensuring long term coordination even after the completion of the project (e.g., an agreement for continuation of the Forum for Coastal Technonologies launched by Jerico, will be proposed to all the partners before the end of the project);
- creating and maintaining the necessary links with the different European organisations (Marine Board, EEA, EUROGOOS), running existing and future marine science projects (e.g. MyOcean, SeaDataNet, EUROSITES, ESONET) and research infrastructures (EMBRC, ASSEMBLE, EUROARGO, EUROFLEETS).

Through these actions, JERICO will contribute to structuring the European Research Area and the way research infrastructures operate, evolve and interact with similar infrastructures and their users. The consortium brings together the 27 most significant research infrastructure operators in the field of coastal oceanography and will be supported by up to twelve associated partners, all of them delivering high quality research. JERICO will create an integrated network to collect, share and analyse data at the European scale in a cost-effective way. JERICO will enhance partnership in investment, development and use of coastal observatories and equipment. The members of the consortium already agree on a permanent structure to be proposed during the project, which will not duplicate existing organisations - on the contrary it will benefit from and complement other initiatives. To achieve this, a specific financial task force will be created that will envisage the conditions and financial sources to allow the sustainability of the JERICO network.

JERICO's pool of regional coastal observation systems and services, still existing at regional levels, constitutes a core resource for the coastal water research, but insufficient integration/coordination provides an under-use of the resources devoted by the Member States.

The consortium is clearly open to new members as long as they can invest and sustain the standards required for high quality real time data acquisition.

3.1.6 - Interaction with other initiatives

Table - Information flows between JERICO and European projects/initiatives

Projects/initiatives	Connections with JERICO	Involved JERICO partners
EURO ARGO	Coast to open seas interfaces	Ifremer PY. Le Traon
MY OCEAN	Coast to open seas interfaces	Ifremer PY. Le Traon, SMHI
SEADATANET		Ifremer G. Maudire, SMHI
EUROGOOS	Coast to open seas interfaces	Ifremer S. Pouliquen, SMHI
ECOOP		INGV, SMHI

3.2 - Plan for the use and dissemination of foreground

3.2.1 - Dissemination

To ensure highly efficient dissemination of scientific information at the European level, the JERICO consortium will dedicate a specific networking activity (NA6) to these actions. In doing so, Jerico will be able to examine and perform the best way to promote the project's results. To raise the scientific and public awareness of the technology and innovation progress, systematic public information on its research activities will be set up in various forms: media coverage, exhibitions, products for education and teaching purposes, summer school, etc. The

JERICO consortium will participate in a wide range of national, European and international events for the development of marine research within Europe.

According to the European roadmap on research infrastructures, specific attention will be given to communication with the public, particularly through conferences, seminars, meetings of experts, publications and information points.

- **Internal dissemination** the JERICO infrastructure aims at guaranteeing that all the partners, sub-contractors and associated partners will be informed about progress in each activity, the planning and all other issues which are important to obtain maximum efficiency of resources, consistency of results, and to increase the synergy of the cooperation. All management meetings and technical coordination meetings will play an important role in the communication strategy. An **internet database** for all the documentation (deliverables, publications, management procedures, strategies, research experimental data, regular reports and minutes, etc.) shall be created as a common tool for **e-communication**. The content of the database will be regularly updated and restricted by secure access control to project members and European Commission representatives. The common database will be instrumental in keeping all contractors well informed of all events and in establishing a constant contact between the project and European Commission representatives.
- **External dissemination** aims at communicating effectively with parties outside the consortium, as well as with other **European consortia**, **potential industrial users, end user communities, political and stakeholder communities** and more generally with the **coastal marine scientific community and citizens.** All consortium members will be encouraged to write public papers about the results obtained. Additionally, information will be extracted from the common database and shared on a **public website**. The strategy for dissemination to the scientific community, including **presentations** to be given, **conferences** to be attended, contents of web pages, press publications, will be planned and approved by the Steering Committee.

Dissemination Plan

The JERICO web portal will be established to offer a unique entry point to all infrastructures. This portal will present all the infrastructural services and facilities of project partner institutions. It will be an end-user friendly tool to improve access provision, for both researchers at project partner institutions, and also external scientists and new users. The dissemination process will be handled so as to spread information among all potentially concerned stakeholders and all levels of policy-makers. The plan below presents the activities that will be used to disseminate JERICO results.

Dissemination to the scientific community	
Communications: **Symposia, meetings, congresses**	All partners participating in the JERICO project are internationally renowned in the marine research area. When participating in international conferences, the JERICO Partners will advertise the activities of the project in their presentations and in the poster sessions.
Publications	Partners foresee that information about JERICO may lead to the publications **in leading international journals**; Information in simplified form such as press releases will be disseminated through newspapers. Moreover, educational brochure will be distributed to general public.
Teaching courses for technical staff	Workshops and technical seminars will be held by the JERICO consortium partners, mainly on technical activities, calibration and maintenance. Results will be on line on the web portal.
Dissemination of JERICO project results to a wider range of potential users	
Summer schools and seminars to wider audience	Two summer schools will be organized for students and trainee scientists; in the Netherlands and Malta
Industrial Dissemination	The Forum for Coastal Oceanography will publish technical papers and recommendations to the industrial community. Through the FCT, this community will be closely associated to the preparation of a dissemination plan which will be based on an assessment of existing best practices.

Specific dissemination tools	A JERICO logo and documents for dissemination (leaflets and technical pages) will be developed to be sent to scientific institutions and companies. A website dedicated to JERICO will be implemented.

3.2.2 - Exploitation Strategy and management of IPR

JERICO will follow the rules for intellectual property set out by the EC, specifically:

- "Background" i.e. partners' pre-existing know-how, while remaining the sole property of their owners, will be made available to other partners when needed for the project implementation.
- "Foreground" i.e. knowledge developed through the project, will be owned by the partners who have directly contributed to its creation. Some of the research outputs (software, vision, sensors…) will be developed in common and will be necessary to protect and define rights. Where several contractors have jointly generated the knowledge and where their respective share of the work cannot be ascertained, they shall have **joint ownership** of that knowledge and shall be entitled to use and license it without owing any financial compensation to each other. These principles will be fully described and agreed within the Consortium Agreement.

Protection and dissemination will greatly depend on the nature of the result:

- Fundamental scientific results will be freely disseminated through appropriate channels: scientific publications, presentations at international conferences and workshops, etc. Moreover, all partners have agreed to release scientific information without any delay.
- Translation of basic knowledge into application guidelines will be freely distributed to all concerned stakeholders within and outside the EU.
- Technologies developed by the project will be patented and market studies, freedom-to-operate investigations, exploitation strategies (licensing, etc.) will be performed as well as pre-technological development whenever relevant.
- Computer programs and databases will be protected by copyright

At the outset of the project a general guideline regarding protection of technology and results in order not to lose the possibility to patent the results will be provided to the partners. In addition an agreement for efficient transfer of information, technology and material between different beneficiaries of the consortium will be put in place at the outset of the project for maximizing the possibility to identify technologies and materials for commercialization.

4 - ETHICAL ISSUES

There are no ethical issues related to the research work performed in the course of this project.

5 - CONSIDERATION OF GENDER ASPECTS

Several documents released by the European Commission highlight the importance of taking into account the gender dimension for the execution of research programmes. Lastest figures are encouraging but the gender imbalance still exists and is not self-correcting. JERICO partners are deeply concerned by this issue: IFREMER recently presented its figures (the total percentage of women: 42 %) and its actions to move towards a better gender balance (a gender agreement was signed in Feb. 2008) within a presentation to the European Commission's Helsinki Group for Women and Science on Monday 23rd of November 2009, in Brussels and organized by the DG Research/Unit for Scientific Culture and Gender Issues (Ref: **IFREMER´s agreement promoting professional equality between men and women** - Sophie Sergent & Charlotte Jagot). Acting as a coordinator Ifremer will disseminate these resolutions as a template to all JERICO partners to gather their opinions and perspectives.

The JERICO project will **endeavour to employ more women among the research staff** in particular for the top decision-making positions, with efforts to consider gender issues in recruitment practices. Particular attention will be paid to **sensitisation about the gender equality** in research structures. Incentives will be given to employ more women in the marine sector. In the scheme to raise awareness in science, scholars will be invited to visit facilities. This activity will put emphasis in raising interest among young women.

Besides, flexible working hours and other family-friendly policies will be initiated in research organisations. A set of gender indicators will be produced during the JERICO project realisation in order to measure progress towards gender equality in design and engineering research. The topic of **this project does not involve expected differences between genders** so that both will be considered equally during the project and both should benefit equally from the results.

The JERICO project proposes to address the lack of gender equality by promoting the participation of women.

5.1 - A gender action plan, improving gender equality will be implemented which aims to:

- Encourage participation of women, in particular in the management of the project (specific job opportunities) and in the innovation related activities (PhD). Part time contracts and flexible working hours will be considered as part of family-friendly measures. The number of women employed at different positions will be monitored all throughout the project.
- Create specific measures for women when the equality of treatment indirectly favors men.
- Establish a system for monitoring gender equality in mobility schemes such as equality of access and participation and subsequent impact on professional careers.
- Measure efforts made to employ **more women** among the research staff, at all hierarchy levels, and especially at **key positions** and take necessary measures against organisations which do not meet their commitment. To achieve this, gender **sensitive indicators** are defined.
- Brief adequately each WP leader on gender-related issues so that if any gender-related issue should arise, they would be in a position to take adequate steps to give equal consideration to the interests, needs and life patterns of both men and women.
- Participate in a series of **public events** dedicated to promoting gender integration (such as the one IFREMER performed recently, quoted here above)

As a whole, the organizations involved in the JERICO project comply with equal opportunity policies, and both women and men have equal opportunities to participate in the project

5.2 - Roles of women in the project

IFREMER

Ingrid Puillat, PhD, member of the coordination team.

Sylvie Pouliquen, senior engineer, leader of task 5.3 – Interface with MyOcean.

SYKE

Hanna Piepponen has an MSc in geography.

Jenni Attila has been participating in operative remote sensing of water quality and research since 1998.

DELTARES

Nicki Villars is currently senior advisor at Deltares in operational monitoring systems.

OGS

Giorgetti Alessandra relating to its role as the IOC/IODE National Oceanographic Data Centre for Italy.

CNR

Stefania Sparnocchia is a physical oceanographer, with extensive experience in field observations, marine instrumentation and data analysis.

NERC (NOCS)

Sue Hartman has an MPhil in Chemical Oceanography.

INGV

Nadia Pinardi, holds a Ph.D. in physical oceanography from Harvard University and she has more than 20 years of experience in numerical modeling of the Mediterranean Sea. She is Associate Professor at Bologna University.

Marina Tonani, researcher. Ph.D. in geophysics.

CEFAS

Dr. Naomi Greenwood – Data Manager, experienced oceanographer with specialist skills in the analysis and quality control of operational data from different platforms

SMHI

Elisabeth Sahlsten. PhD, head of SMHI:s oceanographic laboratory. She also has a large experience in nutrient analyses and issues related to eutrophication

CSIC

Ananda Pascual, Ph.D. Physical Oceanography, University of the Balearic Islands, 2003. She is a tenured scientist of the Spanish Research Council at IMEDEA.

NIOZ

Dr. Katja Philippart is a marine biologist specialized in long-term observations of coastal ecosystems.

BLUE LOBSTER

Kathryn Keeble PhD – Partner – Marine Scientist / Analyst

AZTI

Anna Rubio is a physical oceanographer; focused on mesoscale and large scale processes over the shelf/slope.

Instituto Hidrografico

Sara Almeida, Mathematician, with 30 years of experience in data treatment and management. Responsible of operative working and real time data spreading of Instituto Hidrografico.

Puertos del Estado

Marta de Alfonso - Mathematician, with 20 years of experience in data treatment and management.
Begona Perez - Physicist, with 15 years of experience in tide gauge network managing.

CMCC

Simona Masina, holds a Ph.D. from Princeton University (USA) in Atmospheric and Oceanic Sciences.

APPENDIX 1 - GLOSSARY

ASSEMBLE	Association of European marine Biological Laboratories http://ec.europa.eu/research/infrastructures/pdf/assemble.pdf
CAg	Consortium Agreement
CERSAT	Centre ERS d'Archivage et Traitement http://www.ifremer.fr/cersat/en/index.htm
CORIOLIS	Operationnal oceanographic center for open ocean *www.**coriolis**.eu.org*
ECOOP	European COastal-shelf OPerational observing and forecasting system http://www.ecoop.org/
EEA	European Environmental Agency http://www.eea.europa.eu/
EMBRC	European Marine Biological Resource Centre http://www.embrc.eu/
EMODNET	European Marine Observation and Data NETwork http://www.emodnet-chemistry.eu/portal/portal/
EMSO	European Multidisciplinary Seafloor Observatory http://www.emso-eu.org/management/
ENCORA	European Network on Coastal Research http://www.coastalwiki.org/index.php?option=com_content&task=blogcategory&id=1&Itemid=82
ERA-NET	European Research Area Network
ESF	European Science Foundation http://www.esf.org/
ESFRI	European Strategy Forum on Research Infrastructures
ESONET	FP6-NoE-European Seas Observatory NETwork http://www.esonet-emso.org/
EUROFLEETS	Infrastructure http://www.eurofleets.eu/
EuroGOOS	European Global Ocean Observing System http://www.eurogoos.org/
EUROSITES	FP7 European Ocean Observatory Network www.**eurosites**.info/
FCT:	Forum for Coastal Technology
FCTAC	Forum for Coastal Technology Advisory Committee
GA	General Assembly
GEOSS	Global Earth Observation System of Systems http://www.earthobservations.org/geoss.shtml
GMES	Global Monitoring for Environment and Security http://www.gmes.info/
ICZM	Integrated Coastal Zone Management
IPR	Intellectual Property Rights
JRA	Joint Research Activity
MSFD	Marine Strategy Framework Directive
MyOcean:	GMES Marine Core Service http://www.myocean.eu.org/
NA	Networking Activity
PREVIMER	Ifremer coastal observations and forecasts http://www.previmer.org/
ROOS	Regional Operational Oceanography System
SA	Service Activities
SAC	Scientific Advisory Committee
SC	Steering Committee
SME	Small and Medium size Enterprise
TNA	Trans-National Access
TOP	Targeted Operation Phase
WFD	Water Framework Directive