Project contract no. 036851

ESONET - **European Seas Observatory Network**

Instrument: Network of Excellence (NoE)

Thematic Priority: 1.1.6.3 – Climate Change and Ecosystems

Sub Priority: III – Global Change and Ecosystems

Periodic Activity Report

Period covered: from 1st March 2007 to 29 February 2008
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Start date of project: March 2007 **Duration**: 48 months

Project coordinator name: Roland PERSON
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Project coordinator organization name: IFREMER **Revision**: #1 – 4 July 2008

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Dissemination Level		
PU	Public	X
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)	

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REFERENCES

Annex I – "Description of Work" 29/01/2007

EVOLUTION

Version	Description of modifications
April 2008	Creation
June 2008 – Version 1	Update of : • Publishable executive summary • WP1, WP5, WP8 reports • General format of the document

PUBLISHABLE EXECUTIVE SUMMARY

The Network of Excellence ESONET started on 1st March 2007. The kick off meeting was held in Brest on 21-22-23 March 2007.
Long term monitoring of environmental processes related to ecosystem life and evolution, global changes and geohazards, is now recognized as a necessary by the scientific community. To better understand geophysical, biogeochemical, oceanographic and biological active phenomena scientists need long time series of data coming from the deep sea and the seafloor at key provinces in the world. The objective of ESONET NoE is to prepare at European level the implementation of a network of deep sea observatories around Europe.

The structures of ESONET have been constructed during the first year through the main meetings (Kick off meeting & All Regions Workshop n°1 (WP1), Bremen Best Practices Workshop (WP2) and Training workshop (WP7)) and the first call for Demonstration missions (WP4 & 3). Integrating groups have been constituted across these different events and activities for Esonet nodes, Interoperability and standardisation issues, data management, industry and SMEs... The associated main conclusion are following:

- ***KICK OFF AND FIRST ESONET ALL REGIONS WORKSHOP (WP 1 TASK)***

During the Kick off and **General Assembly** held in Brest in 21, 22, 23 March 2007, Esonet objectives have been presented and the need for integration actions have been highlighted**.** Eight thematic parallel sessions were organized in order to launch the networking (about EMSO, EUROSITES,…), seven parallel sessions launched the WP. It was accompanied by talks by reference speakers, members of the Steering Committee, and EC officer.

The first ESONET All Regions Workshop has been organised in Barcelona by CSIC and remotely by IPGP and IFREMER from 5th until 7th of September 2007. This workshop allowed for a presentation of each prospective node and all the proposals for Demonstration missions. We also invited senior representatives of the principal internationally sea observatory initiatives (USA, Canada and Japan), to give talks on both science and technological aspects. The meeting lasted 2 ½ days and we devoted two sessions to panel discussions on scientific and technological issues. The meeting was successful, with over 112 attendants from 53 partner institutes and SMEs.

The identification of at least a contact person for each prospective node of the ESONET observatory network has been conducted during this meeting. These contact persons will serve as the seed for the constitution of the future regional entities for each observatory site. Some regional groups are almost completed, especially when a demonstration mission has been selected. The group constitution should have been enhanced by the exchange of personnel foreseen during the first year, but even if a general call has been launched no true answer has been received. Indeed the community started to show its real interest in exchanging personnel only after the demonstration mission selection. As a corrective action a general and structured call for personnel exchange is underway.

- ***THE "BEST PRACTISES" WORKSHOP (WP2 TASK WITH AN OVERLAP OF WP1 & 3 ACTIVITIES)***

The "**Best practises" workshop** has been structured into 5 sessions that covered interfacing, underwater intervention, data management, scientific demands and existing infrastructure issues. For each session the corresponding group has been built up and are working on their topic. The idea is to make efficient use of existing knowledge and come up with concepts that are sustainable within future observatory infrastructures.

ESONET is striving to play a strong role in the field of standardisation and interoperability. This applies not only on the data but also on the device level. The goal is rather ambitious but by focussing on some topics a template can be given for other areas. This approach has been persistent through all 5 sessions.

General conclusion:

During the discussions it became obvious that a common vocabulary has to be established at least for the most basic terms. Two examples shall be given. The first is about the definition of the term observatory:

"Observatory is a permanent infrastructure providing a certain number of services to underwater instruments, allowing their long term operation. The list of services includes: energy supply, data transmission to/from shore or to/from a vessel, time distribution, etc."

With this definition it should be clear how observatories differ from stations or moorings dedicated to time series. It is the service aspect that is most important to observatory systems. Within data management there is the idea of a Service Oriented Architecture (SOA) which actually means that standard data services are made available to the user community. This concept has to be transferred down to the hardware level.

The second example is about the definition of Best Practices:

"Best Practices can be defined as the most efficient (least amount of effort) and effective (best results) way of accomplishing a task, based on repeatable procedures that have proven themselves over time for large numbers of people. Best Practices have evolved from benchmarking"

This definition describes why Best Practices are important for observatories. With a shared use of a permanent infrastructure a consensus has to be achieved on how to operate service and maintain the infrastructure. However, Best Practices are not meant as a static but a rather an evolutionary concept which means that certain procedures are improved over time.

Specific conclusions:

- As a conclusion from the **session on instrument qualification** it has been stated that instrument qualification can be achieved by defining procedures, interfaces, and related workflows for this process. Best practices means in this case to map existing procedures from other domain into ocean sciences. For quality assurance and control this means to formalise and assure the implementation of the

following steps (design, testing, integration, installation and commissioning of the according system).

The concept of the sensor registry and interface standardisation are the key issues to make the observatory interoperable. The registry delivers the necessary information to set up web services that allow for the implementation of an interoperable, service oriented architecture. A similar approach will be pursued for other registries like for testing facilities.

In this context also the ISO 17025 standard for calibration of laboratory instruments will be evaluated.

- For the session on **underwater intervention** different tasks have been identified to efficiently enhance interoperability in future observatory underwater intervention. The results will be the basis of the specification report for subsea intervention.
- The following has been concluded for **the data management session:**
    1. A conceptual flow chart for ESONET Data Management has been defined
    2. Three working groups with distinct but related objectives in order to recommend best practices to the Data Management Council has been created.
    3. A calendar of tasks has been defined.

- As a conclusion for **the scientific needs** in regard to generic and specific instrument packages the following points have been identified:
    - There is a need to compile recommendations from other programs, create a survey, and to write a report with the expert groups recommendations regarding an SSP (standard scientific package).
    - Compile standard sensor related information from other programs., .

- With **existing infrastructures** like the ANTARES and NEMO/SN1 observatories in the Mediterranean Sea a work plan as a Best Practices recommendation has been developed that take the following issues into account:
    - installation work for deep sea systems
    - maintenance needs;
        - bio fouling cleaning;
        - corrosion status check for some sensors;
        - cabling system check;
    - reliability and continuity needs in terms of data recording/transmission.
    - vulnerability against external fault causes;
    - environnemental contrains/installation permit;
    - availability of a shore station close to the deployment point.

It has to be kept in mind that ESONET is not an isolated activity but has to be seen as one component of the in situ ocean observation system. ARGO with its 3000 floats deployed is operational since 2003 and is already contributing water column data regularly to the ocean science community. It is obvious that future ocean observatories which has a focus on processes in the deep sea has to coordinate their

data sharing policy with other programs like ARGO, MERSEA/MYOCEAN and the newly started EuroSites project.

❖ *ESONET DEMONSTRATION MISSIONS (WP4 TASK WITH CONTRIBUTION OF WP3)*

ESONET NoE, according to the DoW, **supports also pilot experiments at sea** and site surveys that help to define the monitoring strategies and the most appropriate parameters to be measured in order to meet the scientific objectives. The pilot experiment are implemented in the Demonstration Missions (DMs). DMs are considered means to strengthen the integration process of the ESONET NoE scientific and technological community bringing at high level of excellence the technology at different development phases, implementing the standardisation and interoperability of the different platforms from the consortium. DMs are also aimed at acquiring relevant scientific time-series. They will be an input for integrated studies, common workshops and a raw material to demonstrate the integration of data management.

Four DM proposals were approved for funding in January 2008:

1. **MARMARA-DM** : The goal of the present demonstration mission is to contribute to the establishment of optimized permanent seafloor observatory stations for earthquake monitoring in the Marmara Sea, as part of ESONET NoE.

   The Marmara Sea (MS) offers the ideal location for seafloor seismogenic observations directed towards risk assessment, because of the following reasons:

   - High deformation rates (20 mm/y) resulting in active submarine processes that are measurable on short time scales,
   - more than 15 millions people are under the threat of seismogenic hazard in the whole Marmara Region.
   - Numerous fluid vents and related features have been discovered along the MS fault system. The MS is thus a unique area to test hypothesis on the relations between strike-slip deformation, seismic activity, fluid flow and gas expulsion within the active fault zone.
   - logistics are favored by the proximity to the coastlines (only 5 to 30 km), which make cost-effective and realistic the establishment of permanent seafloor observatories.

2. **LIDO DM:** LIDO (Listening to the Deep Ocean environment) proposes to establish a first nucleus of a regional network of multidisciplinary sea observatories by associating 2 Esonet regions for the long-term monitoring of earthquakes and tsunamis and the characterisation of ambient noise induced by marine mammals (Bioacoustics) and anthropogenic noise.

3. **The MoMAR-D** (Monitoring of Mid Atlantic Ridge) project will address all the tasks connected to the implementation of a sear observatory**:**

   - To study the temporal variability of active processes such as hydrothermalism, ecosystem dynamics, volcanism, seismicity and ground deformation.

- To deploy a multidisciplinary acoustically linked observing system, with satellite connection to shore,
- To integrate the partners' observation means around an existing and proven, non cabled, long term sub sea monitoring infrastructure.
- To demonstrate the overall management of this system during 1 month even if its operation will actually continue during 12 months.

4. **LOOME DM** (Long term Observation On Mid volcano Eruption) is a networking action for the long-term observation of a major site of methane emission from the deep European margin, the Håkon Mosby Mud Volcano (HMMV). The HMMV is a cold seep ecosystem located on the SW Barents Sea slope off Norway, in an area with a history of seabed slides and tsunamis, and under exploitation for hydrocarbon resources and fisheries. The Barents Sea slope is a target area for sustainable management and monitoring of global change effects. A main goal of the project is the integration of existing technology to establish in a first phase an autonomous non-cabled observatory dedicated to the seafloor seismicity, sedimentology (temperature and pore pressure measurements), chemical profiling, sonar detection of gas flares, methane measurements and bottom water hydrography, together with the study of colonization patterns, community structure and biodiversity.

The main problem encountered for this activity was due to the delay in reviewing the proposal by some referee. As corrective action three new reviewers have been charged to the review. This has no major consequence on the selected proposals**.**

❖ ***IMPLEMENTATION STRATEGIES (WP5) AND SOCIO ECONOMIC USERS (WP6)***

This work package utilizes and builds on the outputs of the ESONIM SSA which final report has been delayed. As a consequence the Economic implementation models activity incurred a similar delay but a WP5 meeting has been especially organized in March 2008 in order to speed up the actions. As result the corresponding deliverable is postponed to month 18 instead of 12. This is not a critic situation as EMSO PP officially started at mid April 2008.

This work package is also in charge of the joint reply to infrastructure initiatives, as a result two projects have been selected for funding, one lead by CSIC and one lead by NERSC. A significant effort has been driven to prepare the EMSO PP proposal that has been selected too.

The long term funding strategy is strongly linked with the socio economic considerations: links are reinforced with petroleum companies like (Statoil, BP) and SMEs are represented by the PESOS group.

❖ ***EDUCATION AND COMMUNICATION (WP7 WITH A TASK OF WP6)***

The main objective of outreach and training is the development and support of comprehensive interdisciplinary programs for research, education and public outreach and strengthen educational possibilities for students of all ages.

The **first educational and training workshop** was held from 27th to 28th January 2007 at Jacobs University Bremen (JUB), where some 18 ESONET students and 12 ESONET lecturers participated.

Three used computer terminals were purchased, newly painted and equipped with 30 m of internet cable and a web cam, which can be deployed into an aquarium at three European aquaria of high public attractiveness.

An issue of **"ESONET News" (WP6)** - Europeans observe the deep sea" was produced every 3 months. It was prepared in digital form and distributed to a large mailing list. Each issue, with 8 pages, was also printed to be distributed in international meetings

CONCLUSIONS

After one year, ESONET community is recognized at national, European and international level for instance through invitation in seminars.The activity of promotion of the long term commitments on subsea observatory infrastructure have lead to the submission and the negotiation of an ESFRI supported Infrastructure FP7 project: EMSO (European Multidisciplinary Seas Observation) Preparatory Phase. Thanks to the joint efforts of ESONET for networking tasks and EMSO PP for infrastructure preparation, one may be confident that the necessary commitments for the construction of subsea observatories in Europe will reach the decision phase.

1. Project objectives and major achievements during the reporting period

1.1. Overview of general project objectives

Long term monitoring of environmental processes related to ecosystem life and evolution, global changes and geohazards, is now recognized as a necessary by the scientific community. To better understand geophysical, biogeochemical, oceanographic and biological active phenomena scientists need long time series of data to identify temporal evolution and cyclic changes and to capture episodic events relative to oceanic circulation, deep-sea processes and ecosystems evolution. In addition, long-term monitoring will allow to capture of episodic events such as earthquakes, submarine slides, tsunamis, benthic storms, bio-diversity changes, pollution and other events that cannot be detected and monitored by conventional oceanographic sea-going campaigns. Most of these processes interact and should be measured for modelling and forecasting natural events.

The implementation of a bi-directional link between the observatory and a control station is fundamental to assume quality of long data series. Three types of observatories are usually identified: acoustically tethered to a surface buoy ones, electrical tethered to a surface buoy ones and cabled ones. Technology allows today to build sophisticated systems. Considerable engineering development work has been done by NEPTUNE-MARS projects in the North America and the VENUS-ARENA projects in Japan. NEPTUNE Canada is implementing a first network. Even if for some aspect no long term qualified technology is available, engineers think of being able to construct reliable systems. Nevertheless, the costs of these systems are high, and funds usually attributed to oceanography are not related to such investments. We have to demonstrate the importance of such infrastructures for the humans so that governments will invest in these developments as they did in space systems: it’s most critical today for the humanity, to save the Ocean than to walk on Mars!

Up to this time, implementation of simpler systems like acoustically tethered observatories allows scientists to collect data showing the need for cabled systems.

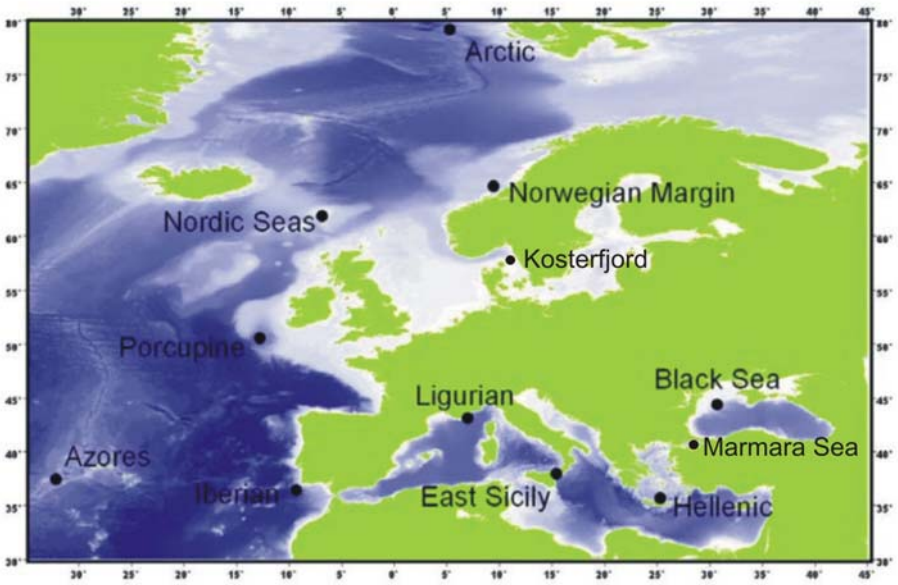


Figure 1 - Proposed ESONET sites

At the European level, the goal of the ESONET NOE is the lasting integration of European research on deep sea multidisciplinary observatories and to create a centre of excellence. Over the initial 4 years, the approach will be to merge the programmes of members organisations through research activities addressing the scientific objectives and networking activities specially designed for integration and spreading Excellence. Its objective is to produce a practical plan for long term monitoring of the ocean margin environment around Europe as part of GMES with capability in: geophysics, geotechnics, chemistry, biochemistry, oceanography, biology and fisheries.

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

Objectives

The first 18 months of the project were planned (DoW page 81) in order to ensure a maximum integration:

1.2.1. Constitution of the active groups

Integration groups (see DoW p 66)	Status after 1 year	Perspective
Regional Implementation Committees for a number of sites among the 12 ESONET sites (WP1)	Two to three contact persons are committed to build the groups in each site	Constitution for several sites during the next 6 months
Data management group (WP1)	Constituted	3 active subgroups
Core group of institutes and companies testing equipments (WP1)		Constituted within 6 months
Sensor standardisation group (WP2)	Active – could merge with next one	Preliminary standards for Esonet observatories
Quality assurance group (WP2)	Constituted as “Instrument qualification”	Propose procedure for instrument qualification
Underwater intervention group (WP2)	Constituted	Definition of procedure for interoperability in under water interventions
Group of scientific experts (WP3)	Constituted	The “generic science module group” is active
Economical and legal expertise group (WP5)	Constituted	“Environmental assessment sub-group” could be constituted with Michel André (sea mammal expert) as a leader.
SME group PESOS (WP6 and WP2)	Started an opening process. Active in the project.	Will probably not be formal within one year
Additional group: Infrastructure issues	Constituted	

1.2.2. Synthesis of state of the art

This is a long process that will need a better international cooperation that helped a lot during this first integration of the above groups. The Best Practices Workshop in Bremen (January 2008) was an excellent place of exchange on know-how. In some fields such as underwater intervention, the synthesis is already well advanced.

1.2.3. Activities raising the level of knowledge in the consortium and the level of integration (WP1)

The kick-off meeting was used to raise the knowledge of institutes and companies not accustomed to subsea observatories and willing to join the community.

The All Regions Workshop n°1 in Barcelona involved key speakers from Europe, USA, Canada and Japan. It put in evidence the necessity to observe time related phenomenon at sea from microseconds to years.

One may quote some sentences reflecting the mood of this Barcelona meeting:

> "All countries that can do it should do it and build a world observatory capacity of the seas" : *John Delaney.* There is no doubt on the scientific needs of long term underwater observatories" : *Antje Boetius*"ESONET science and societal case is proven" : *Mick Gillooly* "Do not build what you will not be able to maintain" : *Steve Etchemedy*

1.2.4. Tools for training of personnel and dissemination (WP6 & 7)

This activity has been initiated (see WP7 report). A Training workshop in January 2008 demonstrated the interest of the students and newcomers in the European teams for subsea observatory field of research. The Esonews letter is periodically distributed

1.2.5. Launching of demonstration activities (WP4)

The selection has been done and is reported in the WP4 report and deliverable D1. It must be noticed that ESONET was able to organize a call and review the projects with experts from outside Europe. All proposals had very good assets. The spirit was not to eliminate ideas but to select, due to limited budget, a first priority of "team work" at sea in Europe. This was well understood and candidate Demonstration Mission teams who were rejected are offered the opportunity to apply for the second call.

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

Risks and expected discrepancies for this 18 months period were presented in the DoW (page 81).

Expected risk	What occurred	Corrections/ mitigation
1/ Level of achievement of FP6 projects	ESONIM delayed	Plan anticipated and continuous effort with EMSO
2/ Starting date	Call preparation more difficult in the summer time	New planning with Best practice workshop postponed. Some meetings on month 13 (WP6) instead of 1st year. Demo mission call postponed to September
3/ Deployment during summer period	Demonstration Mission decision late for cruise preparation in 2008	Preliminary cruises in 2008 (LOOME, MoMAR-D and Marmara)
4/ Demonstration missions between two 18 months period		Taken into account by WP4 leader.
5/ Difficult reporting after 1 year	. True for the yearly reporting (management & activity reports)	. An online system will be available for the next reporting

1.3.1. Level of Achivement of FP6 projects

This mainly concerns the work package 5 " Implementation Strategies". Indeed, WP5 utilizes and builds on the outputs of the ESONIM SSA which final report has been delayed. As a consequence the Economic implementation models activity incurred a similar delay but a WP5 meeting has been especially organized in March 2008 in order to speed up the actions. As result the corresponding deliverable is postponed to month 18 instead of 12. This is not a critic situation as EMSO PP officially started at mid April 2008.

1.3.2. Starting date

Esonet officially started in March 2008, and so incurred the summertime slowing down after 3 months. Consequently it really started to be active for many partners and tasks with the First All Regions Workshop in September. This led to postpone the Best practices workshop in month 11 instead of month 9, PESOS meeting in London was postponed to March 2008 instead of the 1st Esonet year.

It had some consequences also on the demonstration mission call preparation and selection: the All Regions Workshop that took place in early September (not suitable in summer) was a unique occasion to present the sites and corresponding demonstration proposals . In addition the proposal selection was delayed due to the delayed reviewing by some referee. As corrective action three new reviewer have been charged to the review. This had no major consequence on the selected proposals. And for the next call[1], the process is now well defined in order to speed up the selection and additional referees are foreseen.

Concerning the Exchange of personnel foreseen during the first year, even if a general call has been launched, no true answer has been received due to the delayed starting of the selected demonstration missions. Indeed the community started to show its real interest in exchanging personnel only after the demonstration mission selection. As a corrective action a general and structured call for personnel exchange is being in issued.

1.3.3. Deployment during summer period

Due to the late selection of demonstration mission it should have been difficult to organise a deployment at sea in the following summer but some preliminary cruises had been foreseen for 2008 and so it anticipated the problem.

1.3.4. Demonstration missions between two 18 months period

see point 2/

1.3.5. Difficult reporting after 1 year

The yearly reporting was more difficult than foreseen due to the very late answer of some partners even if the reporting has been announced in December and requested in January. This is also due to the fact that financial administration of most of the partners cannot report any financial issue before the 1st of march : due to conversion rate, time sheet gathering for February, etc… For the next year we foresee to set on an online system in order to speed up the information collection, formatting etc… We will also request the WP and partner activity report for February, in this way “only” financial issue should be solved for March.

[1] Forseen after September 2009

2. Work package progress of the period

The joint program of activities is a streamline of 7 interconnected Work packages (WP) in three main areas in addition to WP8, which is concerned with management of the overall program. ESONET allocates funds to the 8 WPs for periods of 18 months presented every year. [2]

Three WPs are related to the *Integrating Activities* (IA) *(note that the numerical order is not followed: WP1, WP2, WP5)*, 3 to the program for *Jointly Executed Research (*JER) and 2 to the *Activities to Spread Excellence* (SE). The Jointly Executed Research (JER) is conducted in 12 sites of interest to the EU.

Table 1 – ESONET JPA : Work packages (WPs)

Work Packages (WPs)			Task Team Responsible Persons	
	Integrating Activities (IA)			
	WP1 Networking		**Mickael Diepenbroek**	KDM (DE)
		I.a Integration of regional observatory initiatives	Mathilde Cannat	IPGP (FR)
		I.b Data infrastructure	Michael Diepenbroek	KDM (DE)
		I.c Sharing facilities	Jean Marvaldi	IFREMER (FR)
		I.d Scientific integration	Juergen Mienert	UiT (NO)
		I.e International cooperation	Imants G. Priede	Univ. Aberdeen (GB)
	WP2 Standardisation and interoperability		**Christoph Waldman**	KDM (DE)
		II.a Sensor interoperability	Christoph Waldman	KDM (DE)
		II.b Quality assurance, Quality control	Anne Holford	Univ. Aberdeen (GB)
		II.c Interoperability for underwater intervention	Jean-François Drogou R. Papaleo	IFREMER (FR) INFN (IT)
	WP5 Implementation strategies		**M. Gillooly** Juanjo José Dañobeitia Nick O'Neill Jean François Rolin Michel André	Marine Inst. (IE) CSIC (ES) CSA IFREMER (Fr) CSIC/UPC (ES)
		V.a Economical implementation models		
		V.b Site assessment, legal model and environmental constraints		
		V.c Joint reply to infrastructure initiatives		
		V.d Long term funding plan strategy		
	Jointly Executed Research (JER)			
	WP3 Scientific objectives and observatory design		**Henri RUHL** (replacing Christian Bernt)	NOCS (GB)
		III.a Sciences objectives	Olaf Pfannkuche	KDM (DE)
		III.b Generic science modules	G. Duineveld	NIOZ (NL)

[2] The text of the DOW says:

"successive period over the 48 months of the EC grant: two 18 months periods followed by one 12-month period." But it is in contradiction with the yearly audit rule of the EC.

Table 1 – ESONET JPA : Work packages (WPs)			Task Team Responsible Persons	
		III.c Specific science modules	Louis Geli	IFREMER (FR)
	WP4 Demonstration missions		**Laura Beranzoli**	INGV (IT)
		IV.a Call for proposal	Mathilde Cannat	IPGP (FR)
		IV.b Follow-up on demonstration missions	E. Gracia	CSIC (ES)
	Spreading Excellence (SE)			
	WP6 Socio economic users		**Jorge Miguel Miranda**	Univ. Lisboa (PT)
		VI.a Core services stakeholders	Jean-François Rolin	IFREMER (FR)
		VI.b Regional services stakeholders	Nick O'Neill	CSA (IE)
		VI.c Promotion and SME policy		
	ESONET Letter		**Jorge Miguel Miranda**	Univ. Lisboa (PT)
	WP7 Education and outreach		**Laurenz Thomsen**	KDM (DE)
		VII.a Education tools	Laurenz Thomsen	KDM (DE)
		VII.b Build a web portal with real time web interface	Laurenz Thomsen	KDM (DE)
		VII.c Communicate results and new developments	Ana Colaço	Univ. Azores (PT)
	Management Activities (MA)			
	WP8		Roland Person	IFREMER (FR)

2.1. WP1 – Networking

Person in charge: **Michael Diepenbroek**
Contact: **mdiepenbroek@pangaea.de**
Institution: **KDM (UniHB)**

Participating Institutions and Persons:

Task		Task Team Responsible Persons	
WP 1 Networking		**M. Diepenbroek**	KDM (DE)
1a)	Integration of regional observatory initiatives	M. Cannat	IPGP (FR)
1b)	Data infrastructure	M. Diepenbroek	KDM (DE)
1c)	Sharing facilities	J. Marvaldi	IFREMER (FR)
1d)	Scientific integration	J. Mienert	UiT (NO)
1e)	International cooperation	I.G. Priede	Univ. Aberdeen (GB)

2.1.1. Work package objectives and starting point of work at beginning of reporting period

WP 1 delivers within the first 18 month the **basic organisational and technical concepts** for a European seas observatory network. It investigates the pre-requirements and identify the obstacles for the operation of a **common network**. The overall strategy is **to adopt and foster globally accepted standards and concepts, to use generic approaches and multi-purpose** setups where possible, and to **find synergies both in new developments as in the usage of existing facilities**.

2.1.2. Progress towards objectives – tasks worked on and achievements made

Task WP 1a) – Integration of regional observatory infrastructure

Person in charge: M. Cannat Institution: IPGP
Partner members: IFREMER, IPGP, CNRS, KDM, INGV, INFN, NERC-NOCS, HCMR, FORTH, IMI, Uaç, FFCUL, CSIC-UPC, UiT, NGI, UGOT, SU, DEU-IMST, ALTRAN OUEST (ATLANTIDE), UNIABDN, BU KOERI

Objectives and starting point of work at beginning of reporting period

Task a) of the Work package 1 (networking) **launches and follows up the call for exchange of personal**. It **investigates the requirements for multi-purpose regional observatories** generally accessible throughout the network. For WP1 task a) **organizes an "All Regions Workshop"** including an international panel, **coordinates regional planning groups** and **participate to case study workshops**.
The main objective of task a) is to **develop strong links between regional nodes of a European network of subsea observatories**, and to **promote multidisciplinary and trans-nationality** within each node.

Progress towards objectives – tasks worked on and achievements made

As co-leader of WP1, Mathilde Cannat is particularly in charge of task 1a) (Integration of regional observatory infrastructure). The achievements for this task during year 1 were:

- Tasks 1a1 and 1a2: Exchange of personnel
  - An open general call have been published on the ESONET web site (http://www.ESONET-emso.org) from May 2007 but no application have been received.
  - In November 2007 a position has been opened at Jacobs University (KDM/JUB) and published on the ESONET web: "**Head of Oceanlab Engineering, Jacobs University, Bremen"**

  The School of Engineering and Science at Jacobs University Bremen (formerly International University Bremen) invites applications for the position of an Head of Ocean Lab Engineering - Ocean Instrumentation Engineer in the working group of Laurenz Thomsen (leader of WP7 - Education and outreach in ESONET NoE). Note that until final candidate has been found this position can also temporarily be filled with exchanged personal from ESONET"

  Actually, partners started to put their interest in exchange of personnel after the demonstrations missions have been selected. One request has been sent to the coordinator but several request are in preparation. Consequently a fair evaluation of the exchange of personnel process is being organised for the next 6 months.

- Task 1a3: Organisation of the All Regions workshop

The **first ESONET All Regions Workshop** (Activity 1a3) has been organised in Barcelona by CSIC and remotely by IPGP and IFREMER (see Deliverable D7). This workshop allowed for a presentation of each prospective node and all the proposals for Demonstration missions (this part of the workshop schedule was organized jointly with WP4). We also invited senior representatives of the principal seafloor observatory initiatives internationally (US, Canada and Japan), to give talks on both science and technological aspects. The meeting lasted 2 ½ days and we devoted two sessions to panel discussions on scientific, then technological issues. The meeting was successful, with over 112 attendants from 53 partner institutes and SMEs.

- Task 1a4: Constitution of Regional Implementation groups

The **identification of a contact person for each prospective node of the ESONET observatory network has been by collaboration with WP6.** These contact persons will serve as the seed for the constitution of the future regional entities for each observatory site.

Contact person(s) for each prospective node of the ESONET observatory network:

Node #	Projected Node name	Contact person(s) and Institutes
1	Arctic	T.Soltwedel / Michael Klages
2	Norwegian Margin	Jurgen Mienert / Dirk de Beer
3	Nordic Seas	P. Sigray
4	Kosterfjord	L.Thomson / L.Lundalv
5	Porcupine/Celtic	M. Gillooly / O. Pfannkuche
6	Azores	A. Colaço / R. Santos
7	Iberian Margin	L. Matias / M. André/N.Zitellini
8	Ligurian Seas	G.Gorsky / J.Carr
9	East Sicily	L. Beranzoli / P. Favali / R. Papaleo
10	Hellenic	V. Lykousis /T. Tselepides
11	Marmara Sea	N. Cagatay / L. Géli
12	Black Sea	L. Dimitrov / H. Sahling

Activities				
Activity	**Activity name**	**Date due**	**Actual/ Forecast delivery date**	**Lead contractors**
1a1	Preparation and organisation of the call for exchange of personnel	month 2	Month 18	IPGP IFREMER
1a2	Follow-up of the exchange of personnel	month 2 – last year of project		IPGP
1a3	All Regions Workshop n°1	month 6 / 8	Month 6	CSIC IPGP IFREMER
1a4	Constitution of Regional Implementation Groups	month 12		IPGP

Deliverables							
Del. no.	**Deliverable name**	**Work package no.**	**Date due**	**Actual/ Forecast delivery date**	**Estimated indicative person-months (*)**	**Used indicative person-months (*)**	**Lead contractor**
D7	- Report on constitution of integration groups - Proceedings of all regions workshop	WP 1a	month 12	Done - Month 12	80		IPGP
D10	Report on first 16 month of exchange of personnel	WP 1a	month 16	Month 16	110		IPGP

* if available

Task WP 1b) – Data infrastructure

Person in charge: M. Diepenbroek Institution: KDM
Partner members: IFREMER
KDM/MPIMM
HCMR

Objectives and starting point of work at beginning of reporting period

The main objective of task b) of the Work package 1 is to **standardize the data flow and services** in a commonly usable network. Within the first 18 months WP1 shall deliver the basic organisational and technical concepts for a European seas observatory network. Task b) will contribute to this by linking regional observatories through a **common data infrastructure based on global standards**. For this purpose the topology of present regional observatories will be mapped and strategies will be developed for necessary adaptations and extensions of existing nodes.

The conception of the **overall data management** comprises data policies, quality controls and evaluation of data (also event triggered), archiving, and publication of data (link to WP2).

Progress towards objectives – tasks worked on and achievements made

WP 1b) has constructed and delivered in this first year a **data and information management plan** which corresponds to **Deliverable D-9** (Activity 1b1). This data and information management plan is conceived as a generic and dynamic document meeting today's requirements. In its chosen form as a wiki-based structure the plan is open for the incorporation of further development in the context of data capture, data flow, and data migration and will be available at any time in its respectively updated form at http: // wiki.pangaea.de /wiki/Data and information management plan. With increasing integration of observatories over time, in particular through the demonstration cases, specifications can be added and the document can be

adapted to the evolutionary design of the ESONET observatories network. The fundamental underlying principle for this plan is the full and open exchange of data and information for scientific and educational purposes (GEOSS data sharing principles).

A complement to the data management system and part of the data and information management plan is the creation on an **interactive topology** (Activity 1b2) of existing regional observatories, which itself bring a complete state of the knowledge on the sites and will eventually impart among regional observatories through a common data infrastructure based on global standards. This mapping will help the development of strategies for necessary adaptations and extensions of existing nodes and is also an input to WP 5 Site assessment activity. A user friendly **A**synchronous **J**avaScript **a**nd **X**ML (AJAX) web interface allows highly flexible configurations of topology models (e.g. ISO 19110 (feature catalogue) compliant and/or according to SensorML) as well as data entry for the instances of the network nodes. The ESONET interactive topology is publicly available via the internet at http://features.pangaea.de/map.php.

This topology offers the interested public the opportunity to explore the so-visualized project with an active Google™ Earth based map that serves further and more detailed information on selected items.

Activities				
Activity	**Activity name**	**Date due**	**Actual/ Forecast delivery date**	**Lead contractor**
1b1	Data management plan	month 6	Month 10	KDM
1b2	Topology of existing regional observatories	month 12	month 12	KDM
1b3	Data infrastructure prototype	month 9-12	month 18	KDM
1b4	Constitution of the data management group	month 12	month 12	KDM
1b5	Concept for a multi-disciplinary generally accessible observatory network	month 18	month 21	KDM

Deliverables							
Del. no.	**Deliverable name**	**Work package no.**	**Date due**	**Actual/ Forecast delivery date**	**Estimated indicative person-months (*)**	**Used indicative person-months (*)**	**Lead contractor**
D9	Data management plan	WP 1b)	Month 6	Done – Month 12	90	16 (**)	KDM
D19	Data infrastructure prototype	WP 1b)	Month 18	Month 18	90	30 (**)	KDM

* if available

** by University of Bremen only

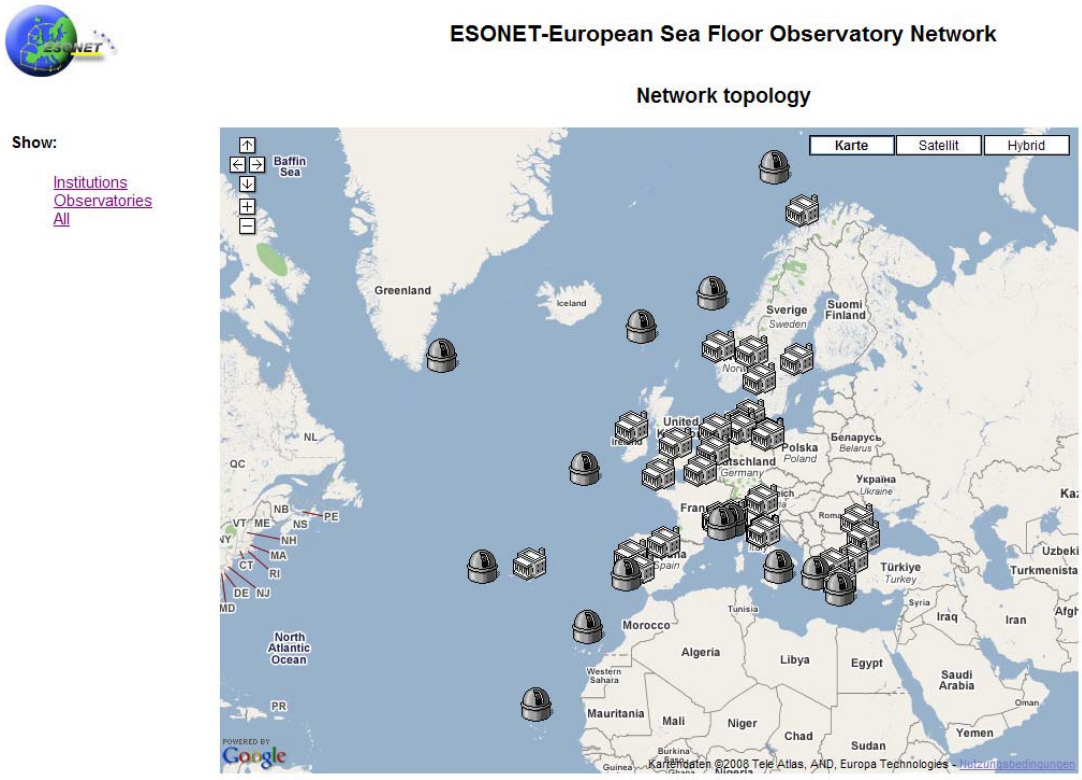


Figure 2 - Interactive Topology

Coherent with this topology was the development of a concept for a sensor registry in close collaboration with WP 2a) (Sensor interoperability). This registry will provide operators of observatories with the opportunity to register and update online sensors and scientific equipment through a Sensor ML based Sensor Registry Entry Form and will contribute by this to the topicality and further development of the topology.

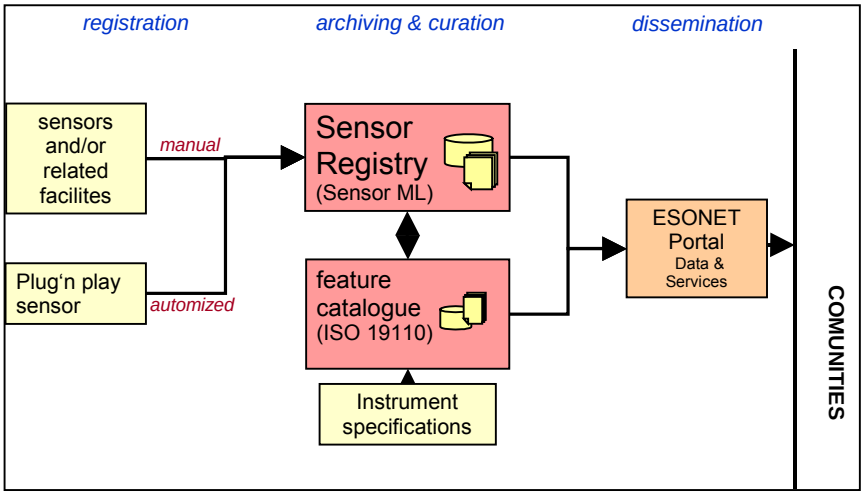


Figure 3 - Concept of the sensor registry

We provided support for the Best Practices Workshop in Bremen, hosted by Christoph Waldmann of WP 2 and Michael Diepenbroek co-chaired the session on Data Management with T. Carval (IFREMER) S. Pesant (LOV), M. Pagnani (NOCS) as he was chair too in the data management session in Barcelona at the **All Regions Workshop**.

One of the main achievements of the data management session in Bremen was the definition of a data management plan from data capture to data delivery (figure 3) and the constitution of associated thematic working groups. The output from these groups will be use to update and extend the **general data and information management plan**.

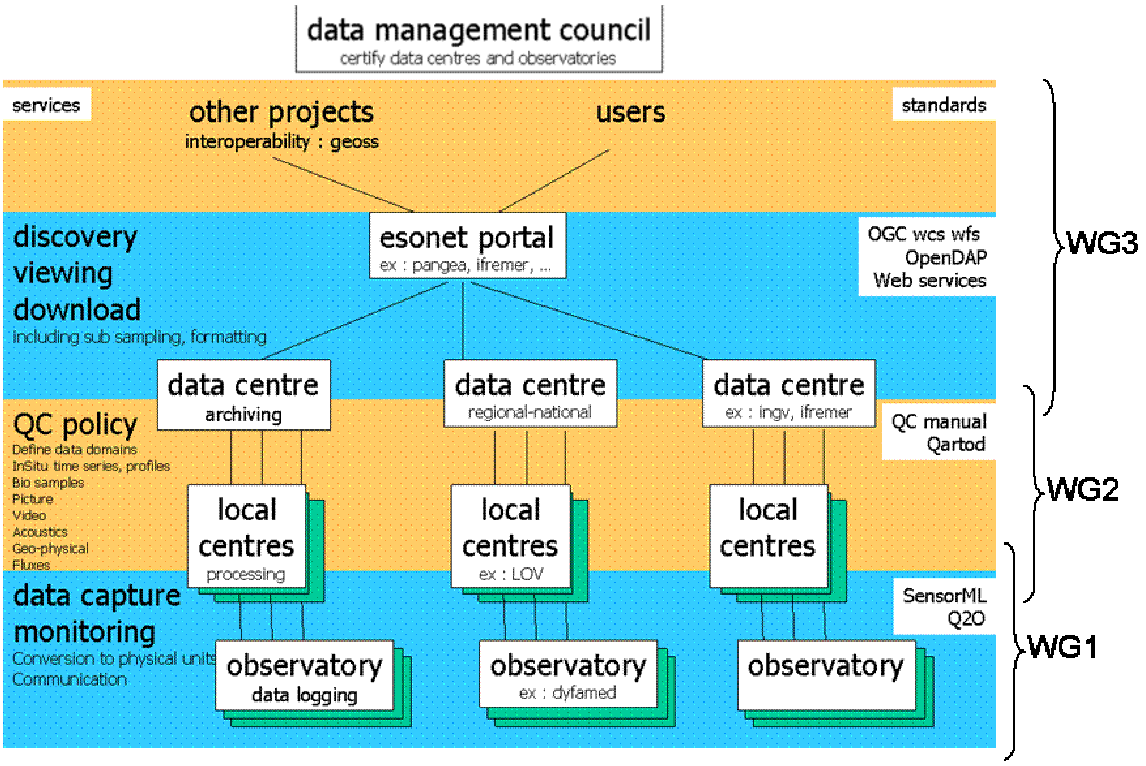


Figure 4 - Flow chart for ESONET Data Management, showing on the right the scope of the three Data Management Working Groups (WGs) established during the Best Practices Workshop: WG1 is Data Capture; WG2 is Quality Control and Quality Assurance Policy, WG3 is Data Archive and Interoperability.

Until the end of the first 18 month period, a **data infrastructure prototype** (Activity 1b3) will be designed and developed. It will be tested before month 16 in order to be used by the demonstration activities (WP 4). This prototype corresponds to D-19.

The **constitution of the data management group** (Activity 1b4) will establish the origin of the integration process. It will work closely with the Data Management Council.

The concept for a **multi-disciplinary generally accessible observatory network** (Activity 1b5) will be created.

Task WP 1c) – Sharing facilities

Person in charge: J. Marvaldi Institution: IFREMER
Partner members: CNRS, HCMR, IMI

Objectives and starting point of work at beginning of reporting period

- **Task c)** of the work package 1 (networking) investigates the premises for sharing facilities and record existing facilities in a common catalogue. A core group is constituted to manage tests with a common schedule and compatible methods.

The main objective of task c) is to **increase the capabilities of existing facilities** and the **shared usage of existing facilities** as well as the **technical expertise**. Task c) aims at improving the long-term operating capability of sub-sea observatory components.

Progress towards objectives – tasks worked on and achievements made

The general activity of this task started with the preparation of the Best practices Workshop in January.

- **Task 1c1 – Constitution of a database of equipment & facilities**

The creation of the data base was initiated in January 08 with the Best practices workshop preparation. It will include equipment and facilities accessible in the European area from public or private bodies able to contribute to testing and calibration of equipment and measuring systems of the sub-sea observatory in the phases of initial implementation, extension and maintenance.

- **Task 1c2 – Development of common practices for tests**

During the Best practices workshop held in Bremen 29-30 January 2008 the common use of facilities focusing on integrating purposes has been defined:

  - common test procedures
  - common rules of security between equipment
  - testing procedures to optimise maintenance needs, retrieval of samples, exchange of sensors
  - comparison of data for multidisciplinary exchanges

- **Task 1c3 – Constitution of a core group of institutes and companies sharing best testing practices**

During the Best practices workshop the core group constitution was initiated.

The group consists of institutes and companies operating with similar methods and cooperating on amelioration of their activities for testing of equipment. Visits of personnel is being promoted in this field. Cooperation with METRI 2 is being promoted.

- **Task 1c4 – Organize common schedule and methodology for tests**

This activity was foreseen to start in mid February so no result can be provided now..

Activities				
Activity	**Activity name**	**Date due**	**Actual/ Forecast delivery date**	**Lead contractor**
1c1	Database of accessible equipment	month 2	month 18	IFREMER
1c2	Common use of facilities focused on integrating purposes	month 8	month 18	IFREMER
1c3	Constitution of the core group for testing equipment	month 12	month 18	IFREMER
1c4	Organisation of common schedule and methodology of all tests	month 18	month 18	IFREMER

Deliverables							
Del. no.	**Deliverable name**	**Work package no.**	**Date due**	**Actual/ Forecast delivery date**	**Estimated indicative person-months (*)**	**Used indicative person-months (*)**	**Lead contractor**
D 10	- Common schedule and methodology tests	WP 1c)	Month 18	Month 18	110	3 (**)	IFREMER

* if available

** IFREMER WP1c

Deviations:

The activities of this task started actually in January 2008 instead of March 2007. Indeed a minimum integration of teams working on technical issues was needed to start this activity efficiently and so it was not efficient to start before the preparation of the Best practices meeting that focused on standardisation aspects. To speed up this activity, since the Best Practices Workshop some suitable actions have been driven (opening of a sharing document platform on internet (BSCW), invitation to contribute sent, publication of an open call on the Esonet website etc…)

Task WP 1d) – Scientific integration

Person in charge: J. Mienert Institution: UiT
Partner members: HCMR

Objectives and starting point of work at beginning of reporting period

Task d) of the work package 1 (networking) **defines a perennial integration of scientists at a European level** using data collected by deep sea observatories. It **evaluates the solutions of virtual institutes** and prepares and reports a plan. The first year without budget request for task WP1d encompassed meetings and discussions regarding a virtual institute.

Progress towards objectives – tasks worked on and achievements made

Integrating observatory data collected by scientists from different institutions is a long-term aim towards a virtual observatory. The virtual observatory task is in collaboration with the PIs of the main observatory regional nodes to make it possible for scientists to find, retrieve and analyze data from deep-ocean observatories. Observatory nodes are at various planning and implementation levels and no common data acquisition or distribution system exists. Research teams using the data are spread within a country and more obviously throughout Europe. Observatory science is costly and provides not only enormously data-rich but also shows increases in data complexity. One way exploring the data from various teams in a country or in Europe could be a creation towards a "**V**irtual **I**nstitute of **S**cientific users of deep-sea **O**bservatories" (VISO).

Virtual observatory organisations exist in science disciplines as for example in Astronomy, Seismicity and Meteorology but not in the newly developing field of deep-sea ocean observatories. It is therefore our aim to prepare a possible development towards VISO. The observatories - once operating - are well fitted to provide information about changing deep European Seas to improve our understanding of complex deep-ocean systems.

Activities				
Activity	**Activity name**	**Date due**	**Actual/ Forecast delivery date**	**Lead contractor**
1d1	Evaluation of solutions for virtual institutes	Month 18	Month 36	UiT

Deliverables							
Del. no.	**Deliverable name**	**Work package no.**	**Date due**	**Actual/ Forecast delivery date**	**Estimated indicative person-months (*)**	**Used indicative person-months (*)**	**Lead contractor**
D 7	- Report on potential creation of virtual institutes	WP 1d)	Month 12	Done - Month 13 2nd – Month 36	20		UiT

- if available

Task WP 1e) – International cooperation

Person in charge: I.G. Priede Institution: Univ. Aberdeen
Partner members: HCMR, IFREMER, CSIC, KDM, INGV, NERC-NOCS, UiT, UGOT, ALCATEL.

Objectives and starting point of work at beginning of reporting period

Task e) of the Work package 1 (networking) will **integrate ESONET into the international earth observation framework.** All activities will be modulated by international concepts, programs, and developments. **Constructive linkage** on the management as on the working level between ESONET and GMES, INSPIRE, IODP, ICDP and the MARS and NEPTUNE projects will ensure **interoperability on the international level**. **Formal agreements** will be prepared.

The main objective of task e) is to get **international recognition for ESONET** as the European actor in sub-sea observatories.

Progress towards objectives – tasks worked on and achievements made

- **1e1 International Panel in "All regions Workshop 1"**

  International representatives from observatory projects around the world met in Barcelona 5-7 September 2007 and participated in workshops discussing all aspects of observatory design and operations.

  Partners involved: UNIABDN, IFREMER, CSIC

- **1e2 Membership of ESONET NoE in international boards**

  The main specialised standing forum is the series of International Sub Sea Cabled Observatories Workshops. Partners from ESONET NoE were instrumental in organising the last meeting in Dublin in 2006.

  ESONET partners are active in links to other organisations in Europe and globally such as :

  - GEO http://www.earthobservations.org
  - ORION http://www.orionprogram.org
  - NEPTUNE http://www.neptune.washington.edu/
  - MARS http://www.mbari.org/**mars**/

  Partners involved: UNIABDN, IFREMER, KDM, INGV, NERC NOCS, UiT, UGOT, ALCATEL

- **1e3 Signature of MOUs.**

  Discussions are in progress and practical agreements for testing of prototypes on NEPTUNE Canada and MARS Monterey have been entered into by ESONET partners.

  Implementation of high level agreements is delayed pending consolidation of observatory organizations in Europe and elsewhere.

  Partners involved: UNIABDN, IFREMER, KDM, INGV, NERC NOCS, UiT, UGOT, ALCATEL

Activities				
Activity	**Activity name**	**Date due**	**Actual/ Forecast delivery date**	**Lead contractor**
1e1	International panel in the "All Regions Workshop 1"	Month 7	D7 - Month 7	Univ. Aberdeen
1e2	Membership of ESONET NoE in international boards relating to the subsea observatories	Month 12	Month 12	Univ. Aberdeen

Activities				
Activity	**Activity name**	**Date due**	**Actual/ Forecast delivery date**	**Lead contractor**
1e3	Plan for signature of MOU or contracts at international level. First signature of an agreement for testing of a prototype on NEPTUNE Canada (or ARENA Japan or MARS)	Month 12	Month 24	Univ. Aberdeen

2.1.3. Deviations from the project work program, and corrective actions taken

Task 1a

The preparation of **calls for exchange of personnel** was listed as a task for this first reporting period, some initiatives have been taken but this activity will consistently increase by a few weeks.

Task 1b

The **data and information management plan** which corresponds to **Deliverable D-9** (Activity 1b1) was delayed to December 2007 due to a misunderstanding. It was delivered at the agreed on date in December.

The **Concept for a multi-disciplinary generally accessible observatory network** (Activity 1b5) will be delayed to December 2008. Task 1b wants to include the first experiences from the demonstration sites in ESONET.

Task 1c

The activities of WP1c are collaborative and based on participation and inputs from ESONET partners on the duration. The proposed solution to call for participations and organise the contributions (BSCW collaborative space opening) was set up and presented at Bremen Best Practice Workshop end January 2008. The call to all ESONET partner participation is foreseen to be issued in March 2008, after testing it internally with IFREMER participants in order to check how it is understood and to made adjustments.

Task 1d

During the first period, which had no budget allocation for Task 1d, an outline of possible scenarios was discussed, and based on the outcome and results a strategy proposed.

2.1.4. Deliverables List

Deliverables							
Del. no.	**Deliverable name**	**Work package no.**	**Date due**	**Actual/ Forecast delivery date**	**Estimated indicative person-months** (*)	**Used indicative person-months** (*)	**Lead contractor**
D7	- Report on constitution of integration groups - Proceedings of all regions workshop - Report on potential creation of virtual institutes	WP 1a) WP 1d)	Month 12	Done - Month 12	80		IPGP UiT
D9	Data management plan	WP 1b)	Month 6	Done – Month 12	90		KDM
D10	- Report on first 16 month of exchange of personnel - Common schedule and methodology tests	WP 1a) WP 1c)	Month 16	Month 18	110		IPGP IFREMER
D19	Data infrastructure prototype	WP 1b)	Month 18	Month 18	90		KDM

* if available

2.1.5. Milestones list

Milestone no.	Milestone name	Work package no.	Date due	Actual/Forecast delivery date	Lead contractor
1a1	Call for exchange of personnel	WP 1a)	Month 2	D10 - Month 18	IPGP
1a2	Follow-up of the exchange of personnel	WP 1a)	*Month 2 – last year of project*	Done	IPGP
1a3	All Regions Workshop n°1 and proceedings	WP 1a)	Month 6 (month 8 for proceedings)	D7 - Done	IPGP
1a4	Constitution of Regional Implementation Groups	WP 1a)	*Month 12*	Done but to go on until Month 18	IPGP
1b1	Data management plan	WP 1b)	*Month 6*	D9 - Done	KDM
1b2	Topology of existing regional observatories available	WP 1b)	Month 12	Month 12	KDM
1b3	Test of prototype of data infrastructure	WP 1b)	Month 9-12	D19 - Month 18	KDM
1b4	Constitution of the data management group	WP 1b)	Month 12	Month 21	KDM
1b5	Concept for a multi-disciplinary generally accessible observatory network	WP 1b)	Month 18	Month 24	KDM
1c1	Database of the infrastructure accessible in European area	WP 1c)	Month 2	Month 18	IFREMER
1c2	Best Practices on shallow water and deep water test sites	WP 1c)	month 8	Month 18	IFREMER
1c3	Core group of institutes and companies testing equipment	WP 1c)	month 12	Month 18	IFREMER
1c4	Common schedule and methodology of all tests	WP 1 c)	month 18	Month 20	IFREMER
1d1	Evaluation of solutions for virtual institutes	WP 1d)	*Month 18*	Month 24	UiT
1e1	International panel in the “All Regions Workshop 1”	WP 1e)	*Month 7*	D7 – done	Univ. Aberdeen
1e2	Membership of ESONET NoE in international boards relating to the subsea observatories	WP 1e)	Month 12	Month 12	Univ. Aberdeen

Milestone no.	Milestone name	Work package no.	Date due	Actual/Forecast delivery date	Lead contractor
1e3	o Signature of MOU or contracts at international level o First signature of an agreement for testing of a prototype on NEPTUNE Canada (or ARENA Japan or MARS) (see WP 3)	WP 1e)	Month 12	Month 24	Univ. Aberdeen

2.2. WP2 – Standardisation and Interoperability

Person in charge: **Christoph Waldmann**
Contact: **waldmann@marum.de**
Institution: **KDM (UniHB)**

Participating Institutions and Persons:

Task	Task Team Responsible Persons	
WP 2 Standardisation and Interoperability	**C. Waldmann**	**KDM (DE)**
2a) Sensor interoperability	**C. Waldmann** Partner members:	**KDM (DE)** IFREMER KDM INGV ISMAR NERC-NOCS HCMR FORTH CINTAL ITU NKE SIS DBSCALE
2b) Quality assurance, Quality control	**A. Holford** Partner members:	**Univ. Aberdeen (GB)** IFREMER CNRS KDM NERC-NOCS HCMR IMI CSIC-UPC UiT UGOT SEND
2c) Interoperability for underwater intervention	**J. F. Drogou** **R. Papaleo** Partner members:	**IFREMER (FR)** **INFN (IT)** INGV HCMR ITU CINTAL DEU-IMST

2.2.1. Work package objectives and starting point of work at beginning of reporting period

The objectives of WP 2 have been to investigate the applicability of existing standards in ocean sciences and neighboring fields in particular in regard to instruments and underwater intervention techniques. Within the first 18 month a core group of European experts will be formed to address all issues that are related to the objectives of the WP. This group will then come up with recommendations about the strategy that is needed to implement standards in the field of ocean observatories and will also demonstrate the feasibility by practical realisations of necessary, technical components. The group will also play an active role and contribute to international standardisation initiatives like the ADC group of GEOSS.

2.2.2. Progress towards objectives – tasks worked on and achievements made

Task 2a: sensor and scientific package

The main activities within the first 12 months aimed at finding out about the state of the art in the field of standardisation and interoperability and derive a roadmap on how to proceed. As a matter of fact there has been several attempts made in the past to standardise data interfaces of instrument or the power supplies. It has be to kept in mind that the diversity of instruments and the way how they are applied makes a standardisation initiative on a hardware level almost impossible. Connectors have to be diverse as the requirements on communication bandwidth or the current compliance are so diverse. The solution to this problem is to define standardisation procedures on a higher level. That calls for special concepts for the acquisition and processing of the collected data. The idea for data interfaces is to encapsulate the data coming from or going to the individual instrument. The intermediate modules then have to provide the flexibility to cope with different data formats. This approach allows also for integrating “legacy” sensors into the planned underwater sensor networks. Due to the close cooperation with other international ocean observatory initiatives it can be assured that the envisaged concepts will have a long lifetime.

In figure 5 a generic data acquisition schema based on the JDDAC system (IEEE 1451 compatible) is presented which is currently discussed as a prototype implementation for ESONET demonstration missions.

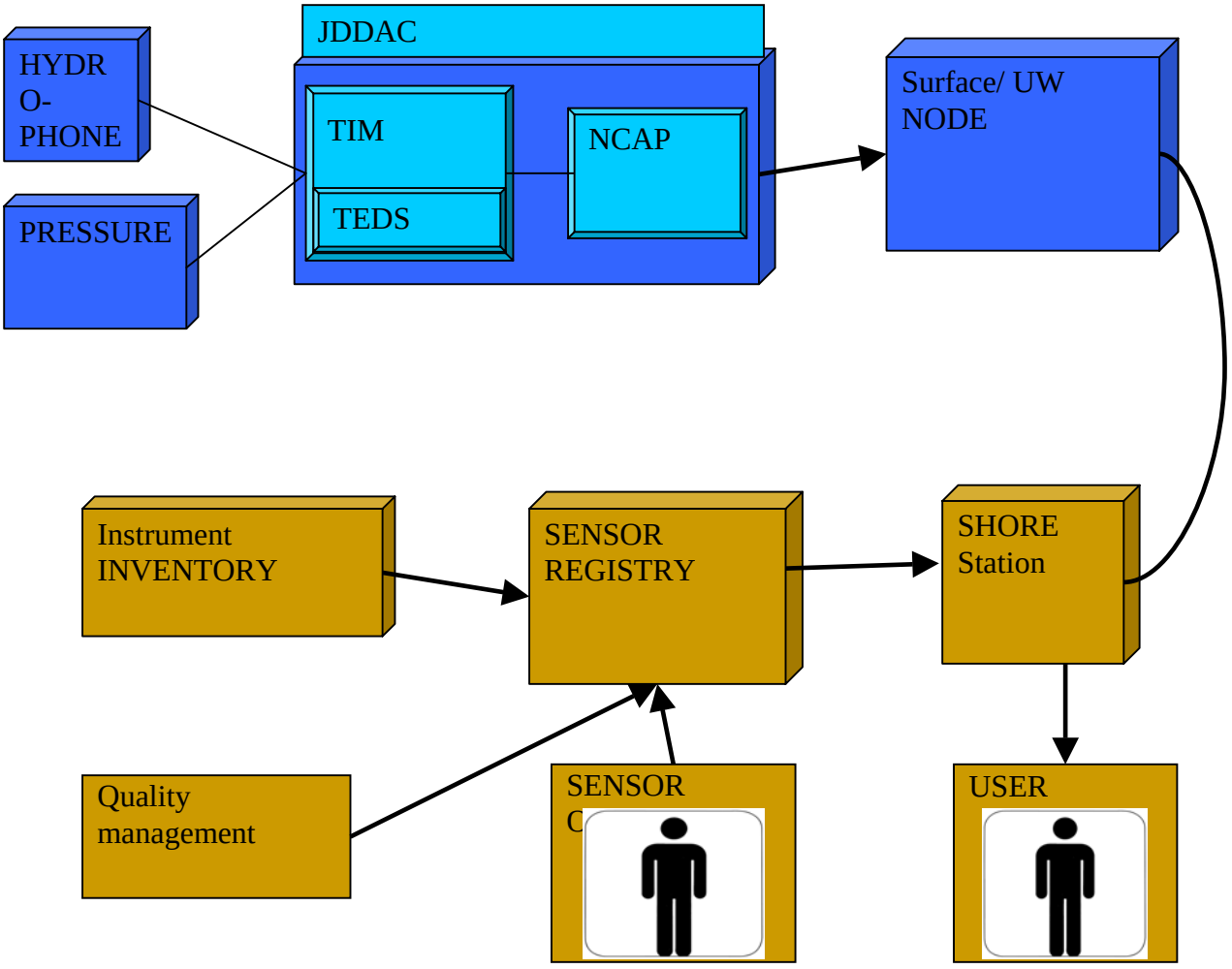


Figure 5 - Generic data collection schema for underwater observatories

Task 2b : Quality assurance/ Quality control

To assure a defined accuracy of the collected data instruments have to be prepared in a certain way before they can be deployed and during the mission a continuous check of the performance has to be conducted. To achieve this goal quality procedures have to be introduced. There are templates that can be used for instance generic procedures that are employed for software development.

Some important aspects to ensure quality and reliability as regards instrumentation have been identified and can be listed as follows:

- a standard interface control document format
- a standard test procedure for each individual instrument or instrument type.
- a standard method of recording and archiving the results of these tests and
- a standard procedure for logging and accessing all maintenance performed on a given sensor (i.e. all historical data).

The implementation of this data management scheme will be further refined and then tested within the ESONET demonstration missions.

Task 2c: Underwater intervention

Within the task on underwater intervention existing standards for commercial offshore operations have been investigated in regard to their applicability for ocean research issues. As presented within the report of the Best Practices Workshop some of these procedures can be used for servicing and maintenance of future ocean observatories. However, a necessary prerequisite for that will be that the personnel in charge for the underwater intervention operation will be trained accordingly. At different research institutions in Europe (MARUM, IFREMER) initiatives have been started to build up simulator for training purposes.

In line with that the following activities have been started now:

Review existing experiences on different compatibility levels

Level a: Compatibility for sharing platforms and ships

Level b: Compatibility between ROVs in Europe (tooling and payloads)

Level c: Compatible procedures

These activities will be coordinate with other European actions like the OFEG working group etc.

2.2.3. Deviations from the project work program, and corrective actions taken

NO DEVIATIONS

2.2.4. Deliverables list

Deliverables							
Del. no.	**Deliverable name**	**Work package no.**	**Date due**	**Actual/ Forecast delivery date**	**Estimated indicative person-months** (*)	**Used indicative person-months** (*)	**Lead contractor**
D6	Proceeding of best practice workshop: sensor interface, quality insurance and specification for demonstration actions.	WP 2a) WP 2b) WP 2c)	Month 12	Done - Month 12	38	35	KDM

Deliverables							
Del. no.	**Deliverable name**	**Work package no.**	**Date due**	**Actual/ Forecast delivery date**	**Estimated indicative person-months** (*)	**Used indicative person-months** (*)	**Lead contractor**
D25	Specification report for demonstration actions – sensor interface.	WP 2a)	Month 18	Month 18	108		KDM
D26	Specification report for demonstration actions – Quality assurance	WP 2b)	Month 18	Month 18	88		Univ Aberdeen
D27	Specification report for demonstration actions – Subsea intervention	WP 2c)	Month 18	Month 18	56		IFREMER

* if available

2.2.5. Milestones list

Milestone no.	Milestone name	Work package no.	Date due	Actual/Forecast delivery date	Lead contractor
Plan and set-up the standardisation project					
2.1	Standardization project plan.	WP 2	Month 6	month 6	KDM
Investigate existing standards with a view to applying them to the current situation					
2.2	Best Practices workshop.	WP 2	Month 8	month 12 See D7	KDM
2.3	Report on existing standardization concepts.	WP 2	Month 11	Month 12	Univ Aberdeen
Define standards					
2.4	Sensor interface – Group is constituted.	WP 2a)	Month 12	Month 12	KDM
2.5	Quality assurance – Group is constituted.	WP 2b)	Month 12	Month 12	Univ Aberdeen
2.6	Subsea intervention – Group is constituted.	WP 2c)	Month 12	Month 12	IFREMER

2.3. WP3 – Scientific objectives and Observatory design

Person in charge: **Christian Berndt who is being replaced with Henry Ruhl**
Contact: **hruhl@mbari.org**
Institution: **NERC-NOCS**

Participating Institutions and Persons:

Task		Task Team Responsible Persons	
WP 3	Scientific objectives and observatory design	**Henri RUHL**	NERC-NOCS (GB)
3a -	Sciences objectives	**Olaf Pfannkuche** Partner members:	**KDM (DE)** IFREMER CNRS NERC-NOCS HCMR Uaç ITU
3b -	Generic science modules	**G. Duineveld** Partner members:	**NIOZ (NL)** IFREMER INGV NERC-NOCS NGI ULB CINTAL
3c -	Specific science modules	**Louis Geli** Partner members:	**IFREMER (FR)** CNRS FFCUL DEU-IMST CINTAL

2.3.1. Work package objectives and starting point of work at beginning of reporting period

The main objective of this work package is to provide the NoE scientific needs related to the make use of a long-term observatory. This implies to define the best methodology, scientific packages and constraints as well for the underwater segment than for shore segment. So this work packages contributes to further structuring and definition of the design of an underwater observatory system to collect long term (at least 20 years) real-time series measurements to allow monitoring of biological, geochemical geological and geophysical key processes that document global change, and contribute in the detection and early warning of short and medium term potential hazardous events.

2.3.2. Progress towards objectives – tasks worked on and achievements made

During the first 12 months we have continuously updated the scientific objectives as new scientific results became available. Through the Barcelona Workshop, the Bremen Workshop and internal discussions the scientific objectives were further

developed and clarified beyond the results of the preceding ESONET CA. Because long term ocean floor monitoring is in its infancy, there is a clear lack of scientific background to assess firmly the parameters to be measured. WP3 thus plays a central role in ESONET since the formulation of scientific questions is the basis for ESONET activities. As we are at the beginning of a new era of continuous marine on line observation with new and exciting scientific perspectives rapidly evolving. These perspectives were disseminated to the broader scientific community through the Oceans 2007 workshop in Aberdeen and scientific objectives and methods have been discussed and were outlined with specialists in the newly established expert group. WP3 has acted as an interface between scientific research goals from ESONET partners and from other stakeholders (EU- programs, e.g. we participated in the Momarnet and Hermes meetings, conservation organizations, governmental agencies, industry) with the ESONET technical related WPs, e.g. during the Bremen workshop.

2.3.3. Deviations from the project work program, and corrective actions taken

There were no deviations from the proposed work plan outlined in the description of work. We have first established the expert group in the first month. Then we revised the scientific objectives in time for the call for proposals for demonstration missions, and finally we revised the objectives again during a long discussion meeting in Barcelona. The results are reported in deliverable D1.

2.3.4. Deliverables list

Deliverables							
Del. no.	**Deliverable name**	**Work package no.**	**Date due**	**Actual/ Forecast delivery date**	**Estimated indicative person-months** (*)	**Used indicative person-months** (*)	**Lead contractor**
D1	*Define preliminary scientific priorities; Text of the call for proposal*	WP 3+4	Month 2	Done – Month 12	10		NOCS INGV

- if available

2.3.5. Milestones list

Milestone no.	Milestone name	Work package no.	Date due	Actual/Forecast delivery date	Lead contractors
3.1	Establish group of experts	WP 3	Month 1	Done	NOCS
3.2	Define preliminary scientific priorities	WP 3	Month 2	Done	NOCS
3.3	Call for proposals	WP 3+4	Month 3	Done	NOCS and INGV
3.4	Establish proposal review committee	Steering Committee	Month 3	Done	Steering Committee
3.5	Review proposals	Non European experts committee	Month 7	Done	Steering Committee

Note : Following a steering committee decision the review of the proposals was delegated to newly established committees and not conducted within the WP3.

2.4. WP4 – Demonstration missions

Person in charge: Laura Beranzoli (LPM)
Contact: beranzoli@ingv.it
Institution: INGV - Istituto Nazionale di Geofisica e Vulcanologia

Task		Task Team Responsible Persons	
WP 4	**Demonstration missions**	**Laura Beranzoli**	**INGV**
4a –	Call for proposal	**Mathilde Cannat** Partner members:	**IPGP** IFREMER IPGP KDM INGV ISMAR TECNOMARE HCMR IMI Uaç FFCUL NGI ULB UNIABDN
4b –	Follow-up on demonstration missions	**E. Gracia** Partner members:	**CSIC** IPGP CNRS KDM TECNOMARE NERC-NOCS HCMR UiT SU TFH Berlin ITU

2.4.1. Work package objectives and starting point of work at beginning of reporting period

ESONET NoE, according to the DoW, is supporting pilot experiments at sea and site surveys that help to define the monitoring strategies, the most appropriate parameters to be measured in order to meet the scientific objectives and to demonstrate the interest of long term monitoring of key areas. The pilot experiment are implemented in the Demonstration missions which are part of the Jointly Executed Research Activities of ESONET NoE and are planned, implemented and screened in WP4. Demonstration missions are considered means to strengthen the integration process of the ESONET NoE scientific and technological community bringing at high level of excellence the technology at different development phases, implementing the standardisation and interoperability of the different platforms from the consortium. Demonstration missions are also aimed at acquiring relevant

scientific time-series. They will be an input for integrated studies, common workshops and a raw material to demonstrate the integration of data management.

2.4.2. Progress towards objectives – tasks worked on and achievements made

The following tasks were carried out:

Task WP 4a) - Call for proposal

This task has included preparation of the draft, circulation in the Steering Committee

- issue of the Call for Demonstration Mission (DM) Proposal and the Guide for the Applicant;
- set-up and follow-up of submission, evaluation and selection procedures;

The procedure for Demonstration missions submission included two phases:

1. Outline phase
2. Full Proposal phase

The Proposal Outline, reporting general information on the topics of the proposal, coordinator and partnership institutions, SA and TA, key-site(s) involved, budget, was intended to be useful both for Coordinator and Chairs, as it is expected to give a general overview on the Full Proposals, and for the proponents, who could eventually informed of parallel proposals on the same key-sites and topics and advised by Coordinator and Chairs. No evaluation was foreseen in this phase.

The Full Proposal included the description of the objectives, impacts, work-plan with respect to ESONET NoE topics and budget distribution over the partnership and had to pass an eligibility phase before the admission to the actual evaluation and selection process.

The eligibility of a proposal was hold to the following conditions:

- the proposal had to be sent to the WP4 Leader before the deadline announced in the Call text
- the proposal should have involved at least 3 ESONET participants, from three different EC countries and members of ESONET NoE
- the proposal should have to be complete (i.e. both the requested administrative forms and the proposal description are present), as specified in the guideline annexed to the call.

For the proposal evaluation the following criteria were established.

a. relevance to the objectives of ESONET NoE:
   - quality and effectiveness of integration (scientific, technological and infrastructure networking and integration, standardisation and interoperability);

- expected impact, durability of the achieved results;
- synergy with European and national funded initiatives.

b. scientific and/or technological excellence:
   - relevance of the expected scientific and technological advancements and methodologies.

c. the quality and efficiency of the implementation and management.
   - project management;
   - quality of the Consortium with respect to the declared goals;
   - feasibility and cost effectiveness (this will include the use of existing monitoring infrastructure or planned cruises).

d. the potential impact through the development, dissemination and application of project results.

The DM proposals approved for funding are reported in the following table.

Proposal Acronym	Coordinator	Affiliation	ESONET Key Site(s)	Budget (k€)
MOMAR	P.-M, Sarradin	IFREMER	Azorres	500
LIDO	M. Andrè	Universitat Politecnica de Catalonia - UPC	East Sicily, Cadiz	500
MARMARA	L. Geli	IFREMER - IFR	Marmara	500
LOOME	D. de Beer	Max Plank Soc.	Haakon Mosby Mud Volcano	300

Task WP 4b) – Follow-up of demonstrations

This task includes:

i) planning of the demo mission start-up,

iii) preparation and monitoring procedures for the DM development;

iv) reporting of the WP4 and DM activities.

The task has bee just started in the end of the reporting period covered by this report with the issue of an implementation plan template to be prepared by each Demo Mission coordinator.

2.4.3. Deviations from the project work program, and corrective actions taken

The main deviations were due to the prolongation of the time necessary to collect the reviewers' reports and to substitute a reviewer unable to produce the asked report in due time. As corrective action, a new reviewer was selected and charged to provided the evaluation report.

These facts have produced the following deviations:

Activity	Planned date	Actual date
Publication of call	May 2nd, 2007	May 2nd, 2007
Deadline for submission of outline proposals	June 1st, 2007	June 1st, 2007
Steering Committee advices in case of outline overlapping	June 28th, 2007	June 28th, 2007
Deadline for submission of full proposals	September 28th, 2007	September 28th, 2007
Evaluation of proposal's eligibility	October 5th, 2007	October 18th, 2007
Steering Committee select the proposals to be funded and communicate to the proponents	November 26th-27th, 2007	January 14th, 2008

2.4.4. Deliverables list

List all deliverables, giving date of submission and any proposed revision to plans.

Deliverables							
Del. no.	**Deliverable name**	**Work package no.**	**Date due**	**Actual/ Forecast delivery date**	**Estimated indicative person-months (*)**	**Used indicative person-months (*)**	**Lead contractor**
D1	Define preliminary scientific priorities – text of the call of the proposal	WP3+ WP4	Month 2	Done - Month 12	2	4	INGV

- **if available**

2.4.5. Milestones list

List all milestones, giving date of achievement and any proposed revision to plans.

Milestone no.	Milestone name	Work package no.	Date due	Actual/Forecast delivery date	Lead contractor
4.1	Text of the call approved by SC	WP4	Month 2	Done	INGV, IPGP, CSIC
4.2	Demo mission planning submitted to TOC	WP4	Month 4	Month 6 - Done	
4.3	Selection of successful proposals	WP4	Month 6	Month 11 - Done	

2.5. WP5 – Implementation strategies

Person in charge: **Michael Gillooly and Fiona Grant**
Contact: **mick.gilloly@marine.ie & Fiona.grant@marine.ie**
Institution: **IMI**

Participating Institutions and Persons:

Task		Task Team Responsible Persons	
WP 5	**Implementation strategies**	**M. Gillooly** **F. Grant** N O'Neill M Andre J Dañobeitia JF Rolin	**IMI** **IMI** CSA CSIC/UPC CSIC IFREMER
5a -	Economical implementation models	Partner members:	KDM IFREMER UAç CSA
5b -	Site assessment, legal model and environmental constraints	Partner members:	IFREMER HCMR CSA
5c -	Joint reply to infrastructure initiatives	Partner members:	IFREMER KDM HCMR CSA INGV
5d -	Long term funding plan strategy	Partner members:	INGV NERC-NOCS HCMR CSA

2.5.1. Work package objectives and starting point of work at beginning of reporting period

WP5 utilises and builds on the outputs of the ESONIM SSA and comprises of joint activities of ESONET NoE members in development and preparation of infrastructure projects, building from input from the NoE members. WP5 aims to analyse and integrate the activities and to assist in the preparation of applications to National and International funding agencies including input to proposals, if required.

WP5 addresses the most sensitive questions in the project. Business models, legal and permitting methods and reply to proposals are considered to be part of the common activities and will be shared according to rules included in the Consortium Agreement. The economic, legal, technological and environmental impact aspects of implementation will be addressed. WP 5 will focus on creating structural linkages and strategies to enable establishment of significant Seas Observatory Network(s) in the areas prioritised through ESONET, or via evolving drivers such as GMES, GEOSS, seismological operational networks, ICG/NEAMTNS and the European Marine Strategy, etc. The NoE will also forge links with the owners and operators of existing structures, such as MARS, NEPTUNE and ARENA and assess the source of the experienced delays.

Practically, the implementation strategy of actions within the NoE will be three fold:

a) The NoE will encourage its members to select a number of “hot spot” sites for long-term, permanent facilities;

b) The NoE will support preparatory phases to improve the scientific knowledge required to define the most valuable and environmentally friendly methods to enable implementation of operational systems in sensitive marine areas of Europe for long-term observation of the deep seafloor and water column. These will include, but not be limited to: mitigation measures for sea mammals and turtles, evaluation of emf fields to fish (e.g. magneto sensitive) with particular reference to the COWRIE list of sensitive fish, vibration from cable free span, installation sounds, wave disturbance, alterations to currents and circulation, water quality, scouring, sediment transport, shoreline erosion (landfall) and structural habitat alteration, including potential aggregation structure effects.

c) The NoE will also support decommissioning plans in accordance to the requirements of OSPAR Decision 98/3 on the Disposal of Disused Offshore Installations, including recommended disposal: re-use of all or part of the installation; recycling of all or part of the installation; final disposal on land of all or part of the installation; other options for disposal at sea. WP5 will also address technical and engineering aspects of disposal, timing, safety, marine environmental impacts and other consequences to the physical environment that may be expected to result.

2.5.2. Progress towards objectives – tasks worked on and achievements made

WP5 leaders and partners (IMI and CSIC) have attended and participated in a number of workshops and meetings in relation to the ESONET project.

Meetings	Date
ESONET/EMSO Meeting	Brussels 24 Jan 2007
Pre-Steering committee meeting #1	Brussels 25 Jan 2007
Kick off meeting ESONET	Brest 21-23 Mar 2007
Steering Committee ESONET #2	Brest 23 Mar 2007
Steering Committee ESONET #3	Aberdeen 21 June 2007
All Regions Workshop #1	Barcelona 5-7 Sept 2007
Steering Committee ESONET #4	Barcelona 7 Sept 2007
Strategic Committee ESONET #1	Barcelona 7 Sept 2007
Steering Committee ESONET #5	Rome 26-27 Nov 2007
ESONET Best Practices Workshop	Bremen Jan 29-30 2008

At the kick off meeting and assembly WP5 partners developed the concept of developing three generic models based on the outputs of ESONIM.

M. Gillooly presented a paper on ESONIM and its basis for deriving three generic models (Atlantic, Mediterranean and Stand alone).

Fiona Grant from IMI drafted an article for ESONEWS on the ESONIM project and its application to the Celtnet site. The ESONIM model has also been used to do an initial estimation of the cost of rolling the infrastructure out around each of the regional observatories. This will be refined in WP5 to determine the capital and operational expenditure required for typical categories of sites (such as an Atlantic site, a Mediterranean site and a standalone site or other classification).

Translations of the French regulatory framework in relation to the maritime public domain have been provided to the MI by IFREMER. These describe the Public Property code and the Environmental code (environmental evaluation, public inquiries related to procedures liable to affect the environment and general principles and resource management in relation to water and aquatic environments) in France. These will be used in WP5 to perform site studies in relation to environmental constraints, potential conflicts of use, risk mitigation approaches, towards the study of ethical issues (acoustics and power cable) and all environmental assessments. The regulatory regime operating in France will be compared to the system operating in Ireland (through a comparison with ESONIM legal documentation) and will be broadened to encompass issues that could arise at other generic sites. The IFREMER bibliography also included some overview of power cable laying constraints over Europe as well as the latest studies on application of OSPAR regulations.

Task WP 5a) – Economic implementation models

D5 (Series of individual implementation plans for specific cabled observatory sites) – limited progress has been made due to the delay in finalisation of the ESONIM project (see section entitled *Deviations from the project work program)*. However, a meeting of WP5 participants will be held on March 19th-20th to begin work on individual implementation plans for specific cabled observatory sites (draft agenda below).

WP5 (Implementation strategies) meeting
19th & 20th March, CSIC Barcelona

Invitees: Mick Gillooly, Fiona Grant, Nick O'Neill, Juanjo Danobeitia, Jaume Piera, Jean Francois Rolin, Olaf Pfannkuche, Namik Cagatay, John Carr, Jean Jacques Destelle, Michel Andre, Michael Klages, Louis Geli, Ricardo Serao Santes, Hanne Sagen, Tassos Tselepides.

Wednesday 19th March
9am Meeting with Mick Gillooly, Fiona Grant, Nick O'Neill, Juanjo Danobeitia, Jaume Piera, Jean Francois Rolin.

Review of meeting agenda, review of attendees & WP5 participants, review outputs available from ESONIM project. Discuss forecast delivery date for WP5 deliverables. Selection of "generic" sites. Discuss work programme for the meeting – 3 teams to work on each of the generic sites. Assign duties and responsibilities.

12.30pm Lunch

1.30pm Meeting with all attendees

-Welcome by Mick Gillooly.
-Overview of WP5, deliverables and forecast delivery dates.
-Overview of ESONIM project.
-Worked example of business model using one of the generic sites. Demonstration of what information is available for the model and what information needs to be updated and refined.
-Overview of legal information available from ESONIM project and French regulatory framework. Discussion of other legal inputs required.
-Set up three teams for the Atlantic (Mick Gillooly), Mediterranean (Fiona Grant) and standalone sites (Nick O'Neill).

Parallel session of working groups – assessment of infrastructure (nodes, cable route), refinement of business model, legal requirements.

6.15pm Report on parallel sessions on implementation plans for each site.

6.30pm Close

Thursday 20th March
9am Continuation of parallel session on implementation plans for each site.

12.15pm Discussion on findings and finalisation of work plan for remainder of 18 months.

12.30pm Close

Given the delay in delivery of the ESONIM project and difficulties in coordinating WP5 participants, we think it appropriate to delay the delivery until month 18. We believe that implementation plans for each of the sites could be done by month 18 if partners engage in the process and relay inputs to the WP5 leaders. Each of the participating organisations has now identified a contact within their organisation and outlined what their contribution could be to WP5. We have put in place a reporting structure and the work plan will be devised and implemented in full following the critical meeting in March, 2008.

Task WP 5b) – Site assessment, legal model and environmental constraints

D14 (Report on workshops to facilitate and broker partnership, Tutorials/Meetings on Implementation plans and replies to infrastructure proposals; on site assessment, legal model, environmental constraints and their associated ethical issues) – This deliverable is due in month 18. There have been a number of workshops e.g. Barcelona and Bremen, which indirectly addressed this deliverable. Inputs to this deliverable are also required from D5 and D23. Tutorials on implementations plans, legal models and environmental constraints will all be discussed at the WP5 meeting in March. We anticipate that the outputs from this meeting and subsequent work will form the basis for D14.

D20 (Report on long-term planned research and cooperation between research organisations) – European Multidisciplinary Seafloor Observation (EMSO) project has been selected by the European Commission for a Preparatory Phase of Research Infrastructure. It is linked to ESONET NoE. Both projects have a common Strategic Committee in charge of long-term orientations.

Task WP 5c) – Joint reply to infrastructure initiatives

D21 (Document outlining agreement on co-operation between organisations involved in developing technology) – After one year of meetings and presentations, ESONET NoE is recognized at international level as the representation of Europe in the field of sub sea observatories.

Concerning linkages and strategies to enable the establishment of significant Seas Observatory Network(s), the CSIC-UPC group submitted a proposal to the Ministry of Education & Science, in order to prepare shallow depth site, located near its laboratories and enable to permanent test submarines sensors and equipment, prior to install them in deep waters as the ESONET sites. CSIC got funding form our National RD programme (*REF: CAC-2007-09 "Prototipo preliminar de Observatorio Submarino Expandible Cableado*) for two shallow sites with different cable technologies that will be useful to evaluate strategies of implementation in terms of cost/benefit analysis. This will be used to promote the future use of submarine laboratories with national and local agencies, stakeholders, with the aim to produce pilot tests for socio-economic impact.

Last year NERSC submitted a project proposal ACOBAR: Acoustic technologies for monitoring the internal of the Arctic Ocean" as a response to Call identifier: ENV.2007.4.1.3.2. Monitoring the ocean interior, seafloor and sub seafloor. This project has been accepted for negotiation, and will start late summer this year. NERSC is the co-ordinator, and partners are Alfred Wegners Institute, Germany; University Pierre et Marie Curie, Paris, France; Scripps Oceanographic Institution, USA; Woods Hole Institution, USA; Optimare, Germany; ENSIETA, France; ACSA France and Aquatec, UK. A link towards ESONET is provided through NERSC and AWI. Focus is on the Arctic node of the ESONET.

NERSC also have taken the lead in forming a consortium of Marine Technology interests in Bergen involving the University of Bergen, the Institute of Marine Research and local technology partners, which we hope in future will end up in a Marine technology Center. One central technological theme in this center will be "Design, implementation, instrumentation and operation of cabled ocean observatories". This will be a major focus at NERSC the next 18 months. Such a center or collaboration in Bergen will be important for the future implementation of cabled systems in the Norwegian waters.

D24 (Report on integration between respective teams (research teams, technical teams, companies and SMEs) and working relationships beyond the life of ESONET) –

Good start of the integration process in the NoE. The objective of constituting groups is fulfilled. The opening of ESONET to associated partners is under study.

The CSIC together with IFREMER have made a series of tests at Toulon during January 2008 (13 days), aboard the Spanish research vessel BO Sarmiento de Gamboa, in order to arrange the ship to have the capacity to deploy and recovery ROV's which will be fundamental equipment for deployment, maintenance and recovery of submarine observatories. After these test series the BO Sarmiento de Gamboa is capable to manoeuvre the Victor-6000 from IFREMER. A complete report of this activity will be available within the next months.

Task WP 5d) – Long terms strategy funding plan

D22 (Report on confidential meetings between commercial companies and ESONET WP leaders re working relationships and ESONET requirements) –

After a partnership between NGI and StatoilHydro, two meetings have taken place with Statoil who have requested the ESONET consortium to define sensor packages and associated data management procedures which could be deployed for real time monitoring adjacent to offshore platforms operating in the Norwegian and Barent Seas.

STATOIL wishes to work with ESONET partners to implement a network of long term observatory network around its production sites in Norway sea and Arctic ocean.

A cooperation of BP is established with one ESONET Partner : University of Aberdeen.

A meeting is proposed in March 2008 with the PESOS main representatives at the Oceanology Conference in London, as there was limited engagement with companies in 2007. Oceanology in London on the 11th and 12th of March presents the next opportunity to engage with the industry. There is a climate change stand that is particularly relevant. It is chaired by one of the oil company representatives that we have been in contact with.

D23 (Report of meeting to discuss long-term funding for seafloor observatories involving representatives from funding agencies) – After one year of meetings and participation to committees, the join action of ESONET and EMSO seems to be the right way to prepare the long term funding plans.
EMSO will take over most of the negotiating activities. ESONET will keep the animation of a wider community (scientific, engineering and private) on this topic as a support to EMSO.
Strategic committee report from Barcelona is available.

2.5.3. Deviations from the project work program, and corrective actions taken

It was envisaged that the ESONIM Business Model (from the ESONIM SSA project) would provide a basis to explore options (including Public- Private Partnerships) to establish and operate a deep-sea observatory system. The date for completion of this project was originally April 2007. The ESONIM final reports were submitted to the EU on 14th September, 2007 and on the 11th November, 2007 all of the deliverables from ESONIM were circulated to ESONET NoE steering committee members. On 22nd January, 2008 the EU indicated that within a few weeks all of the auditing procedures should be complete. The late delivery of the ESONIM project has had an impact on some of the deliverables in WP5 – namely D5 and D14. In addition, there have been some delays in coordinating a suitable date for WP5 partners to begin working on implementation plans. The date for this meeting has now been set as 19th-20th March, 2008 and will be hosted by CSIC in Barcelona.

It should be noted that the delay in the commencement of the EMSO PP has also impacted on WP5 as there is a need for careful coordination between the work programmes to ensure that activities are both complementary and are not duplicated.

2.5.4. Deliverables list

Deliverables							
Del. no.	**Deliverable name**	**Work package no.**	**Date due**	**Actual/ Forecast delivery date**	**Estimated indicative person-months (*)**	**Used indicative person-months (*)**	**Lead contractor**
D5	Series of individual implementation plans for specific cabled observatory sites.	WP 5	Month 12	Month 24	39		IMI
D14	Report on workshops to facilitate and broker partnership, Tutorials/Meetings on Implementation plans and replies to infrastructure proposals; on site assessment, legal model, environmental constraints and their associated ethical issues.	WP 5	Month 18	Month 24	38.5		IMI
D20	Report on long-term planned research and cooperation between research organisations.	WP 5	Month 12 yearly	Done – Month 12	20		IFREMER
D21	Document outlining agreement on co-operation between organisations involved in developing technology.	WP 5	Month 12 yearly	Done - Month 12	5		IFREMER
D22	Report on confidential meetings between commercial companies and ESONET WP leaders re working relationships and ESONET requirements.	WP 5	Month 12 yearly	Done - Month 12	10		IMI
D23	Report of meeting to discuss long-term funding for seafloor observatories involving representatives from	WP 5	Month 12 yearly	Done - Month 12	10		IFREMER

Deliverables							
Del. no.	**Deliverable name**	**Work package no.**	**Date due**	**Actual/ Forecast delivery date**	**Estimated indicative person-months (*)**	**Used indicative person-months (*)**	**Lead contractor**
	funding agencies.						
D24	Report on integration between respective teams (research teams, technical teams, companies and SMEs) and working relationships beyond the life of ESONET.	WP 5	Month 12 yearly	Done - Month 12	7		IFREMER

2.5.5. Milestones list

Milestone No.	Milestone name	Work package no.	Date due	Actual/Forecast delivery date	Lead contractor
5.1	Tutorials on developing cabled networks as a business are ready	WP 5	Month 8	Month 14	IMI
5.2	Meeting on individual implementation plans for specific cabled observatory sites	WP 5	Month 12	Month 14	IMI
5.3	Strategic workshops to facilitate and broker partnerships between interested parties	WP 5	Month 14	Month 21	IFREMER IMI

2.6. WP6 – Socio economic users

Persons in charge: J M Miranda, Campo Grande
Contact: jmiranda@fc.ul.pt, +351217500809
Institution: Fundação da Faculdade de Ciências da Universidade de Lisboa

Names and institutions of the participating persons:

Task		Task Team Responsible Persons	
WP 6	**Socio economic users**	**J M Miranda** Jean François Rolin Nick O'Neil	**FFCUL** IFREMER CSA
6.a -	Core services stakeholders	Partner members:	IFREMER INGV CSA
6.b -	Regional services stakeholders	Partner members:	IFREMER KDM FFCUL CSA
6.c -	Promotion and SME policy ESONEWS	Partner members:	IFREMER IMI UAç FFCUL CSA

2.6.1. Work package objectives and starting point of work at beginning of reporting period

The objectives of this work package is the promotion of the need of subsea observatories, disseminating the results of ESONET NoE and establishing permanent links to socio-economic users. These objectives ask for the development of stronger links between the present and future stakeholders of ESONET, disseminate to the large public the state-of-the-art of the network and promoting the harmonious development of the different regional infrastructures vis-à-vis the different user communities, with an emphasis on the connection between ESONET and the private sector and searching beyond the marine sector for new partnerships.

2.6.2. Progress towards objectives – tasks worked on and achievements made

In the following sections we describe the progress observed during this period concerning the different tasks foreseen in WP6. The work package was coordinated by J M Miranda (FFCUL), Jean François Rolin (IFREMER) and Nick O'Neill (CSA). Other partners contributed also to this WP, either in the organization of the different actions, the production of the D2 Report or the content of the three issues of ESONEWS.

Task WP 6a) - Core services stakeholders

ESONET developed contact with GEOSS. Ingrid Puillat deputy of the coordinator R Person represented the network at the Cape Town Meeting in November 2007. Another Meeting was organized in ISPRA, at the headquarters of the JRC, between ESONET and GEO user interface committee.

Task WP 6b) - Regional services stakeholders

Based on the ESONET CA and ESONIM SSA outputs, a report called "REPORT ON REGIONAL OBSERVATORY STAKEHOLDERS" was prepared, updating the information concerning ESONET future nodes, their basic design, institutions involved in their development or in the data that will be available in the near future. This report constitutes the second deliverable (D2) of ESONET NoE.

In the preparation phase of the Demonstration Missions new progresses were observed in what concerns the organization of the Azores Node, Sicily node, Gulf of Cadiz node, Norwegian node and Marmara Node. Kosterfjord node although not elected has been preparing a proposal.

The Celtic (Porcupine node) was the case study of the ESONIM project. As Esonim duration was extended in 2007, most of this work was not done in ESONET but more an "in heritage" to ESONET. It has been the center of an intense cooperation between several partners and a promotion towards regional stakeholders in Ireland and abroad (see specific deliverables of ESONIM SSA). The Demonstration mission proposal on this site was not elected.

Meetings with local (Department and Region) authorities took place in Southern France about the Ligurian sea node. A workshop is planned in March 2008.

Meetings of KM3Net Design study project (FP6 project-http://www.km3net.org/home.php) established the link with ESONET for the Ligurian, Sicily and Hellenic sites. The concept of "Associated science", providing facilities to oceanographic use as an extension of the underwater neutrino telescope infrastructure, corresponds to the objectives of ESONET.

The Norwegian site has been better defined thanks to a workshop and several meetings with several Norwegian authorities and institutes including University of Tromsø for ESONET. It leads to the constitution of the NOON group (http://web.websys.no/SUInstanser/bergen /noon/websider). NOON states for Norwegian Ocean Observatory Network.

Task WP 6c1) - ESONEWS

In the ESONET DoW, one of the products of ESONET was designed as a Newsletter devoted to the dissemination of (i) the importance of scientific issues, (ii) the mastering of the technology and business plan, (iii) the role of political support for underwater observatories, (iv) the partnership with

successful implementations in North America and Japan, and (v) complementary role of ESONET in situ observation with satellite, coastal surface and subsurface ocean layer data collection.

In this sense an issue of "ESONET News - Europeans observe the deep sea" was produced every 3 months. It was prepared in digital form and distributed to a large mailing list prepared by ESONET central office. Each issue, with 8 pages, was also printed to be distributed in international meetings.

The first number was devoted to the launching of ESONET NoE initiative. The second number was devoted to the technological aspects of deep sea observatories. The third number to the outcomes of ESONIM project and centered in the financial aspects of regional nodes. All issues of ESONEWS include one page where the profile of a SME is presented, focused on their potential contribute to ESONET.

The different issues of ESONEWS gathered cooperation from a series of ESONET partners (University of Lisbon, Send GmbH, IFREMER, INGV, CSA, IMI, University of Aberdeen, CNRS IN2P3-Antares, nke, Fugro-oceanor, University of Azores).

Task WP 6c2) - Promotion and SME policy

The first circle of ESONET regional was developed in the preparatory phase of the “All Regions Workshop n°1” held in Barcelona, described in another WP (WP1). In most cases emphasis was put on the involvement of SME mainly those that can act as suppliers for the node infrastructure.

During the preparation phase of ESONET a stable association (PESOS (Group of Providers of Equipment and Services for Observatory Systems) was foreseen as an important step towards a better integration of SME in the future network.

The conclusions of the specific panel of PESOS during the Barcelona meeting was:

- extension of the PESOS group,
- low level of involvement last September could only grow if industrial opportunities grow and are made available. This will occur as the observatory activity is increased in scale,interest in the specification step,importance of standards at European scale,industry is more efficient at a certain volume scale of equipment.

The establishment of a permanent legal body for the PESOS group (see proposed statutes in Annex 1) was not found relevant yet.

During the Barcelona All Region Workshop 1 on the 7th of September 07, the group of private companies inside ESONET NoE consortium expressed the idea of opening this group to more companies from a broader scope of industrial fields. This is the main objective of the meeting to be held in London during OI’08. An element from the private sector entered the ESONET Steering Committee. In the first year this commitment was ensured by Neville Hazell from Alcatel.

2.6.3. Deviations from the project work program, and corrective actions taken

The major deviation concerns the D2 report. This deviation was partially a result of some delay in the Final Report of ESONIM, upon which it was supposed to be partially based, and also a result of some lack of definition is some of the regional nodes, in what concerns basic layout, sensors and implementation plan.

Corrective Actions

The demonstration missions that are being organized under WP4 will contribute largely to a better definition of the observatory layout and will foster the appearance of new partnerships.

The definition of clear more complete groups for all regional nodes will also be important to clarify the information fluxes inside the ESONET community.

The PESOS meeting in London is only taking place on month 13, explaining a smaller involvement of private partners up to month 12.

2.6.4. Deliverables list

Deliverables							
Del. no.	**Deliverable name**	**Work package no.**	**Date due**	**Actual/ Forecast delivery date**	**Estimated indicative person-months (*)**	**Used indicative person-months (*)**	**Lead contractor**
D2	"REPORT ON REGIONAL OBSERVATORY STAKEHOLDERS"	WP 6	Month 8	Month 10			23
D15	ESONEWS	WP 6	Months 5, 8, 11	Months 3,8,10			1

2.6.5. Milestones list

Milestone no.	Milestone name	Work package no.	Date due	Actual/Forecast delivery date	Lead contractor
6.1	ESONEWS	WP 6	Every 3months from month 2	Done	IFREMER/FFCUL
6.2	Contribution to All regions workshop	WP 6	6	Month 7 - Done	FFCUL
6.3	SME group constituted	WP 6	12	Month 7 improved on month 13	IFREMER/SME representative (Alcatel elected for the first year)

2.6.6. Annex WP6

Statutes than could be use for PESOS (done in collaboration with WP5)

Undersigned:
(Name), (nature), hereafter called “---------”, having its headquarters at (address) and represented by its --------- or its duly appointed representative,

(Name), (nature), hereafter called “---------”, having its headquarters at (address) and represented by its --------- or its duly appointed representative,

(Name), (nature), hereafter called “---------”, having its headquarters at (address) and represented by its --------- or its duly appointed representative,

(Name), (nature), hereafter called “---------”, having its headquarters at (address) and represented by its --------- or its duly appointed representative,

(Name), (nature), hereafter called “---------”, having its headquarters at (address) and represented by its --------- or its duly appointed representative,

(Name), (nature), hereafter called “---------”, having its headquarters at (address) and represented by its --------- or its duly appointed representative,

(Name), (nature), hereafter called “---------”, having its headquarters at (address) and represented by its --------- or its duly appointed representative,

(Name), (nature), hereafter called “---------”, having its headquarters at (address) and represented by its --------- or its duly appointed representative,

(Name), (nature), hereafter called “---------”, having its headquarters at (address) and represented by its --------- or its duly appointed representative,

(Name), (nature), hereafter called “---------”, having its headquarters at (address) and represented by its --------- or its duly appointed representative,

Founding members assembled today to constitute an association governed by the French law of July 1, 1901.

Article 1 - Constitution
An association, governed by the French law of July 1, 1901 and the French decree of August 16, 1901, is instituted between the undersigned and legal entities adhering to this statutes.

Article 2 - Denomination
The association takes the following denomination: Group of Providers of Equipment and Services for Observatory Systems (PESOS).

Article 3 - Objectives
The association has as its objectives in the field of ocean observatory systems:
- sharing best practices and knowledge;
- define standards for installing and operating ocean observatory systems (sensors and scientific packages, systems engineering and quality assurance/quality control procedures; underwater intervention ;
- Represent members in ESONET general assemblies ;
- Co-ordination of proposals in response to EU research programmes and to international programmes.

Article 4 - Registered office
The registered office of the association is located at the following address:

The registered office can be transferred at any time by simple resolution of the Board of Directors.

Article 5 - Duration
The duration of the association is fixed at 6 years (4years ESONET project plus two), counting from the date of the signature of the statutes. The Extraordinary General Assembly can however decide to extend the duration before the end of this term and within the conditions specified in article 11.
The fiscal year runs from January 1 to December 31.

Article 6 - Composition of the association
6.1. Membership is open to any Small and Medium-Sized Enterprises (SMEs) in the field of ocean observatory systems, hereafter called Member (s).
6.2. Membership is open to any Small and Medium-Sized Enterprises (SMEs) satisfying to the conditions defined in article 6.1. above upon payment of a Membership fee. The amount of a Membership fee is ------- euros. This amount can be varied annually by the Board of Directors.

Article 7 - Loss of Membership
Lose their Member (s) :
· those members who send a letter of resignation addressed to the President;
· those members that the Board of Directors decide to exclude for non-payment of the membership fee or for a serious infringement of the aims and objectives of the organisation, after being invited, by registered mail, to explain themselves before the Board of Directors.

Article 8 - Board of Directors
The day-to-day management of the association is made by a Board of Directors, made up of 3 members, elected by the General Assembly:
- 1 president
- 1 Secretary
- 1 Treasurer
Members of the board are elected for 2 years. They are re-eligible.

Article 9 - Functions of the members of the Boards of Directors
9.1 - The President
He represents the association in all the acts of civil life and is invested of all powers to this effect.
He is in particular authorized to be a party to legal proceedings as defendant in the name of the association and as applicant, with the authorization of the Board of Directors ruling with a relative majority.
He can formulate, under the same circumstances, all appeals.
He can reach a settlement only with the authorization of the Board of Directors ruling with a relative majority.
He presides all the assemblies.
The President shall be appointed by the General Meeting for a term of 2 years.
9.2 - The Treasurer
Under the supervision of the President, he carries out any payment and receives any sum due to the

association.
He keeps a regular accountancy of all operations carried out by the association and reports to the annual General Assembly which approves his management. He presents an audited statement to the annual General Assembly for approval.
He's present to the meeting of the Board of Directors as a non-voting member.
The Treasurer shall be appointed by the General Meeting for a term of 2 years.
9.3 - The Secretary
He draws up the official reports of the meetings of the assemblies and of the Board of Directors and, in general, all writings concerning the operation of the association, except for those concerning the accountancy.
He's present to the meeting of the Board of Directors as a non-voting member.
He keeps the special register described by article 5 of the French law of July 1, 1901 and articles 6 and 31 of the decree of August 16, 1901. He attends to the execution of the formalities prescribed by the aforementioned articles.
The Secretary shall be appointed by the General Meeting for a term of 2 years.

Article 10 - Meetings of the Board of Directors
The Board of Directors meets on convocation of its President at least twice a year or by request of a quarter of its members.
Board meetings by teleconference or IRC (Internet Relay Chat) are valid.
The presence of a third of the members of the Board of Directors is necessary for the deliberations to be valid.
The decisions are made by majority of the votes cast.
In case of a tie, the President casts the deciding vote.
An official report of the meetings is kept.
The official reports are signed by the President and the Treasurer. They are established without white spaces or erasures on numbered sheets and kept in the registered office of the association.
The Board of Directors is invested with the widest powers to execute or authorize all acts or operations that enter in the objectives of the association and are not reserved to the General Assembly.
The board convenes the General Assemblies.
It expresses its opinion on all the admissions and expulsions of members of the association.
It authorizes the President and the Treasurer to make purchases, transfers or renting necessary for the operation of the association.
The members of the Board of Directors can receive remunerations for the administrative duties or technical or commercial missions which are entrusted to them.
Moreover, the members of the Board of Directors can obtain reimbursements of expenses.
Deliberations of the Board of Directors relating to acquisitions, exchanges and transfers of buildings necessary for the objectives of the association, mortgaging the aforementioned buildings, leases exceeding nine years, transfers of goods, and loans must be approved by the General Assembly.

Article 11 - General Assembly

11.1 - Ordinary General Assembly
The General Assembly includes Members of the association, up to date on their contributions.
It meets at least once a year, at the latest six months after the end of the fiscal year and every time it's convened by the Board of Directors, or on request of at least a quarter of its Members.
For every assembly the convocations must be sent 10 days in advance and have to include the agenda. The convocations are made by electronic mail and by posting on the web site of the association.
The agenda is determined by the Board of Directors.
The President chairs the General Assembly.
The President makes a statement on the situation of the association.
The Treasurer renders account of his management in a financial report that he submits for approval of the General Assembly.
The General Assembly hears the reports on the management of the Board of Directors.
It approves the accounts of the previous fiscal year, votes on the budget for the following fiscal year, deliberates on the questions on the agenda and decides, if necessary, on the renewal of the members of the Board of Directors.
All decisions of the General Assembly are taken by majority of the votes cast. However, the revocation of members of the Board of Directors necessitates a majority of three-quarters.
Secrecy of the vote is a right if a member asks for it.
The modalities of the vote are defined every year by the Board of Directors.
Deliberations of the Board of Directors relating to acquisitions, exchanges and transfers of buildings necessary for the objectives of the association, transfers of goods and loans are submitted to the General Assembly for approval.
The official reports of the deliberations of the assemblies are entered in the register by the Secretary and signed by him and the President.

12.2 - Extraordinary General Assembly
The statutes can be modified by the General Assembly, on proposal of the Board of Directors, or on proposal of at least 20% of the Members composing the General Assembly.
In both cases, the proposals of the modifications are entered on the agenda of the following Extraordinary General Assembly, which has to be sent to all members of the assembly at least 15 days in advance.
The Extraordinary General Assembly deliberates validly if at least a third of its Members are present or represented.
If this quorum is not reached, a second assembly is convened, with the same agenda and at least fifteen days after the first.
No quorum is required for the second convocation.
The statutes can only be changed, for the first or the second convocation, with a majority of two-thirds of the Members that are present.

Article 13 - Dissolution
The General Assembly can also be convened, according to the modalities stated above, to pronounce itself on the dissolution of the association.
It can validly deliberate only if at least half of its Members are present.
If this quorum is not reached, a second assembly is convened, with the same agenda and at least fifteen days after the first.
No quorum is required for the second convocation.
The dissolution of the association can only be voted, for the first or the second convocation, with a majority of two-thirds of the Members that are present.
The General Assembly appoints one or more liquidators in charge of the liquidation of the assets and liabilities of the association.
It allots the net assets to one or more similar establishments, or to any establishment it decides, with the exception of the members of the association.
The liquidators are in charge of carrying out the formalities of declaration and publication required by the law and regulations that apply.

Article 14 - Resources
The resources of the association are composed of:
· the contributions or inscriptions of its members
· subsidies accepted by the Board of directors.

Article 15 - By-laws
The Board of Directors can establish by-laws that will be approved by the General Assembly.
These by-laws will define the modalities of application of the present statutes.
They can also regulate various elements not envisaged by the statutes.
The by-laws can be modified by the Board of Directors, which has to present the modification for approval to the General Assembly.
The by-laws are binding to all the members of the association.

Article 16 – Competent national court
All legal actions regarding the association will be settled by the courts of the jurisdiction where the association has its registered office.

IN WITNESS WHEREOF, the Founding members have executed these statutes in one original copy.

Authorised to sign on behalf of:
By (signature) ……..……
Name (block letters): ……..……
Position: ……..……
Date: ……..……

2.7. WP7 – Education and Outreach

Persons in charge: PROF. LAURENZ THOMSEN
Contact: l.Thomson@jacobs-university.de
Institution: KDM, Jacobs University Bremen - JUB

Names and institutions of the participating persons:

Task		Task Team Responsible Persons	
WP 7	**Education and Outreach**	**Laurenz Thomsen** Angela Schaefer Nora Hanelt Audrius Masalskis Shirish Padley Ishan Basyal Irina Calciu Jayanta Gauchan Abhinav Gogoi Shirish Pandey Anup Sherchan Radhika Tibrewal Anastesios Tselipides Ana Colaço	**KDM/JUB** KDM/JUB KDM/JUB KDM/JUB KDM/JUB KDM/JUB KDM/JUB KDM/JUB KDM/JUB KDM/JUB KDM/JUB KDM/JUB HCMR Univ.Azores
7a -	Education tools	Partner members:	IFREMER KDM INGV HCMR FFCUL CSIC-UPC ITU DEU-IMST
7b-	Build a web portal with real time web interface	Partner members:	IFREMER KDM INGV UAç
7c-	Communicate results and new developments	Partner members:	IFREMER KDM CNRS SOPAB INGV HCMR UAç ITU DEU-IMST

2.7.1. Work package objectives and starting point of work at beginning of reporting period

The main objective of outreach and training is the development and support of comprehensive interdisciplinary programs for research, education and public outreach and strengthen educational possibilities for students of all ages.

ESONET´s envisioned internet technologies will merge research portfolios and establish a shared and mutually accessible research resource. The joint public relations can provide a wide range of new opportunities to explore and investigate the dynamics of the marine world using real-time data flow to classrooms and living rooms coupled with cutting-edge visualization techniques.

Additionally the training of graduates and postgraduates in multidisciplinary environmental sciences was an important part of ESONET.

2.7.2. Educational-Scientific activities, progress and achievements over the past 12 month

The ESONET outreach and training website (http://mars-srv.oceanlab.iu-bremen.de/) has been made available from Jacobs since October 2007, and further supports and broadens the already existing ESONET WebPages at IFREMER. Information on ESONET, including the scientific background, has been adapted for public and educational purposes *inter alia*, documentation on ocean margin research methodology, scientific and legal aspects of deep-sea research, quizzes, games, etc. A discussion forum for the public with possibilities to ask questions has been implemented on the educational website and studies feedback. Class material is currently adapted for schools using information provided by the ESONET partners. Pupils from grammar schools already use this material. For the time being and because ESONET is also closely connected to the EU HERMES activities. Class material from HERMES covering science topics and study sites of ESONET is provided on the ESONET outreach pages. Detailed information on the ESONET study sites is provided on the outreach page.

The first educational and training workshop was held from 27th to 28th January 2008 at Jacobs University Bremen, where some 18 ESONET students and 12 ESONET lecturers participated.

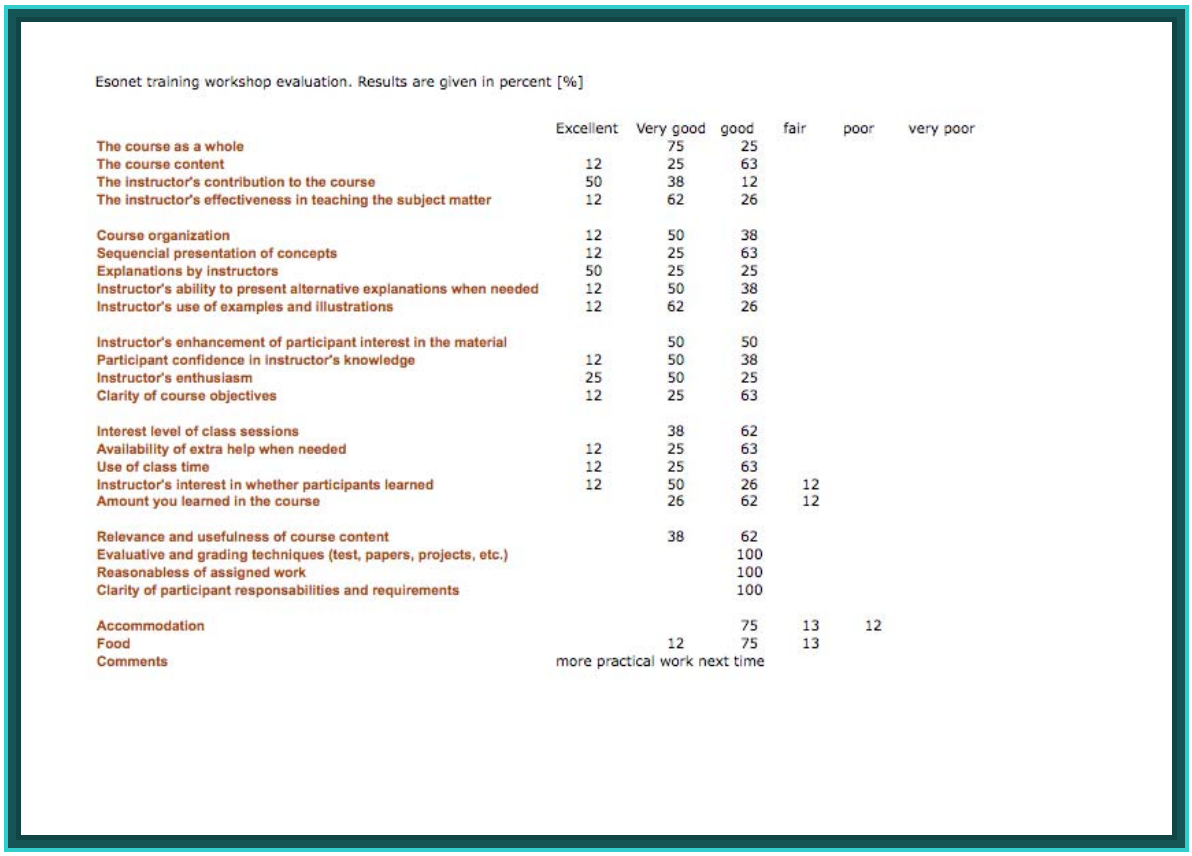
The following table shows the workshop agenda:

Schedule

TIME	January 27 Background info	Monday, January 28 How to...
0900-1000	Welcome & Introduction L.THOMSEN (Jacobs Uni)	How to plan an experiment I Science (discussion)
1000-1045	Brunch	How to plan an experiment II Engineering (discussion) **J.F.ROLIN**
1045-1115	History of ESONET From ALIPOR to EMSO **L. Thomsen**	***Break***
1115-1200	Introduction to observatories Engineering, the Esonet case and comparison with other observatories **Y. AUFFRET** (IFREMER)	ROV operations System design **N. NOWALD** (MARUM)
1200-1315	Introduction to ESONET science: Addressing the major science and technology challenges **J. F. ROLIN, I. PUILLAT** (IFREMER)	ROV operations Getting it out in the field **P. SIMEONI** (IFREMER)
1315-1345	***Coffee break***	***Lunch***
1345-1430	EU Deep waters Science background **L. THOMSEN**, (Jacobs Uni)	How to retrieve (online)-data Whom to contact and what to do (discussion) NN. AWI
1430-1515	EU Deep waters Science background (Miranda, Geophysics)	Data visualization tools **A. SCHAEFER** (Jacobs Uni)
1515-1530	***Break***	***Break***
1530-1615	*Challenges in science and technology at the LOOM Demo sites- Dirk de Beer*	"Working with real-time oceanographic data" **B. PIRENNE (NEPTUNE CANADA)**
1615-1700	*At the MOMAR site* *Miranda*	Poster evaluation
1700-1745	*At the LIDO site* *Juanjo Danobeitia*	Poster evaluation
1745-1815 Or -1830	*At the MARMARA site* *Namik Hazell*	Poster award
	Poster/Pizza Party	Workshop DINNER

The 2-day Training Workshop provided ESONET postgraduates and engineers with a sound background knowledge of the key science and technology areas relevant to ESONET, presented by experts in the field. Topics included the study sites, standard technologies. Also included are practical workshops on planning online experiments and data management. Students and engineers attending the workshop prepared a poster outlining their planned or ongoing research and development projects. The workshop was an excellent opportunity to get to know each other, and start a coherent young researchers and engineers group. The course was free for all ESONET members i.e. full accommodation was provided free of charge by ESONET. The whole coordination team of ESONET actively participated in this workshop. An evaluation form was sent to all participants.

The detailed outcome will be published on the website. Table 2 shows, that the workshop was well appreciated.



Esonet training workshop evaluation. Results are given in percent [%]

	Excellent	Very good	good	fair	poor	very poor
The course as a whole		75	25			
The course content	12	25	63			
The instructor's contribution to the course	50	38	12			
The instructor's effectiveness in teaching the subject matter	12	62	26			
Course organization	12	50	38			
Sequencial presentation of concepts	12	25	63			
Explanations by instructors	50	25	25			
Instructor's ability to present alternative explanations when needed	12	50	38			
Instructor's use of examples and illustrations	12	62	26			
Instructor's enhancement of participant interest in the material		50	50			
Participant confidence in instructor's knowledge	12	50	38			
Instructor's enthusiasm	25	50	25			
Clarity of course objectives	12	25	63			
Interest level of class sessions		38	62			
Availability of extra help when needed	12	25	63			
Use of class time	12	25	63			
Instructor's interest in whether participants learned	12	50	26	12		
Amount you learned in the course		26	62	12		
Relevance and usefulness of course content		38	62			
Evaluative and grading techniques (test, papers, projects, etc.)			100			
Reasonabless of assigned work			100			
Clarity of participant responsabilities and requirements			100			
Accommodation			75	13	12	
Food		12	75	13		
Comments	more practical work next time					

During the last 12 month, three used computer terminals were purchased, newly painted and equipped with 30 m of internet cable and a web cam, which can be deployed into an aquarium at three European aquaria of high public attractiveness. The aquaria have been contacted and will prepare room and space for the terminals.

Namık Çağatay (ITU) participated in the ESONET first training workshop held in Bremen during 27-28 January 2008, and presented a talk on the Marmara-DM project, entitled “ESONET Demonstration Mission project in the Sea of Marmara”. Two young scientists (Emre Damcı and Dursun Acar) from ITU were among the participants of the workshop.

The initial results of the Marnaut cruise were reported to the Turkish officials (Governor of Istanbul and Director of Earthquake and Foundation Department of Istanbul Municipality) in a meeting just after the cruise. There was a great interest in Turkey for Marnaut, stimulated by ITU professors N Gorur and AMC Sengor, and the operations in the Sea of Marmara were widely reported in the Turkish media. Turkish high school classes also visited RV Atalante. Journalists from Geo magazine came on board with a renowned underwater photographer and an article was published in a special issue of the French edition (this article also mentions operations which are part of the Momar ESONET node). They also interviewed ITU scientists Namık Çağatay and Celal Şengör. An article is scheduled in the Turkish GEO edition.

2.7.3. Deviations from the project work program, and corrective actions taken

No specific deviation

2.7.4. Deliverables list

Deliverables							
Del. no.	**Deliverable name**	**Work package no.**	**Date due**	**Actual/ Forecast delivery date**	**Estimated indicative person-months (*)**	**Used indicative person-months (*)**	**Lead contractor**
D3	ESONET class material on science background	WP 7	Month 9	Done – Month 12			KDM/Jacobs
D4	First material on the WebPages, usable for grammar schools	WP 7	Month 12	Done – Month 12			KDM/Jacobs

* if available

2.7.5. Milestones list

Milestone no.	Milestone name	Work package no.	Date due	Actual/Forecast delivery date	Lead contractor
7.1	Update website of ESONET	WP 7	Month 0	Done	
7.2	Installation of ESONET Educational website	WP 7	Month 6	Done	
7.3	Preliminary educational website for the introduction of ESONET to the general public	WP 7	Month 6	Done	KDM
7.4	ESONET class material on science background	WP 7	Month 9	Done	KDM
7.5	Preliminary class material on science background to be sent to schools	WP 7	Month 12	Done	
7.6	First educational and training workshop	WP 7	Month 12	Done	KDM
7.7	Train postgraduates and engineers	WP 7	Month 12	Done	

Milestone no.	Milestone name	Work package no.	Date due	Actual/Forecast delivery date	Lead contractor
	including ESONET staff on science background in the first educational workshop				
7.8	ESONET draft web portal	WP 7	Month 18	Month 18	

2.8. WP8-Management activities

Persons in charge: Roland PERSON
Contact: roland.person@ifremer.fr
Institution: IFREMER

Names and institutions of the participating persons:

Task	Task Team Responsible Persons	
WP 8 Management activities	**R PERSON** **I PUILLAT**	**IFREMER** **IFREMER**
	Partner members:	Steering Committee

2.8.1. Work package objectives and starting point of work at beginning of reporting period

This work package is in charge of all the management activities of the network. With 50 partners this coordination is a very heavy task (more than 4000 emails in one year).
One of the main objectives was to coordinate the integration of the community on different topics and across different key activities like main workshops.
Some tasks like the reporting and the following up of the link with the European commission and other EU projects are fundamental part of the WP8 tasks.

2.8.2. Progress towards objectives – tasks worked on and achievements made

The activity of the WP8 has been reinforced by hiring I. Puillat to coordinate the NoE with R. Person. A financial employee has been hired to partly work for Esonet.

Meeting and Workshop
All new information is displayed on the website as soon as possible but many direct contacts with partners are necessary.
The organization of the main workshops (kick off, All Regions) was coordinated by this WP. Six steering committee meetings have been co-organised, amongst them one was organised in Paris. As coordinator, IFREMER manages the meetings agendas and invitations, the reporting of the meetings and their approval.
The first strategic Committee was held in Barcelona in the same time than the all regions workshop.

Relation with European Commission
This WP is also in charge of the yearly reporting activities for the European Commission and of the deliverables gathering.
Amendments to the contract with the EC are under negotiation:

- a request of contract amendment has been made to add the special clause 39
- new members associated to core partners (CSIC, CNRS) asked to participate in the network (special clause 23)

Relation with other European projects

Relations with other EU projects were established: Seadatanet, Eurosites, Km3net, Euroceans, GEOSS. Coordination team participated to marine board meetings and Deep-sea frontier meetings.

2.8.3. Deviations from the project work program, and corrective actions taken

Some partners did not provide the elements requested by the co-ordinator to build the management report, whereas all other partners did. This is unpleasant at the co-ordination level and induces a delay in the delivery of the reports to the Commission. We hope that it does not show a disinterest of the local project managers for this project but the complexity of the reporting process of a network of excellence whose rules are not always well known by the partner's administrative officers.
ESONET will organize a meeting for administrative officers in next January. On another hand a reporting tools will be implemented to facilitate the generation of contract documents.

2.8.4. Deliverables list

Deliverables							
Del. no.	**Deliverable name**	**Work package no.**	**Date due**	**Actual/ Forecast delivery date**	**Estimated indicative person-months (*)**	**Used indicative person-months (*)**	**Lead contractor**
D29	12 month activity report	8	Month 12	Month 12			IFREMER

2.8.5. Milestones list

Milestone no.	Milestone name	Work package no.	Date due	Actual/Forecast delivery date	Lead contractor
8.1	Steering Committee meetings	WP 8	-	-	IFREMER

3. Consortium management

3.1. Consortium management tasks and their achievement

3.1.1. Kick off meeting and General assembly

The kick-off meeting was held in Brest on 21-22-23 March 2007, three weeks after the official starting date of the network (1st March).

The General Assembly approved the composition of the Steering Committee. The composition described in the DoW was slightly amended: three core partners delegates and a rotating delegate for industry were added on suggestion of the EC representative. Neville Hazell from Alcatel Lucent was designated by industrial members for the first year and elected by the General Assembly. So, the Steering Committee is composed of 18 members.

3.1.2. Consortium Agreement

The negotiation on the Consortium agreement was started in May 2006. A project of consortium agreement was submitted to all the partners in March for signature banking information asked. A lot of partners misinformed about NoE rules asked the coordinator for a complement of information about eligible costs, indicative effort… before signing EC forms and Consortium agreement. CSIC was the last partner to sign the consortium agreement in September 2007.

3.1.3. Steering Committee

Meetings of the Steering Committee were planned to take place every 3 months and to be either physical meeting or audio- or video or email conference.

In fact following meetings were held:

Brest, 23 March 2007, Aberdeen 21 June 2007,Barcelona 07 September 2007, Roma 25-26 November 2007, Paris CDG 14 January 2008.

The call for demonstration missions and the selection of proposal required three meetings. We had also to validate all the tasks in the work packages. Virtual meeting appeared impossible to organize: there are too many members for audio-conferences; many partners have difficulties to access video-conference. We tried to organize steering committee meetings at the same time than other important scientific event, for example Oceans'07 in Aberdeen. Exchange by Email with non attending delegates was conducted on important points. Email conferences will be reserve to meeting on specific points.

3.1.4. Strategic Committee

Core partners designed quickly national representative to the Strategic Committee. The first meeting was organized in Barcelona at the same time as the first ”All regions workshop”.

I was decided at this meeting that this strategic committee will have the same composition than the one of EMSO projects and could have coordinated meetings. As EMSO proposed to have a national representative for each member, it was decided to add a national representative from Turkey to the ESONET strategic Committee as Turkey is not a core partner from ESONET. Sweden and Norway were added also. In this way, all ESONET sites are represented in the Strategic Committee.

3.1.5. Advisory Councils

Confirmation of the composition of Advisory councils was undertaken. Some members, retired or soon retired, have to be replaced. The next Strategic Committee will have to propose new experts. There is no physical meetings of the Advisory councils: the coordination proposed to organize a joint meeting of advisory councils in Roma at the same period as the Steering Committee about the evaluation of demonstration missions proposals but most of the experts declined. Consultation of experts from the councils was organized by their chairperson.

Dr Sylvie Pouliquen, chairwoman of the data management council, asked to be replaced in the next months as being too occupied by other activities.

3.1.6. Financial contribution of ESONET to partner activities

The consortium agreement specifies that only a first advance is attributed to a partner at the beginning of the project to participate to the first common activities of the network. Additional contribution is attributed in function of the partner activity in the network. When participating to a task or sub task, the partner can to request for an additional budget attribution to the corresponding Work package leader as decided in Steering committee. This leader has to collect all the requirements of contributors and to fill in the request for provisional budget attribution form which will be examined by the steering committee. An example of such a form for WP1 is given on the next page.

Request for provisional budget attribution

WP n° 1	networking
	WP leader's name : DIEPENBROECK MICHAEL (KDM)
	date of request :
	reference name of the request :
	short description :
	Coordinator comments : date of signature:
	Steering committee agreement : date of signature:

amounts in Euro

Partner	year 2007				year 2008				year 2009				year 2010			
	T1 - 2007	T2 - 2007	T3 - 2007	T4 - 2007	T1 - 2008	T2 - 2008	T3 - 2008	T4 - 2008	T1 - 2009	T2 - 2009	T3 - 2009	T4 - 2009	T1 - 2010	T2 - 2010	T3 - 2010	T4 - 2010
Partner																
IFREMER																
IPGP																
CNRS																
SOFAB																
KDM																
IFM-GEOMAR																
AWI																
IUB																
MPIMM																
UnHB																
INGV																
ISMAR																
INPN																
TECNOMARE																
NERC-NOC																
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ITU																
B.U. KOEN																
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ALCATEL																
FUGRO																
CSA																
SERCEL																
nke																
QUINAUD																
ATLANTIDE																
SIS																
UNIABDN																
NSW																
GISMA																
TESEO																
SEND																
OBSCALE																
CINTAL																

Request form of provisional budget attribution

3.2. Contractors

There are no changes in the consortium but new institutions or new industrials ask to join the network. A request for an amendment to the contract will be prepared in the next months.

Small partners did not participate a lot to the first activities of the network. They are only interested by a specific point (for using real time observatories for oceanographic topography purposes for instance). They will have more activities when working groups will address these specific subjects.

ESONET Contract

Concerning the ESONET Contract a request of amendment has been sent to the EC by end of February 2008 in order to add the special clause 39 on audit certificate.

3.3. Relations with other European projects

ESONET established in this first year numerous links with other European projects.

ESONET is strongly linked with the EMSO infrastructure project which will start in April 2008. Core members of ESONET are the partners of EMSO.

ESONET will have also common activities with EUROSITES. Some sites of ESONET are common with EUROSITES, and it would be interesting to implement water column measurements defined by EUROSITES at all sites. The same data format and data processing will be applied to common parameters.

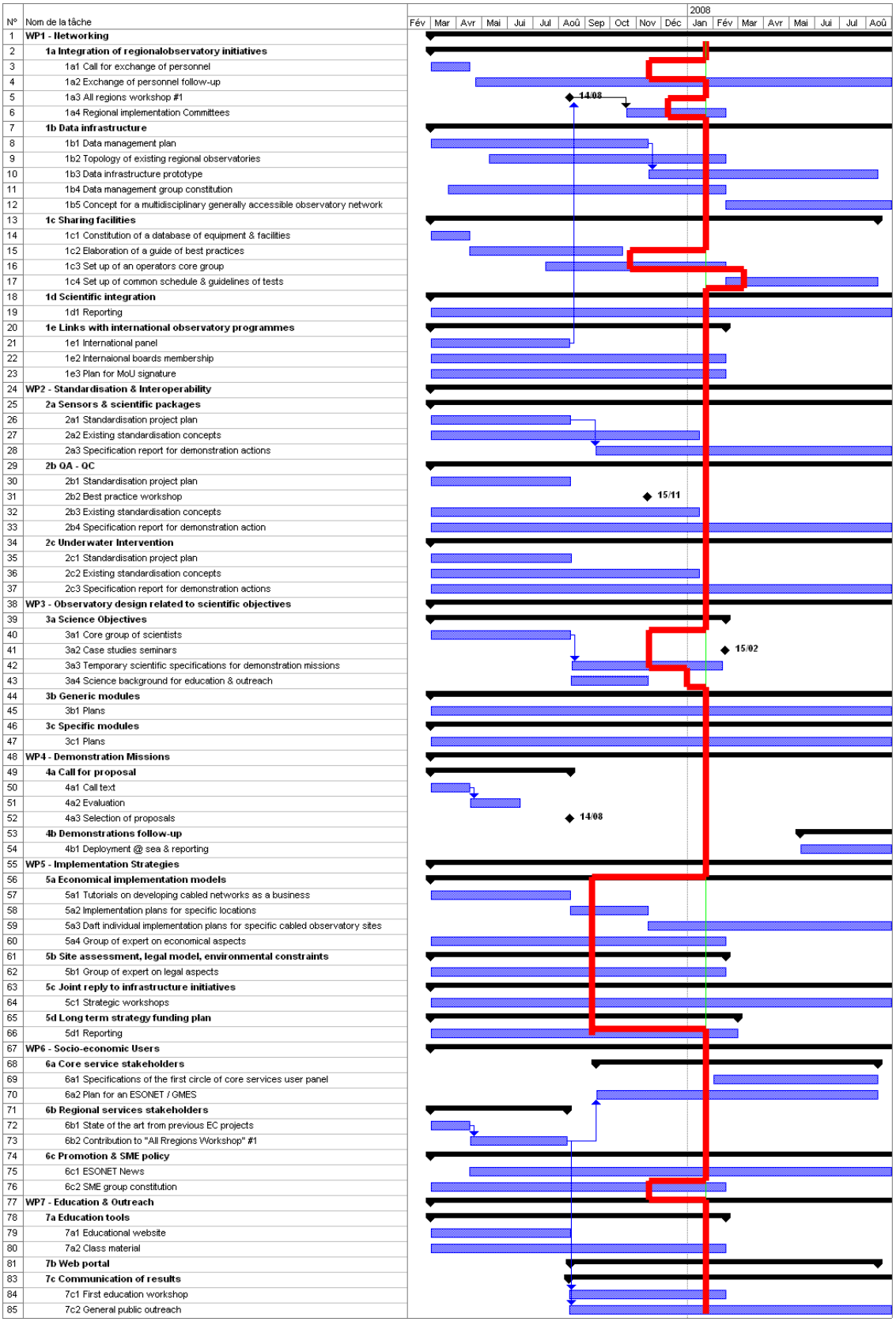
HERMES developed experiment on many ESONET sites. These scientific results are used by RLEs to define the scientific objectives on each site and provide support for outreach pages of the website.

ESONET NoE and KM3Net Design Study have established a cooperation through the 3 Mediterranean sites where an interest for the additional oceanographic use of neutrino telescope is now well established.

The demonstration mission LIDO uses the GEOSTAR station deployed in front of Cadix by the NEAREST project as support for complementary hydrophone deployment.

Contacts with the EURO-OCEAN NoE are developing thru some partners contributing to the two NoEs. EURO-OCEAN partners will contribute to establish scientific program on each site. Common supports will be used for public outreaches and cross references.

3.4. Project timetable and status



N°	Nom de la tâche
1	**WP1 - Networking**
2	**1a Integration of regionalobservatory initiatives**
3	1a1 Call for exchange of personnel
4	1a2 Exchange of personnel follow-up
5	1a3 All regions workshop #1
6	1a4 Regional implementation Committees
7	**1b Data infrastructure**
8	1b1 Data management plan
9	1b2 Topology of existing regional observatories
10	1b3 Data infrastructure prototype
11	1b4 Data management group constitution
12	1b5 Concept for a multidisciplinary generally accessible observatory network
13	**1c Sharing facilities**
14	1c1 Constitution of a database of equipment & facilities
15	1c2 Elaboration of a guide of best practices
16	1c3 Set up of an operators core group
17	1c4 Set up of common schedule & guidelines of tests
18	**1d Scientific integration**
19	1d1 Reporting
20	**1e Links with international observatory programmes**
21	1e1 International panel
22	1e2 Internaional boards membership
23	1e3 Plan for MoU signature
24	**WP2 - Standardisation & Interoperability**
25	**2a Sensors & scientific packages**
26	2a1 Standardisation project plan
27	2a2 Existing standardisation concepts
28	2a3 Specification report for demonstration actions
29	**2b QA - QC**
30	2b1 Standardisation project plan
31	2b2 Best practice workshop
32	2b3 Existing standardisation concepts
33	2b4 Specification report for demonstration action
34	**2c Underwater Intervention**
35	2c1 Standardisation project plan
36	2c2 Existing standardisation concepts
37	2c3 Specification report for demonstration actions
38	**WP3 - Observatory design related to scientific objectives**
39	**3a Science Objectives**
40	3a1 Core group of scientists
41	3a2 Case studies seminars
42	3a3 Temporary scientific specifications for demonstration missions
43	3a4 Science background for education & outreach
44	**3b Generic modules**
45	3b1 Plans
46	**3c Specific modules**
47	3c1 Plans
48	**WP4 - Demonstration Missions**
49	**4a Call for proposal**
50	4a1 Call text
51	4a2 Evaluation
52	4a3 Selection of proposals
53	**4b Demonstrations follow-up**
54	4b1 Deployment @ sea & reporting
55	**WP5 - Implementation Strategies**
56	**5a Economical implementation models**
57	5a1 Tutorials on developing cabled networks as a business
58	5a2 Implementation plans for specific locations
59	5a3 Daft individual implementation plans for specific cabled observatory sites
60	5a4 Group of expert on economical aspects
61	**5b Site assessment, legal model, environmental constraints**
62	5b1 Group of expert on legal aspects
63	**5c Joint reply to infrastructure initiatives**
64	5c1 Strategic workshops
65	**5d Long term strategy funding plan**
66	5d1 Reporting
67	**WP6 - Socio-economic Users**
68	**6a Core service stakeholders**
69	6a1 Specifications of the first circle of core services user panel
70	6a2 Plan for an ESONET / GMES
71	**6b Regional services stakeholders**
72	6b1 State of the art from previous EC projects
73	6b2 Contribution to "All Rregions Workshop" #1
74	**6c Promotion & SME policy**
75	6c1 ESONET News
76	6c2 SME group constitution
77	**WP7 - Education & Outreach**
78	**7a Education tools**
79	7a1 Educational website
80	7a2 Class material
81	**7b Web portal**
83	**7c Communication of results**
84	7c1 First education workshop
85	7c2 General public outreach

4. Planning summary of next 12-30 month plan

4.1. WP1: Networking

Work package number	1	Start date or starting event:			Month 1
Work package title	NETWORKING				
Participant id	KDM	IFREMER	IPGP	UNIABDN	And other partners (see DoW §10.2)

Objectives

Task 1a) – Develop strong links between regional nodes of a European network of subsea observatories, and to promote multi-disciplinarity and transnationality within each node.
Task 1b) – Standardized data flow and services in a commonly usable network.
Task 1c) – Increased capabilities and shared usage of existing facilities.
Task 1d) – Integration of ESONET into the international earth observation framework.
Task 1e) – International cooperation

Description of works

Task a) Integration of regional observatory infrastructure

Activity 1a1&2: **Exchange of personnel.** A fair evaluation of the exchange of personnel request is being organised for the next 6 months.

Activity 1a3: **Issues of the All Regions Workshop.** Coordinate the diffusion of a questionnaire to gather information on existing site survey data, and on infrastructure requirements for the observatory plans at each node.

Activity 1a4: **Constitution of Regional Implementation Groups.** Pursue the constitution of the Regional Implementation Groups, keeping base with the activities of the different work packages toward the implementation of the node observatories.

Task 1b) Data infrastructure

Activity 1b1: **Data management plan.** Update and extension of the general data and information management plan. A meeting with partners of SeaDataNet and EuroSites will allow establishing common issues to organize the data flows and infrastructure.

Activity 1b2: **ESONET knowledge base.** To complete of the topology of existing regional observatories

Activity 1b3: **The ESONET Spatial Data Infrastructure.** Development of the ESONET Sensor registry (common deliverable with WP2). The data infrastructure prototype will be designed and developed. It will be tested before month 18 in order to be used by the demonstration activities (WP 4). This prototype corresponds to D-19.

Task 1d) Scientific integration

Activity 1d1 & 2: Organisation of Virtual Institute (VISO) workshop and its reporting

Task 1e) International cooperation

Activity 1e2 & 3: follow up of the international network for observatory development from the ION initiative. MoU signatures will be followed up.

Work package number	1	Start date or starting event:	Month 1

Deliverables

Deliverable n°	*Deliverable name*	*WP n°*	*Lead participant*	*Estimated indicative person months*	*Nature*	*Dissemination level*	*Delivery date (proj.month)*
D10	*Report: exchange of personnel; common schedule and methodology of tests.*	*WP1*	*Ifremer*	*110*	*R*	*PP*	*18*
D19	*Data infrastructure prototype*	*WP1*	*KDM*	*90*	*P*	*PU*	*18*
D23	Agreement on an International network	*WP1*	*UniBA BDN*	*2*	*O*	*PU*	*23*
D34	*Plan for signature of MOU and contracts at international level. First signature of an agreement for testing of a prototype on NEPTUNE Canada (or Arena Japan or Mars USA)*	*WP1*	*UniAB DN*	*1*	*R*	*CO*	*23*
D37	*VISO Workshop preparation report*	*WP1*	*UiT*	*1*	*R*	*PU*	*24*
D42	*Sensor registry (with WP2)*	*WP1*	*KDM*	*60*	*P*	*PU*	*30*
D43	*Data infrastructure productive version*	*WP1*	*KDM*	*18*	*P*	*PU*	*30*
D44	*ESONET knowledge base*	*WP1*	*KDM*	*12*	*P*	*PU*	*30*

Milestones and expected result

Del date (month)	**name**	**Activities**
18	First evaluation of exchange of personnel	1a2
18	Constitution of all RLE	1a4
21	First report of the data management group	1b1
18	Portal for Data infrastructure prototype on ESONET website	1b3
30	Data infrastructure productive with selected demonstration sites and the MARS observatory testbed linked	1b3
24	Evaluation virtual institutes	1d1
24	Plan for signature of MOU or contracts at international level. First signature of an agreement for testing of a prototype on NEPTUNE Canada (or ARENA Japan or MARS)	1e3
24	Agreement on an International network	1e4

4.2. WP2: standardisation and interoperability

Work package number	2		Start date or starting event:		Month 1	
Work package title:	STANDARDISATION AND INTEROPERABILITY					
Participant id	KDM /UNIHB	UNIABDN	IFREMER	UPC	dBScale	And other partners (see DoW §10.2)

Objectives

Define roadmap and carry out a first implementation phase of standardisation projects focused on the following application domains in the framework of ocean observatory systems. (seafloor and water column).

Task a) sensors and scientific packages.

Task b) quality assurance / quality control.

Task c) underwater intervention.

Task d) Sharing testing facilities

Task e) Contribution to GEOSS standardisation and implementation activities

Task f) Organisation of the second best Practices Workshop

Description of works

Task a) sensors and scientific packages

Activity 2a1: Specification report for demonstration action-sensor interface
Activity 2a2: contribution to esonet sensor registry: standardised hardware implementation concepts
Activity 2a3: contribution to esonet sensor registry : metadata description
Activity 2a4: generic functional diagram of an ocean observatory

Task b) quality assurance / quality control (A. Holford, UniAbdn)

Activity 2b1: Identification of important quality aspects for generic sensor packages
Activity 2b2: Publication of draft reports for approval during the 2nd Best Practices
Activity 2b3: Specification report for demonstration action –Quality assurance

Task c) Underwater intervention (Lead: J.F. Drogou, IFREMER)

Activity 2c1: facilitation of the exchange of underwater facilities -
Activity 2c2: qualification of procedures and recommendations
Activity 2c3: Specification report for demonstration action –underwater interventions

task d): Sharing testing facilities (Lead: J. Marvaldi, IFREMER)

Activity 2d1**:** First version of the data base of testing facilities will be made available (
Activity 2d2 : Constitution of the “Core group for testing”
Activity 2d3 : Guide lines for developing common schedule and methodology of tests
Activity 2d4 : Registry of relevant testing and calibration best practices and procedures
Activity 2d5 : Presentation of “Sharing facilities” during the “Second Best Practice Workshop”
Activity 2d6: Intercomparison of different underwater acoustic modem systems

Task e) Contribution to GEOSS standardisation and implementation activities (Lead: E. Delory, dBScale)

Activity 2e1: Evaluation of GEO task Activity 2e2: Participation in GEOSS workshops
Activity 2e3: Dissemination of GEOSS concepts within ESONET

Work package number	2	Start date or starting event:	Month 1

Activity 2e4 Creation of a ESONET/GEO forum
Activity 2e5 Surveying ESONET node
Task f) Organisation of the second best Practices Workshop (Lead: IFREMER)

Deliverables

Deliverable n°	*Deliverable name*	*WP n°*	*Lead participant*	*Estimated indicative person months*	*Nature*	*Dissemination level*	*Delivery date (proj.month)*
D8	*Prototype implementation of example standardised sensor system*	*WP2*	*KDM*	*65*	*R*	*PU*	*25*
D25	*Specification report for demonstration actions – sensor interface.*	*WP2*	*KDM*	*108*	*R*	*PU*	*23*
D26	*Specification report for demonstration actions – quality assurance.*	*WP2*	*UNIABDN*	*88*	*R*	*PU*	*23*
D27	*Specification report for demonstration actions – subsea intervention*	*WP2*	*IFREMER*	*56*	*R*	*PU*	*23*
D35	*Recommendations for ESONET registration in GEOSS*	*WP2*	*dBscale*	*80*	*R*	*PU*	*23*
D36	*Report of testing facilities survey*	*WP2*	*IFREMER*		*R*	*0U*	*23*
D39	*Prototype quality management manual*	*WP2*	*UniABDN*		*R*	*PU*	*25*
D41	*Result and analysis of GEOSS and standards survey in ESONET*		*dBScale*	*60*	*R*	*PU*	*29*
D50	*Report on Second Best Practices Workshop*	*WP2*	*KDM*		*R*	*PU*	*32*
D51	*Training and simulation manual*	*WP2*	*IFREMER*		*R*	*PP*	*32*
D52	*Report on the contribution to international standardisation initiatives*	*WP2*	*KDM*		*R*	*PU*	*32*

Milestones and expected result

Del date (month)	**name**	**task ref**
20	Common test procedures	2d
24	Sensor standardisation group: preliminary report	2a
24	Quality assurance group: preliminary report	2b
24	Underwater intervention group: preliminary report	2c
29	Link with GEO committees and OGC	2e
30	Second Best practises workshop	2f

4.3. WP3: Observatory design related to scientific objectives

Work package number	3	Start date or starting event:				Month 1
Work package title:	OBSERVATORY DESIGN RELATED TO SCIENTIFIC OBJECTIVES					
Participant id	NOCS	IFREMER	KDM	NIOZ	INGV	And other partners (see DoW §10.2)

Objectives

The main objective of this work package is to provide the NoE scientific needs related to the make use of a long term observatory. column).

Task a) Science objectives
The main objective of this task is to align the technological specifications of future deep sea observatories with the scientific objectives

Task b) Generic science modules
scientific generic packages have to be defined in order to address the best methodology, scientific packages, instruments and underwater components to be applied in a long term cabled observatories.

Task c) Specific science modules
In parallel to the definition of the generic science modules, commonly used in the observatory network some science modules will be more specific a site or a research field. We will define theses modules
So this work packages contributes to further structuring and definition of the design of an underwater observatory system to collect long term (at least 20 years) real-time series measurements.

Description of works

Task a) Science objectives
Activity 3a1: Update of scientific objectives
Activity 3a2: Workshop with HERMES, MERSEA EUROCEANS

Task b) Generic science modules
Activity 3a1: Update the generic parameters list
Activity 3a2: Link between generic technology and scientific needs

Task c) Specific science modules
Activity 3c1: definition of specific science modules and link between technology.

Deliverables

Deliverable n°	*Deliverable name*	*WP n°*	*Lead participant*	*Estimated indicative person months*	*Nature*	*Dissemination level*	*Delivery date (proj.month)*
D11	*Report on scientific background and objectives*	*WP3*	*NOCS*	*100*	*R*	*PP*	*18*
D13	*Report on science modules*	*WP3*	*NOCS*	*164*	*R*	*PP*	*24*

Milestones and expected result

Del date (month)	name	task ref
18	Scientific objectives	3a
18	Preliminary report on generic science modules	3b
24	Preliminary report on specific science modules	3c

Work package number	3	Start date or starting event:	Month 1
Work package title:	OBSERVATORY DESIGN RELATED TO SCIENTIFIC OBJECTIVES		

Participant id	NOCS	IFREMER	KDM	NIOZ	INGV	And other partners (see DoW §10.2)

Objectives

The main objective of this work package is to provide the NoE scientific needs related to the make use of a long term observatory. column).

Task a) Science objectives
The main objective of this task is to align the technological specifications of future deep sea observatories with the scientific objectives

Task b) Generic science modules
scientific generic packages have to be defined in order to address the best methodology, scientific packages, instruments and underwater components to be applied in a long term cabled observatories.

Task c) Specific science modules
In parallel to the definition of the generic science modules, commonly used in the observatory network some science modules will be more specific a site or a research field. We will define theses modules
So this work packages contributes to further structuring and definition of the design of an underwater observatory system to collect long term (at least 20 years) real-time series measurements.

Description of works

Task a) Science objectives
Activity 3a1: Update of scientific objectives
Activity 3a2: Workshop with HERMES, MERSEA EUROCEANS

Task b) Generic science modules
Activity 3a1: Update the generic parameters list
Activity 3a2: Link between generic technology and scientific needs

Task c) Specific science modules
Activity 3c1: definition of specific science modules and link between technology.

Deliverables

Deliverable n°	Deliverable name	WP n°	Lead participant	Estimated indicative person months	Nature	Dissemination level	Delivery date (proj.month)
D11	*Report on scientific background and objectives*	*WP3*	*NOCS*	*100*	*R*	*PP*	*18*
D13	*Report on science modules*	*WP3*	*NOCS*	*164*	*R*	*PP*	*24*

Milestones and expected result

Del date (month)	name	task ref
18	Scientific objectives	3a
18	Preliminary report on generic science modules	3b
24	Preliminary report on specific science modules	3c

4.4. WP4: Demonstration Missions

Work package number	4	Start date or starting event:	Month 1
Work package title:	DEMONSTRATION MISSIONS		
Participant id	INGV	IPGP	Partners involved in funded demonstration proposals

Objectives

To deploy and manage long-term complex experiments at sea aimed at testing seafloor observatory components and infrastructures and demonstrate the network's capability to establish and maintain marine observatory infrastructures as the base for the forthcoming European Sea Observatory Network, and to address the scientific, geohazard, and technology objectives of ESONET.

Tasks of this work package are:

- Task a: Call for proposal
- Task b: Demonstrations

Description of works

After the first call issue (month 3) and the selection of the proposal (month 11), the period 12-30 months will be devoted to:

Task a) Call for proposal

Activity 4a1: Issue of the 2nd Call and management of the proposal submission, evaluation, and selection procedures according to the scheme adopted in the 1st Call (month 16). Evaluation criteria will be seen again according to the analysis of the balance sheet of the 1st year, in link with the work package 3;

Activity 4a2: The international reviewer list will completed

Activity 4a3: Proposals will be collected by WP4 and evaluated similarly to the first call in link with the NoE Test and Operation, Scientific, and Data Management Councils.

Task b) Demonstrations

Activity 4b1: acquisition of the implementation plans of the Demonstration Missions selected for in the 1st Call (months 13-14);

Activity 4b2: Monitoring the selected (Demonstration missions) activities, Preparation and circulation of DM status 6-month report to provide inputs to the other ESONET WPs (months 13-30); WP4 will also collect the Demonstrations missions Deliverables foreseen in each implementation plan. Set-up of a general Report for Demonstration missions for month 30

Deliverables

Deliverable n°	Deliverable name	WP n°	Lead participant	Estimated indicative person months	Nature	Dissemination level	Delivery date (proj.month)
D12	*First periodical report on Demonstration Missions*	*WP4*	*INGV*	*278.5*	*R*	*PP*	*18*
D45	*Second periodical report on Demonstration Missions*	*WP4*	*INGV*	*278.5*	*R*	*PP*	*30*

Milestones and expected result

Del date (month)	name	task ref
20	Call text issue	4a
18, 23, 30	Status report on demonstration missions	4b

4.5. WP5: Implementation strategies

Work package number	5	Start date or starting event:		Month 1				
Work package title	IMPLEMENTATION STRATEGIES							
Participant id	IMI	INGV	IFREMER	CNRS	IPGP	CSIC/ UPC	IFM-GEOMAR	CSA	ALTRAN OUEST (ATLANTIDE)

Objectives

Task a) Science, engineering and business plan for generic sites
Activity 5a1 - Science - Generic Cable Site WG : The objective is to update the over-arching specification of user needs and update the justification for the establishment of a European Seafloor Observatory Network.
Activity 5a2 - Science - Standalone Site WG : The objective is to provide the over-arching specification of user needs and scientific justification for the establishment of a standalone site.

Activity 5a3 - Engineering - Generic Cable Site WG : The objective is to review the outputs from the ESONIM model, update the technical specifications of the observatory components as appropriate for a generic cabled observatory and to provide updated cost estimates which can be used in the Financial task.

Activity 5a4 - Engineering - Standalone Site WG : The objective is to develop an engineering solution for the design, development, construction and deployment of a standalone system that will deliver the best technical solution and to provide cost estimates which can be used in the Financial task.

Activity 5a5 - Business Plan &Financial Model - Generic Cable Site WG : The objective is to review the business plan and financial model from ESONIM and produce an overall estimate with uncertainties and identify more difficult items where specific work is needed within EMSO

Activity 5a6 - Business Plan &Financial Model - Standalone Site WG : The objective is to develop a business plan and financial model for a standalone observatory and produce an overall estimate with uncertainties.

Task b) Legal, Ethical & Environmental : Assemble synthesis of relevant legal and best practice documents (International, EU, national, local)
Task c) Comparison cabled vs non-cabled. The implementation model should include an assessment of all ESONET sites and identify whether a cabled observatory or standalone site is most appropriate given the outputs from all the tasks within WP5
Task d) Reporting to EMSO and mobilize the network of excellence on long term strategy funding plan

Description of works

Task a) Science, engineering and business plan for generic sites

Activity5a1: ***Science - Generic Cable Site WG****: Update Scientific Report on Network Functions and Customers from ESONIM project..*

Activity5a2: ***Science - Standalone Site WG****: Develop Scientific Report on Network Functions and Customers using the ESONIM template as appropriate.*

Activity5a3: ***Engineering - Generic Cable Site WG****: Update Engineering Report on Observatory Architecture Manual from ESONIM project.*

Activity5a4: ***Engineering - Standalone Site WG:*** *Develop Engineering Report on the technical architecture of a Standalone Site.*

Work package number	5	Start date or starting event:	Month 1

Activity5a5: ***Business Plan &Financial Model - Generic Cable Site WG****: Update Business Model and cash flow forecast from ESONIM project*

Activity5a6: ***Business Plan &Financial Model - Standalone Site WG:*** *Develop Business Model and cash flow forecast using the ESONIM financial model as a template.*

Task b) *Develop online database with relevant* ***legal, ethical and environmental*** *legislation from EU countries which will be available for open access. A report on Best Practise and Guidelines for LEE issues will be prepared.*

Task c) Comparative Work – Both Working Groups: *Update the implementation model for a generic cabled and standalone observatory using the outputs from the ESONIM project as a template. Compare the over-arching specification of user needs and the scientific justification for the establishment of a cabled observatory versus a standalone site.*

Task d) Reporting to ENSO

Report to EMSO on the relevant issues of ESONET WP5.

Organize open panels in addition to the core partners (EMSO partners) meetings.

Milestones and expected result

Del date (month)	**name**	**task ref**
18	Meeting with EMSO on implementation model	5a
24	Meeting on relations with funding agencies	5d
24	Meeting on ESONET core services	5b

Deliverables

Deliverable	***Deliverable name***	***WP nb***	***Lead participant***	***Estimated indicative person-months***	***Nature***	***Dissemination level***	***Delivery date (proj month)***
D5	*Series of individual implementation plans for specific cabled observatory sites*	*WP5*	*Marine Institute*	*22*	*R*	*PP*	*24*
D14	*Report on workshops to facilitate and broker partnership, Tutorials/Meetings on Implementation plans and replies to infrastructure proposals; on site assessment, legal model, environmental constraints and their associated ethical issues*	*WP5*	*Marine Institute*	*22.5*	*P*	*PU*	*24*
D20-2009	*Document outlining agreement on co-operation between organisations involved in developing technology.*	*WP5*	*IFREMER*	*2*	*R*	*PU*	*24*
D21-2009	*Report on confidential meetings between commercial companies and ESONET WP leaders re working relationships and ESONET requirements.*	*WP5*	*Marine Institute*	*2*	*R*	*CO*	*24*

Deliverable	*Deliverable name*	*WP nb*	*Lead participant*	*Estimated indicative person-months*	*Nature*	*Dissemination level*	*Delivery date (proj month)*
D22-2009	*Report of meeting to discuss long-term funding for seafloor observatories involving representatives from funding agencies.*	*WP5*	*IFREMER*	*2*	*R*	*CO*	*24*
D23-2009	*Report on integration between respective* teams (research teams, technical teams, companies and SMEs*) and working relationships beyond the life of ESONET.*	*WP5*	*IFREMER*	*2*	*R*	*PU*	*24*
D24-2009	*Report on integration between respective teams (research teams, technical reams, companies and SMEs) and working relationships beyond the life of ESONET*	*WP5*	*IFREMER*	*7*	*R*	*PU*	*12*
D46	*Report to EMSO on Implementation Model (ESONET NoE)*	*WP5*	*Marine Institute*	*7*	*R*	*PP*	*24*
D47	*Online database to include local, national and European legal, ethical and environmental (LEE) documents*	*WP5*	*UPC*	*23*	*R*	*CO*	*24*
D48	*Final report on Best Practise and Guidelines for LEE issues*	*WP5*	*UPC*	*24*	*R*	*CO*	*24*

4.6. WP6: Socio-economic users

Work package number	6	Start date or starting event:			Month 1
Work package title	SOCIO-ECONOMIC USERS				
Participant id	FFCUL (Lisboa)	IFREMER	CSA	IMI	And other partners (see DoW §10.2)

Objectives

This WP will determine/outline (i) direct clients for data, information and/or infrastructure; (ii) indirect users of information as in education or outreach programs (iii) possibilities for integration within decision support tools. This meaning:

- Development of systematic contacts with identified potential users.
- Development of models for evaluation of the benefits of the European Seas Observatory Network to its users.
- Assessment of the impact of ESONET on European Society as a whole.
- Discussion with the military and the industry to explore possible synergy.
- Identification of limitations of available observation technology, to foster development by the European private sector (SME) of new tools for the submarine monitoring of the Earth, either sensors, data browsers or value added services.

Description of works

Task 6a) Core services stakeholders

Activity6a1: Core service will be stabilized in month 18 in the report D16. A meeting with the stakeholders of the core services will be organized in order to define the milestones for the next years.

Task 6b) Regional services stakeholders

Activity6b1: In the sequence of D17, formal meetings of all ESONET nodes stakeholders will be organized based on the preliminary MoU concerning infrastructure and basic scientific plans and/or the regional legal entities designed within WP1.

Activity6b2: In what concerns financial aspects of each regional node, cooperation with WP5 will be done, to stabilize a coherent economic approach.

Task 6c) Promotion and SME policy

Activity6c1: better circulation of information concerning their role as suppliers/value added services in Demo missions.

Activity6c2: “yellow pages” to be linked with ESONET Web Pages (Deliverable D17).

Task 6d) ESONEWS

"ESONET News, Europeans observe the deep sea" will be produced every 3 month (Deliverable D15). It will be prepared in digital form and distributed to a large mailing list prepared by ESONET central office. Each issue, with 8 pages, was also printed to be distributed in international meetings. A layout upgrade is foreseen. Each issue will be focussed on a main topic. One SME will be presented in each issue

Work package number	6	Start date or starting event:	Month 1

Deliverable1

Deliverable n°	*Deliverable name*	*WP n°*	*Lead participant*	*Estimated indicative person months*	*Nature*	*Dissemination level*	*Delivery date (proj.month)*
D15	*ESONET News "ESONET News – Europeans observe the deep sea"*	*WP6*	*IFREMER*	*41*	*R*	*Pu*	*14, 17, 20, 23, 26, 29*
D16	*Report on core service stakeholders*	*WP6*	*CSA*	*8*	*R*	*CO*	*18*
D17	*Report on promotion and SME policy*	*WP6*	*IFREMER*	*10*	*R*	*PU*	*18*

Milestones and expected result

Del date (month)	**name**	**task ref**
24	Meeting with the stakeholders of the core services	6a
30	Formal Regional Nodes Meetings	6b
24	SME yellow pages	6c
14, 17, 20, 23, 26, 29	ESONEWS	6d

4.7. WP7: Education and outreach

Work package number	7	Start date or starting event:		Month 1
Work package title	EDUCATION AND OUTREACH			
Participant id	KDM/JUB	Oceanopolis	INGV	And other partners (see DoW §10.2)

Objectives

- Task a: Build education tools.
- Task b: Build a web portal with real time web interface.
- Task c: Communicate results.

Description of works

After the ESONET Outreach webpage went online and the workshop was held, the period 12-30 months will be devoted to:

Task a) Education tool

Activity 7a1: The educational website is opened and will be maintained.

Activity 7a2: More class material will be added and games and quizzes will be developed.

Task b) Web portal with real time web interface

Activity 7b1: A public Web Portal is operating. Video-footage of test deployments will be added. The web page will introduce the public to the ESONET demo sites.

Task c) Communication of results

Activity 7c1: second training workshop to introduce ESONET to the postgraduates and engineers, especially from ESONET partners.

Activity 7c2: The computer terminals will be shipped to three EU aquaria and will give access to public web page

Activity 7c3: An introductory poster on ESONET will be prepared and published in the aquaria and some fact sheets will be distributed.

Deliverables

Deliverable n°	*Deliverable name*	*WP n°*	*Lead participant*	*Estimated indicative person months*	*Nature*	*Dissemination level*	*Delivery date (proj.month)*
D18	*Publish draft ESONET web portal.*	*WP7*	*KDM*	*30*	*0*	*PU*	*18*
D30	*Installation of computer terminals*	*WP7*	*KDM*	*1*	*0*	*PU*	*20*
D32	*Introduce to Demo missions*	*WP7*	*KDM*	*3*	*0*	*PU*	*22*
D38	*Finish games and quiz section*	*WP7*	*KDM*	*2*	*0*	*PU*	*24*
D40	*Report on second training workshop*	*WP7*	*KDM*	*3*	*R*	*PU*	*26*
D49	*Fully established outreach web page*	*WP7*	*KDM*	*9*	*0*	*PU*	*30*

Work package number	7	Start date or starting event:	Month 1

Milestones and expected result

Del date (month)	name	task ref
22	Web-portal opened: better insight into current ESONET activities	7a
25	Second training workshop held for better integration of ESONET partners	7c
30	Outreach web page fully established to inform the public on ESONET	7b

4.8. WP8: Management activity

Work package number	8	Start date or starting event:	Month 0
Work package title	MANAGEMENT ACTIVITIES		
Participant id	IFREMER		And other partners (see DoW §10.2)

Objectives

- Task a: Organisation of the General Assembly.
- Task b: Meeting organisation.
- Task c: Information management and reporting.
- Task d: Link with European Commission.
- Task e: Link with European projects.
- Task f: Esonet label.

Description of works

Task a) General Assembly

Coordination of the General Assembly organized in Portugal by FFCUL

Task b) Meeting organisation

Organization of Consortium meeting (Steering Com., Strategic Com. …)

Task c) Information management and yearly reporting

The implementation of a reporting tool and information exchange.

Task d) Link with European Commission

Contract amendment and reporting, legal aspects

Task e) Link with European projects

Promotion of links with other European projects (EUROSITES, HERMES, EUROCEANS …).

Task f) Esonet label

Coordination, after month 18, of the definition of the Esonet label and its protection.

Deliverables

Deliverable n°	*Deliverable name*	*WP n°*	*Lead participant*	*Estimated indicative person months*	*Nature*	*Dissemination level*	*Delivery date (proj.month)*
D29	*2d activity report*	*WP8*	*IFREMER*	*10*	*R*	*PU*	*25*
D30	*general assembly report*	*WP8*	*IFREMER*	*1*	*R*	*PU*	*20*

Work package number	8	Start date or starting event:	Month 0

Milestones and expected result

Del date (month)	name	task ref
20	General Assembly	8a
22	General assembly report	8a
24	Periodic management report	8c
24	Periodic activities report	8c
18	Coordination with GMES plans and core services	8e

5. List of annexes

ANNEX 1 – PLAN FOR USING AND DISSEMINATING THE KNOWLEDGE

Sub-section 1 - Exploitable knowledge and its Use

Overview table

Exploitable Knowledge (description)	Exploitable product(s) or measure(s)	**Sector(s)** of application	Timetable for commercial use	Patents or other IPR protection	**Owner** & Other Partner(s) involved
1. Background information on ESONET has been summarized in an outreach webpage to inform the public	Outreach Web-Page and computer terminals for aquaria, which introduce to ESONET	General public Schools ESONET community	none	none	All ESONET partners
N/A	N/A	N/A	N/A	N/A	WP5[3]

Sub-section 2 - Dissemination of knowledge

Overview table

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
	Press release(press/ radio/TV)	General public	all	all	All WP7
	Project web-site	General public	all	all	All WP7
	Training Workshop	Training	From ESONET	Grad students and ingeneers	All WP7
	Exhibition	Visitors of aquaria	F, Po, G	visitors	KDM, Azores, Brest
	video Podcast	Internet comm..	all	internet	KDM
Jan 30th, 2008	Radio	General public	Germany	20,000	KDM/MARUM
Jan 29th, 2008	Newspaper SPIEGEL-ONLINE	General public	Germany/Europe	1,000,000	KDM/MARUM
Jan 31st, 2008	Newspaper Handelsblatt	General public	Germany	500,000	KDM/MARUM

[3] The Network of Excellence has not made the choice to launch exploitation of knowledge during the first 18 months dedicated to integration. Standards, methodologies and common tools are under specification during this period.

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
April 2007	EGU Special session	Scientific	Europe	~60	KDM
June 2007	BONUS workshop	Scientific	Germany	~60	KDM
	MBARI session	Scientific, Engineers	USA	~60	KDM
	Video ROSE observatory	General public	All		Ifremer
Feb 2nd, 2008	Newspaper Welt am Sonntag	General public	Germany	1,000,000	KDM/MARUM
Feb 15th, 2008	Newspaper Westfälische Rundschau	General public	Germany	500,000	KDM/MARUM
November, 2007	Conference MARTECH	Research	Europe	150	KDM/MARUM
October, 2007	Seminar at MBARI, Monterey, USA	Research	USA	150	KDM/MARUM
June 2007	Seminar at IOW, Warnemuende, Germany	Research	Scandinavia, Germany	200	KDM/MARUM
April, 2007	Seminar at Rosensteel School, Miami, USA	Research	USA	80	KDM/ MARUM
November, 2007	Scientific magazine SCIENCE	Research	Global	100,000	KDM/MARUM
3/08	Report (D1)[4]	Research	EC	500	NOCS/INGV
6/07	Briefing[5]	Politicians	UK	3	NOCS
2/08	Briefing[6]	Senior Management	IE,UK	8	NOCS
	Conference	Research	Portugal	100	UAç
15-16	Conference	Research-Technological	International	200	CSIC
November	MARTECH	Development	See note[7]		UPC

[4] **The D1 report is mainly addressed at the European seafloor observatory community and includes useful information on the background of the ESONET NOE demonstration missions and on the scientific justifications.**

[5] The Briefing 6/07 was for senior NERC officials (director of research, and executive board members) instigating interest in the subject and preparing the road for EMSO.

[6] The Briefing 2/08 was addressed to senior management in the Marine Institute, Galway, Ireland, and NOCS, Southampton.

[7] Workshop MARTECH

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
2007	2007	industry (marine technology, communications)			
13/05/2007	Press: Newspaper ”Vatan”	General public	Turkey	200,000	ITU-Ifremer-CNRS
13/05/2007	Press: Newspaper “Star”	General public	Turkey	200,000	ITU-Ifremer-CNRS
14/05/2007	Press: Newspaper “Milliyet”	General public	Turkey	500,000	ITU-Ifremer-CNRS
22/06/2007	Popular Science and Tecnology	General Public	Turkey	300,000	ITU-Ifremer-CNRS

During November 15th and 16th, the UPC and the Marine Technology Unit (CSIC) organized an Intentional workshop on Marine Technology, with several sections concerning marine sensors, and one specially dedicated to the Submarine Observatories. Many marine technological and scientific researches attended the conference but also there was an important contribution from the Industrial sector. The whole workshop ws published in Instrumentation Viewpoint, No 6, August 2007, 116 pp (a copy of the magazine is enclosed in file *Revista Martech 2007; ISSN:1697-2562*). In the following we list the 11title presentations referred to the special section of Marine Observatories:

1. TEMPO: a new ecological module for studying deep-sea community dynamics at hydrothermal vents.
2. The Nemo Project: development of Phase 2
3. An Information Model for a Policy Based Management. Extensions to Marine Sensor Networks and Ocean Observatories.
4. Undersea Telecommunications System Design and Decision Criteria for Off shore Oil and Gas Facilities
5. Seafloor Infrastructure for High Density Earthquakes and Tsunamis Monitoring.
6. The Permanent Seafloor Geomagnetic Observatory
7. Observatories and Landers to study Oxygen Dynamics in the Marine Environment
8. CUMAS Cabled Underwater Module for Acquisition of Seismological data for geo-hazard monitoring in shallow water.
9. Real time transmission of current and turbidity data from the near bottom Var canyon system.
10. Construction of the OBSEA Cabled Submarine Observatory.
11. ESONET : Toward and European Network of sea observatories

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
	Magazine: Cumhuriyet Bilim Teknoloji"				
	Video Victor 6000 on « Sarmineto de Gamboa »	All	All	All	CSIC-Ifremer
2008	Popular science magazine GEO	General Public	Turkey	10,000	ITU-Ifremer-CNRS
June	Film/video	TV channels	Turkey	10,000	ITU-Ifremer-CNRS
	3 Publications of ESONEWS	Scientific Industry and Agencies		400	FFCUL
	ESONET general presentation Poster	Scientific	All	500	Ifremer
May-July 2007	Open cruise on Polarstern[8]	Teachers and Students	Germany		AWI
Barcelona Sept 2007	All Regions Workshop	ESONET NoE partners and research community	International	100s	CSIC/IMI
Barcelona Sept 2007	Opening address - Juanjo Dañobeitia and chairman of session 6	ESONET NoE partners and research community	International	100s	CSIC
Barcelona Sept 2007	Presentation Eulàlia Gràcia	ESONET NoE partners and research community	International	100s	CSIC
Barcelona Sept 2007	Presentation Michel André	ESONET NoE partners and research community	International	100s	UPC/CSIC
Barcelona Sept 2007	Poster exhibition	ESONET NoE partners and research community	International	100s	CSIC

[8] AWI organized the RV "Polarstern" cruise ARK XXII/1a-c from end of May until mid July 2007 which did address scientific work at two ESONET sites, the Hakon Mosby Mud Volcano and the HAUSGARTEN observatory west off Svalbard. During the cruise teachers and pupils were onboard and got an insight into deep-sea research at European level.

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
Barcelona Sept 2007	DVD distributed	ESONET NoE partners and research community	International	100s	CSIC
Barcelona Sept 2007	Presentation – Mick Gillooly	ESONET NoE partners and research community	International	100s	IMI
Dublin 17th Oct 2007	Presentations and discussions	Policy advisors and funding agencies	Ireland	10	IMI
November 15th-16th 2007	International Workshop on Marine Technology	Research community	EU	50	UPC/CSIC
Galway 20th Nov 2007	Presentations and discussions	Deep Sea Research Community	Ireland & Northern Ireland	20	IMI
Dublin 3 Dec 2007	Presentation and questions/discussions	Higher Education Authority Forfas ESFRI delegates and other ESFRI project participants	Ireland	25	IMI
Dublin 12 Dec 2007	Presentation and questions	Enterprise Ireland Higher Education Authority Dr. Purificación Tejedor del Real (EU) National Delegate for Research Infrastructures in FP7	EU	50	IMI
Winter 2007	Article – ESONEWS and the ESONIM project	Various	International	100s	IMI
Bremen Jan 2008	Presentation – Jaume Piera	ESONET NoE partners and research community	International	100	CSIC
Bremen Jan 2008	Workshops and poster session	ESONET NoE partners and research students	EU	50	CSIC
Dublin 30 Jan 2008	Presentation – Ocean Sciences: At the Cutting Edge of an Environmental	Royal Irish Academy – Prof. John Delaney Representatives from key funding agencies,	International	100	IMI

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
	Renaissance	government departments, Environmental Protection Agency, scientific researchers			
Ireland 31 Jan 2008	Press article- Irish Times Article To the deepest depths for man's final frontier	General public, journalists	Ireland	>100000	IMI
Galway 31 Jan 2008	Presentation to members of the public on science and cabled observatories	Galway – Public presentation Songs of the Deep – Prof. John Delaney	Ireland	150	IMI
Galway 1 Feb 2008	Presentation to MI staff on the Neptune US and Canada cabled observatories and Celtnet.	Marine Institute – Prof. John Delaney	Ireland	75	IMI
Month 18	Preparation of Educational programme	education	France, Sweden, Spain, England, Italy	1000	Océanopolis/ Universeum, Aquarium La Coruna, Aquarium Genova, Aquarium Plymouth
Month 6	Preparation of Exhibition	General public	France, Sweden, Spain, England, Italy	1 million	Océanopolis/ Universeum, Aquarium La Coruna, Aquarium Genova, Aquarium Plymouth

Sub-section 3 - Publishable results

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A list of publications is available at:
http://www.ulb.ac.be/polytech/ehl/web/publications.html.

ANNEX 2 - MALE FEMALE RATIO

Participant number	Participant short name	Number of researchers to be integrated			Number of registered doctoral students in the network		
		Female	Male	Total	Female	Male	Total
1	IFREMER	9	19	28	0	0	0
2	IPGP	7	10	17	1	1	2
4	CNRS	9	29	38	3	2	5
5	SOPAB	1	2	3	0	0	0
6	KDM	10	28	38	5	1	6
12	INGV	7	18	25	0	0	0
13	ISMAR	2	7	9	0	0	0
14	INFN	4	11	15	1	0	1
15	TECNOMARE	1	5	6	0	0	0
16	NERC - NOC	1	2	3	0	0	0
17	HCMR	2	9	11	0	0	0
18	FORTH	2	10	12	1	1	2
19	NIOZ	0	5	5	1	1	2
20	IMI	4	6	10	0	0	0
21	UAç	5	4	9	4	0	4
22	UALG	5	4	9	0	0	0
23	FFCUL	8	23	31	2	3	5
24	CSIC	9	16	25	1	3	4
25	UiT	1	3	4	1	3	4
26	NGI	0	3	3	0	0	0
27	NERSC	1	1	2	0	0	0
28	ULB	0	1	1	0	2	2
29	UGOT	1	4	5	5	1	6
30	SU	0	3	3	2	0	2
31	TFH Berlin	0	1	1	0	0	0
32	IO-BAS	1	2	3	0	0	0
33	ITU	1	6	7	1	1	2
34	B.U., KOERI	1	4	5	1	0	1
35	DEU-IMST	2	8	10	2	2	4
36	ALCATEL	0	2	2	0	0	0
37	FUGRO	0	2	2	0	0	0
38	CSA	1	2	3	0	0	0
39	SERCEL	0	3	3	0	0	0
40	nke	0	3	3	0	0	0
41	GURALP	0	1	1	0	0	0
42	ATLANTIDE	0	3	3	0	0	0
43	SIS Sensoren	0	1	1	0	0	0
44	UNIABDN	3	3	6	1	0	1
45	NSW	0	1	1	0	0	0
47	TESEO	1	2	3	0	0	0
48	SEND	0	1	1	0	0	0
49	DBSCALE	1	1	2	0	0	0
50	CINTAL	0	5	5	0	4	4
Total		**100**	**274**	**374**	**32**	**25**	**57**