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 2009 to 28th February 2010
Date of preparation: 15th April 2010

Start date of project: March 2007 **Duration:** 48 months

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Revision: version #1: 15 April 2010

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)		
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 1 to the Contract: Description of Work (DoW) version of February 2010.

EVOLUTION
Version 1.0: 15th April 2010, sent to the European Commission for yearly reporting.

PUBLISHABLE EXECUTIVE SUMMARY

The Network of Excellence ESONET will enter its final year.
During the first year, the main ESONET working groups were formed and the objectives of the various themes identified. Embryos of regional groups were also put in place, more or less active depending on the nodes while the main partners successfully put the project preparatory phase of large European research infrastructure EMSO-PP in place.

Activities during the second year relied on that organization. The main objectives of this period were focused on:

- Increasing the level of integration in the regional nodes, encouraging the participation of partners associated with the nodes in ESONET, for example by encouraging the submission of proposals for the 2nd call for demonstration missions.
- Encouraging the integration between the ESONET nodes, for example by preparing a more formal call for the exchange of personnel. WP officials also made efforts to increase participation in activities of their WP.
- Stabilizing groups formed, by starting the preparation of a permanent structure (VISO)
- Developing a long-term strategy for implementing the proposed recommendations.
- Selection of 6 demonstration missions established on 7 nodes and covering the main themes of seafloor observatories: LIDO addresses the monitoring of marine mammal acoustics and geophysics, DM MARMARA addresses the earthquake risk in a sensitive region, LOOME is interested in the functioning of a mud volcano with both geophysical and biological aspects, MoMAR addresses the functioning of a deep hydrothermal vent using a multidisciplinary approach, MODOO addresses long-term biochemical functions at the Porcupine (PAP) site in the North Atlantic, while AOEM will monitor physically and biochemically Fram Strait.
- ESONET activities have been amplified during the third period compared to those of the previous year.
- The six demonstration missions involve an important activity for the partners involved. The types of activities vary depending on the phases of operations.

Major achievements during the third year:

WP1: Networking

The second "All regions workshop" was held in Paris from 4th to 6th October 2009. It brought together over 100 participants in the presence of representatives of major projects on international marine observatories Neptune Canada, Mars (USA), DONET (Japan) OOI (USA). It helped to take stock of progress recorded on the sometimes spectacular development of the different ESONET-EMSO nodes. During this meeting, the composition of the various regional implementation groups has been identified, including representatives of national funding agencies. ESONET will thus continue node by node the implementation of various observatories planned in EMSO

This third year has helped to expand personnel exchanges between member institutions. These exchanges are either devoted to technology or to exploiting the results of demonstration missions.

The VISO meeting held in Tromsoë on 11th and 12th June 2009 helped launch the foundation for organizing scientific community activities perpetuating ESONET using and making live EMSO observatories. This organization will interact with industry and maintain relations between the European scientific community and the international community

WP2: Standardization and Interoperability

WP 2 is working for standardization and interoperability aspects of generic and specific sensors identified by WP3. The group participated in the second experiment of interoperability in the field of marine science within OGC. Different concepts are being evaluated by the partners: the IEEE standard 1451, the MBARI PUCK and "Smart Sensor" IFREMER (4S). The prototype will be tested on OBSE 4S. A draft ESONET quality manual has been prepared. The work also focused on the development of response procedures and underwater simulation tools for training pilots.

A database accessible on the ESONET website lists all the testing facilities available in Europe.

ESONET is also actively involved in GEOSS meetings and maintains an ESONET-GEOSS website.

In order to overcome the lack of data available in real time in Europe, a technology demonstration was prepared, oriented sites wired up in Europe. Operations will be funded at four sites: ANTARES and NEMO as deep sites, and OBSEA and Koljo Fjord as coastal sites.

WP3: Objectives and design of scientific observatories

The scientific objectives of ESONET were reviewed and clarified during this year (D11). This work led to a new report which provides a basis for publication in Progress in Oceanography: "Societal Need for Improved Understanding of climate change, anthropogenic impacts, and warning geohazard drive development of ocean Observatories in European Seas" by Ruhl et al.

WP4: Field Demonstration

The 6 selected demonstration missions have all started. First results have been acquired on the Sea of Marmara and prompted the Turkish government to prepare a tender for the establishment of a permanent observatory in this area. For other sites the results will be available from summer 2010.

WP5: Implementation Strategies

It was decided to work in parallel on two types of observatories to meet the European scientific: cabled observatory and autonomous observatory. The work focused on engineering, the financial model and budget, not to mention the legal and environmental aspects. This work led to the drafting of a report submitted to EMSO on implementation models (D46) and is the basis for further studies conducted by EMSO and negotiations with national funding agencies. ***WP6: Socio-economic Users***

The development of yellow pages was a priority for the third year. It has been established with the support and advice from PESOS industrial partners. The operating system of these files is running and the inventory of equipment is rapidly increasing (D17).

WP7: Education and Public Awareness

The website hosted by the University Jacobs is being continually enriched and now offers pages in several languages for 10-14 year olds. Some public terminals have been deployed in aquariums. A film about the how and why of observatories is being prepared.

WP8: Management

The management, which is already difficult for a project with more than fifty partners, has been marked during the third year by delicate negotiations about the final allocation of

budgets in the restricted context of European networks of excellence. Moreover, the inability to extend the duration of the project led to a particularly difficult schedule for demonstration operations, which are based on national programming of sea access facilities.

WP9: Data Management

The plan for Data Management has been finalized and will be the basis for ESONET / EMSO observatories. The ESONET knowledge base, which includes all available information on ESONET sites, is operational and regularly updated. ESONET partners agreed to implement a register sensor based on SensorML. This decision is consistent with the Eurosites decision. The development of the SOS (Sensor Observation Service) interface has been undertaken in line with the SEADATANET and MyOcean projects. These developments allow a structure for managing data generated by underwater observatories to be proposed which is compatible with other European projects in the environment field .

Main problems met

After the bankruptcy of the SEND Signal Elektronik company the coordination sent several letters to the liquidator in order to request an audit certificate for the form C already sent to the Commission. This would make the cost and requeted contribution accepted and reimbursed. After several Emails and a formal letter in English, a German version has been sent. The answer received explained that the company was already liquidited. Consequently, the coordination expects now an action from the European Commission.

After the eviction of the SIS company (decision agreed after General assembly meeting in October 2008) the coordination team sent a letter to remind that a Form C justifying at least the amount of money transeferred for the 1st prepayment, with an audit certificate, are expected. It was also reminded to reimburse the consortium if not cost justification is provided. Nevertheless no answer has been received. Consequently, the coordination expects now an action from the European Commission.

Conclusion

The project is well the way : since the beginning of the project 70 deliverables were expected to be delivered until now but only 7 are delayed, 10 %. Four are in intermediate version due to missing information. Discussions on the permanent structure preparation are well advanced as well as shown in deliverables 46 and 53. We are confident in a good achievement of the project.

1 PROJECT OBJECTIVES AND MAJOR ACHIEVEMENTS DURING THE REPORTING PERIOD

1.1 Overview of general project objectives

The long-term monitoring of environmental processes related to ecosystem life and evolution, global changes and geohazards, is now recognized as 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, cyclic changes and to capture episodic events relating to oceanic circulation, deep-sea processes and ecosystems evolution. In addition, long-term monitoring will detect episodic events such as earthquakes, submarine slides, tsunamis, benthic storms, biodiversity changes, pollution and other events that cannot be detected and monitored by conventional oceanographic sea-going campaigns. To understand the mechanisms involved and to forecast natural events long time series of measurements are needed to feed numerical models.

The implementation of a bi-directional link between an observatory and a control station is fundamental to assure the quality of long data series. Three types of observatories are typically described: acoustically linked to a surface buoy, electrically linked to a surface buoy, and cabled. Technology today allows us to build sophisticated deep-sea observational systems. Considerable engineering development work has been done by the NEPTUNE and MARS projects in North America and the DONET project in Japan. NEPTUNE Canada is implementing one of the first deep sea, cabled networks. However, the costs associated with the construction and operation of these systems are high, and funds usually attributed to oceanography are not related to such investments. The ESONET community is highlighting the importance of such infrastructures to governments so that investment in these research infrastructures can take place.

Figure 1: 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 the creation of a network of excellence. Over the initial 4 years, the approach will be to merge the programmes of member 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 with capabilities in: geophysics, geotechnics, chemistry, biochemistry, oceanography, biology and fisheries. In order to reach this broad objective, it is necessary to organise the deep-sea observatory community around ESONET sites and to unify it around common scientific objectives that must reach the top level of marine research.

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

- **Objectives of the reporting period**

During the two first ESONET periods, the main ESONET working groups were constituted at WP level, the core groups at each ESONET site were identified, the first Demonstration Missions and the first exchanges of personnel were launched and the permanent virtual structure (VISO) was in preparation.

This third ESONET period essentially carried on integration and networking which is the key instrument to achieve the main objectives of the ESONET Work Packages.

The main general objectives of this reported period were :

- to pursue development of integration at regional sites through the launching of the two new Demonstration Missions (AOEM and MODOO - 2nd Call of DM) and by encouraging the involvement of the ESONET partners on the 2nd and 3rd calls of exchange of personnel
- to insure the good progression of the fourth Demonstration Missions (LIDO, MOMAR-D, MARMARA and LOOME - 1st Call of DM)
- to pursue standardization activities for instance through the Second Best Practices Workshop in Brest
- to reinforce the regional cohesion around all ESONET nodes by the organization of the 2nd All Regions Workshop in Paris
- to initiate the building of a permanent virtual structure (VISO) through the VISO workshop in Tromsø
- following the setting up of a legal framework ERIC by the European Commission, the ESONET and EMSO Consortiums began to reflect to the possibility of the creation of an ERIC for the deep-sea observatories

- **Work performed and main achievements in**

  - **WP1**

- Organization of the 2nd All Regions Workshop in Paris, France.
- The second Exchange of Personnel was issued in April 2009:

8 proposals were received and 4 were accepted. Deliverable D54.

- The third Exchange of Personnel was issued in January 2010:

4 proposals were received and 3 were accepted. Deliverable D54.

- Core regional groups constituted: circulation of a new detailed questionnaire during the 2nd All Regions Workshop, encouragement to participate in internal call.
- Sustainable integration of ESONET community: organization of the 1st VISO workshop in Tromsø, Norway.

o **WP2**

- Organization of a GEOSS Workshop on Ocean Observation in Bremen in May 09
- Participation in OGC Interoperability Experiment
- Demonstration of Plug and Work capabilities of selected standards
- Organization of EGU session in Vienna on Ocean Observatory Instrumentation
- Organization of 2nd Best Practices Workshop in Brest in October 09
- Several meetings between PEOS representatives and researchers on standardization issues

o **WP3**

- Update D11 including literature and workshop inputs
- Submit D11 for publication in Progress in Oceanography
- Update D13 including literature and workshop inputs
- Updating site-specific objectives and requirements
- Linking objectives and requirements in a relational database

o **WP4**

- The LOOME DM continued to monitor the Håkon Mosby mud volcano (Norwegian Margin) already started the previous year. A new seafloor platform equipped with sensors was deployed together with an OBS to extend the recording of measurements previously acquired with autonomous sensors (e.g., temperature and pore pressure).

- The LIDO DM proceeded with a new deployment of the GEOSTAR multi-parameter observatory and its instrumented surface buoy at the Iberian Margin site, in collaboration with the NEAREST EC Project to detect potential tsunami signals and subsequently notify a shore station. The enhanced NEMO-SN1 observatory, following hardware and software adaptations, underwent a test phase in view of deployment in Summer 2010.

- The Marmara-DM developed a set of sea operations geared to the characterisation of the seismogenic fault area using acoustic detection of gas emissions, AUV micro-bathymetry and sea-bottom deployment

of BOB (acoustic gas bubble detector), en-route surveys to map and sample dissolved gas in the water column and high-resolution 3D seismic surveys on the western area. Deployment of seafloor monitoring modules included SN-4, a seafloor multi-parameter observatory of the GEOSTAR type, and 10 OBSs and 5 piezometers.

- The MODOO DM mainly addressed outlying and building hardware, in particular the Data Collection and Dissemination (DCD) node to be connected to the MODOO lander and mooring. This is in view of the deployment and the recovery cruise in the Porcupine Abyssal Plain off southwest Ireland scheduled for May/June 2010.

- The MOMAR-D is proceeding with the final definition of the observatory and the start the technological work: designing and building the sensors/nodes, adapting sensor software to SEAMON technology. The objective is to start trials in Brest by Spring 2010. The cruise to implement the observatory infrastructure on Lucky Strike (Azores), is now scheduled for September 2010 (R/V Pourquoi pas? and ROV Victor 6000).

- The AOEM (ESONET Arctic site), for which the Grant Agreement and Implementation Plan had to be amended, commenced in July 2009 with the preparation of the geophysical experiments for assessing the variability of the acoustic signature of the bubble plumes in the water column, monitoring the thermal signal of fluids expelled from the sediment and determining the micro-seismological expression of hydrate dissociation and fluid escape. The technical work that has started includes the identification of available technical solutions for data transfer from Fram Strait moorings to land and of feasible ocean water column deliverables that can be collected from the cabled network and meet the requirements of user community.

- **WP5**
  - LEE database online
  - Good practices report prepared and finalised
  - Comparative work and final implementation plans prepared
  - Strong links with EMSO maintained - WP5 facilitated preparation of D46 for the STRAC and funding agencies meeting.

- **WP6**
  - Development of ESONET Yellow Pages.
  - Companies have become more pro-active in populating the Yellow Pages of ESONET suppliers. During the VISO Workshop, industry stakeholders of ESONET formed a working group to discuss how the service companies and customers of ESONET observatories could contribute to the implementation of ocean observatories in Europe.
  - All data produced by the POSEIDON-Pylos observatory (Hellenic site) are integrated into the POSEIDON information system. The daily files are made available to the scientific community through an ftp server.
  - Promotion of ESONET within the private sector via the activity of PESOS and the publication of ESONEWS.

- **WP7**
  - The outreach pages are kept up to date, with announcements, training workshop and further details on the project. New sections on Demonstration Missions, ESONET special reports, links to other European ocean projects, new school material links were added.
  - The website has been translated into numerous languages: French, Swedish, Turkish, Russian, German, Spanish, Bulgarian, Welsh and Romanian.
  - A general workshop was held in Bremen, associated with IEEE.
  - A geohazard specific workshop was held in Turkey. Deliverable D40.
  - Through ESONET, a web portal with a real-time web interface has been installed at Thalassokosmos. The web cam has been installed in the main tank and will soon be in operation.

- **WP8**
  - Update of the online reporting tool.
  - The ESONET Label document is the second update version (document continuously updated according to the up coming results).
  - GMES: A report outlining the possible contribution of ESONET to GMES car services has been prepared in October 2009. This document was a basis support for discussions with the MyOcean and SAFER coordinators. This collaborative work is described in the Deliverable D67.

- **WP9**
  - Successful organization of the data management workshop in June 2009
  - Cooperation agreements on data management with various projects

(hypox, GENESIS, OSIRIS, EuroSites etc..)
- Draft of workflow for data archiving for ANTARES, LIDO, Nordic Node
- Revised knowledge base, serving as data and information portal
- Definition of an ESONET SensorML profile
- Sensor registry user interface with several data entry templates and XML templates
- Development of SOS server prototypes as well as SOS web client

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

WP2

Due to some changes in the progression of the project such as the planning of cruises, etc., some deliverables, such as D39, have been delayed. Telephone conferences have been scheduled to discuss open issues and to continue to work towards the defined goals. The partners involved in the task feel that it is important to use the experience gained during the DM operations for the compilation of the deliverable reports. This is specially the case for the deliverable D41 that needs more input from the DMs. Consequently only a draft version is provided and a final version will be delivered in period 4.
The deliverable D50: "report from the Best Practices workshop #2" is provided in an acceptable version but more inputs are expected to finalise it in a good version.
The deliverable D51 is six-months delayed due to health problem of the main responsible of this report.

WP4:

1. Delay in the signature of the AOEM DM Grant Agreement (2nd Call). The delay was due to the planned participation of an institution which is not an ESONET consortium Partner. This Sub-contracting was not provided for ESONET, so the ESONET Coordinator prepared a request of contract amendment including modifications of financial information. This amendment request took a longer time than expected and has been sent to the European Commission in March 2010 by the coordination team.

2. The deliverable D45a has been received whi delay, despite many requests from the coordination team. The received version was considered as a draft version because due to missing information in the report and missing deliverables of individual DMs. A letter was sent to the WP4 leader with copy to the DMs leader but no update nor DM deliverables have been received. Consequently only the draft can be provided. The next DMs periodical report, deliverable 45b has not been received by the coordination as well.

WP5

Period 3 of the project was a busy one for WP5 participants who are on course to deliver a number of key elements of the project before the final phase of the NoE (Period 4). The link with EMSO- PP activities is reinforced implying common activities with EMSO partners to discuss on the common infrastructure (see deliverable D46), and for instance the fleet. Due to the need of a more mature vision of the possible infrastructures the deliverable D20 –2010 and D22-2010 are delayed to September 2010.

WP7:

D30 – Web terminal. Terminals were delivered to two aquaria, but until live data can be made available, only basic ESONET info can be delivered. Since no real-time ESONET data are available for aquaria terminals, a new interactive ESONET presentation designed by Jacobs University with input from Partners has been implemented.

D64: Training on KOSTOBS test site is delayed due to the delay in selecting the test sites. In addition the site for training has been changed to Koljo-Fjord

2 WORK PACKAGE PROGRESS OF THE PERIOD

Table 1 – ESONET JPA : Work Packages (WPs)			
Work Packages (WPs)	**Integrating Activities (IA)**	**Persons in charge of Task Teams**	
	WP1 Networking	**M. Cannat**	IPGP (FR
	I.a Organisation of the 2nd All Regions Workshop	M. Cannat	IPGP (FR)
	I.b Regional implementation group	M. Cannat	IPGP (FR)
	I.c Exchange of personnel	M. Cannat	IPGP (FR)
	I.d Planning and implementation of VISO	J. Mienert	UiT(NO)
	WP2 Standardisation and interoperability	**C. Waldmann**	KDM (DE)
	II.a Sensors and scientific packages	C. Waldmann	KDM (DE)
	II.b Quality assurance, Quality control	A. Holford	Univ. Aberdeen (GB)
	II.c Underwater intervention	J.F. Drogou R. Papaleo	IFREMER (FR) INFN (IT)
	II.d Sharing testing facilities	J. Marvaldi	IFREMER (FR)
	II.e Contribution to GEOSS standardisation and implementation activities	E. Delory	DBSCALE (ES)
	II.f Organisation of the 2nd Best Practices Workshop at IFREMER	C. Waldmann	KDM(DE)
	II.g Organization of equipment tests on cabled sites with training activities	C. Waldmann	KDM(DE)
	WP5 Implementation strategies	**M. Gillooly** **F. Grant**	Marine Inst. (IE)
	V.a Science, engineering and business plan for generic sites	J. Piera O. Pfannkuche	CSIC (ES) KDM (DE)
	V.b Legal, Ethical and Environmental	M. André G. André	UPC (ES) ALTRAN (FR)
	V.c Comparative work – Both working groups		
	V.d Reporting to EMSO	R. Person	IFREMER (FR)
	WP9 Networking ESONET Data management	**R. Hubert**	KDM-UniHB (DE)
	IX.a: Data management plan	M. André	UPC (ES)
	IX.b. ESONET knowledge base	R. Hubert	KDM-UniHB (DE)
	IX.c. ESONET Data infrastructure: Sensor registry	M. Diepenbroek	KDM-UniHB (DE)
	IX.d ESONET Data infrastructure: SOS development and implementation	T. Carval	IFREMER (FR)
	IX.e ESONET Data infrastructure: prototype implementation	R. Hubert	KDM-UniHB (DE)
	Jointly Executed Research (JER)		
	WP3 Scientific objectives and observatory design	**H. Ruhl**	NOCS (GB)
	III.a Science objectives	H. Ruhl	KDM (DE)
	III.b Generic science modules	G. Greinert	NIOZ (NL)
	III.c Specific science modules	L. Geli	IFREMER (FR)
	WP4 Demonstration missions	**L. Beranzoli** M. Cannat	INGV (IT) IPGP (FR)
	IV.a Call for proposals		CSIC (ES)
	IV.b Demonstrations		

	Spreading Excellence (SE)			
	WP6 Socio-economic users		**J.M. Miranda** J.F. Rolin N. O'Neill	Univ. Lisboa (PT) IFREMER (FR) CSA (IE)
		VI.a Core services stakeholders		
		VI.b Regional services stakeholders		
		VI.c Promotion and SME policy		
	WP7 Education and outreach		**L. Thomsen** T. Tselepides A. Colaço S. Girhon	KDM (DE) HCMR (GR) Univ. Azores (PT) SOPAB (FR)
		VII.a Educational tools		
		VII.b Web portal with real-time web interface		
		VII.c Communication of results		
	WP8 – Management Activities (MA)		**R. Person** I. Puillat J.F. Rolin V. Le Guen C. Desbois	IFREMER (FR)
		VIII.a General Assembly		
		VIII.b Meeting organisation		
		VIII.c Information management and yearly reporting		
		VIII.d Link with European Commission		
		VIII.e Link with European projects		
		VIII.f ESONET label	C. Lietard	ALTRAN (FR)
		VIII.g. Worldwide cooperation on cabled subsea observatories	I.G. Priede	Uni. Aberdeen (GB)

2.1 WP 1 – Networking

Persons in charge: **Mathilde Cannat** (cannat@ipgp.jussieu.fr)
Contact: +33 144 275 192
Institution: IPGP

Names and institutions of the participating persons:

Task	**Persons in charge of Task Teams**	
WP 1 NETWORKING	Mathilde Cannat	IPGP
1a) Organisation of the 2nd All Regions Workshop	Mathilde Cannat	IPGP
1b) Regional implementation group	Mathilde Cannat and Roland Person	IPGP IFREMER
1c) Exchange of Personnel	Mathilde Cannat	IPGP
1d) Planning and Implementation of VISO	Juergen Mienert	UiT
Names of other participants (and institutions names): IPGP, IFREMER and UiT are the leaders of this WP. The following ESONET Partners also contributed in various degrees to WP1 activities this year (primarily through the Exchange of Personnel scheme, and by their active participation (as session moderators, etc.) in the 2nd All Regions Workshop: CNRS-GEOAZUR, CNRS-CEREGE, CNRS-CPPM, CNRS-IUEM, CNRS-LMGEM, KDM-IFM-GEOMAR, KDM-AWI, KDM-JUB, KDM-MPIMM, KDM-UniHB, INGV, ISMAR, NOCS, HCMR, NIOZ, IMI, UAC, UPC, NGI, ULB, UGOT, ITU, BU-KOERI, DEU-IMST, ALTRAN, CINTAL		

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

Task 1a: To organise the 2nd All Regions Workshop. This second meeting aimed at strengthening the links between the regional nodes of ESONET, and promoting multi-disciplinarily and trans-nationality within each node.

Task 1b: To set up regional implementation groups. The objective is to finalise the constitution of regional implementation groups for each ESONET node.

Task 1c: To promote the exchange of personnel. The objective is to facilitate networking and jointly executed research by promoting the exchange of personnel among ESONET Partners.

Task 1d: To plan and implement the Virtual Institute VISO. The objective is to constitute a virtual institute, named VISO, that will ensure continued scientific planning and networking between the EMSO observatory nodes after the end of the ESONET NoE.

2.1.2 Progress towards objectives – tasks worked on and achievements made

Task 1a) – Organisation of the 2nd All Regions Workshop

Activity 1a1: Preparation of the 2nd All Regions Workshop

The 2nd All Regions workshop was held in Paris (4-6 October) with 100 participants. Rooms were provided free of charge by the CNRS. Representatives from international observatory projects were invited to give an update on the state of the art: NEPTUNE Canada (C; Barnes, UVIC), Mars (S. Etchemendy, MBARI), DONET (Y. Kaneda, JAMSTEC), OOI (S. Banahan, NSF). The project POCLAN was also invited in the aim of strengthening links between coastal observatory initiatives. Representatives of other European projects with common themes were also present: EuroSITES, EMSO, GMES, EPOS, SIAOS.

Activity 1a2: 2nd All Regions Workshop reporting

This second meeting had two high points: we heard exciting updates on the significant scientific and technological progress made at most ESONET nodes over the past two years, and we had in-depth discussions on how to design and implement a durable ESONET-EMSO infrastructure around Europe. The videos of all talks and discussions, and the corresponding slides, are available online on the ESONET web page:
http://www.esonet-noe.org/news_and_events/esonet_workshops_and_meetings/2009_11_20_all_regions_2_oral_presentations.
The report of the workshop, in paper/PDF format has been completed (D55): it was due in January 2010 (month 35) but IPGP requested an additional two months to complete this task (month 37).

Person in charge: Mathilde Cannat
Involved partners: IPGP, IFREMER

Task 1b) – Constitution of Regional Implementation Groups

During the Period 2 of ESONET, we were able to put together a rather comprehensive list of contact people for most ESONET nodes, covering the following categories: coordinator(s), contact person(s), science and technology PIs, data management contact(s), and the so-called "STRAC referents": a list of names for the main funding agencies involved for each country committed to building the given node. During the 2nd All Regions Workshop in Paris, we circulated a new, detailed questionnaire, which allows us to accurately follow the evolution of these groups for each ESONET node. This list of contacts is crucial for ESONET coordination, and for building the future EMSO infrastructure. The Table below lists the coordinators for each node, with their affiliations. These names have not changed much from our previous report as the update mostly concerns the names of PIs and STRAC referents. More information, including that from the filled-out questionnaires, will be part of D56, which we are a bit late in submitting: it was due in October but we need more time to process the questionnaires from the Workshop.

Table 1.1: Updated list of ESONET node coordinators, with names of corresponding ESONET-funded demonstration mission(s) (DM)

Node #	Node name	Contact persons	DM
1	Artic	T. Soltwedel (AWI), M. Klages (AWI)	MASOX-ARCOONE
2	Norwegian Margin	J. Mienert (Univ. Tromso), D. de Beer (MPI-MM), B. Ferré (UiT)	LOOME
3	Nordic Sea	P. Sigray (Stockholm Univ.)	
4	Porcupine	F. Grant (IMI), M. Gillooly (IMI), O. Pfannkuche (IFM-GEOMAR)	MODOO
5	Azores	A. Colaco (Univ. Azores), R. Santos (Univ. Azores), Maria Gabriella Queiroz (Univ. Azores), Miguel Miranda (FFCUL), Mathilde Cannat (IPGP), Pierre-Marie Sarradin (IFREMER)	MoMAR-D
6	Iberian Margin	L. Matias (FFCUL), M. Andre (UPC-CSIC), N. Zitellini (ISMAR), J.M. Miranda (FFCUL)	LIDO
7	Ligurian Sea	D. Lefevre & Christian Tamburini (CNRS/LMGEM), J.J. Destelle (CPPM), S. Escoffier (CPPM), C. Curtil (CPPM), J. Carr (CPPM)	
8	East Sicily	L. Beranzoli (INGV), P. Favali (INGV), R. Papaleo (INGV), G. Riccobene (INFN)	LIDO
9	Hellenic	V. Lykousis (HCMR), T. Tsellipides (HCMR)	
10	Marmara Sea	N. Cagatay (ITU), L. Géli (IFREMER)	MARMARA
11	Black Sea	L. Dimitrov (IO-BAS), H. Sahling (Univ. Bremen)	
12	Koster Fjord	L. Thomsen (Jacobs Univ.), L. Lundalv (Goteborg Univ.)	

Person in charge: Mathilde Cannat
Involved partners: AWI, IFREMER, UiT, IMI, IFM-GEOMAR, Univ. Stockholm, Univ. Azores, FFCUL, IPGP, UPC-CSIC, NOC, ISMAR, CPPM, LOV, INGV, INFN, HCMR, ITU, IO-BAS, Jacobs Univ., Goteborg Univ.

Task 1c) – Exchange of Personnel

Activity 1c1: 2nd Call for Exchange of Personnel

We issued the 2nd formal Call for Exchange of Personnel in April 2009, with a deadline set for 15 May 2009. We received eight projects, for a total requested amount of 66 200 €. Based on our recommendations, the ESONET Steering Committee suggested some revisions for certain projects (applicants for three projects were asked to join forces and submit a coordinated proposal). Following this revision, four projects were funded, for a total of 33 500 €, and involving personnel from eight ESONET partner institutions. The Table below gives some details on these funded projects.

Table 1.2: Summary of projects funded through the 2nd Call for Exchange of Personnel

#	Partner	Budget
1	CNRS-UPC-IFREMER-MARUM	5 700 €
2	MARUM-INGV	4 000 €
3	INFN-INGV-HCMR-CNRS	16 200 €
4	IPGP-INGV	7 600 €
	TOTAL	33 500 €

Processing this 2nd Call was delayed compared to the original work plan. As a result, we were a bit late with the submission of D54 (due in November 2009) which was to report on the projects funded through both the 1st and the 2nd Calls for Exchange of Personnel. We submitted this report in March 2010.

Activity 1c2: 3rd Call for Exchange of Personnel

Finally, we recently (January 25) issued the 3rd and last Call for Exchange of Personnel, with a deadline set for 13 February 2010. We received six proposals for a total of 89340 €. These proposals were ranked and decision was made on their funding at the ESONET Steering Committee meeting of 26 March 2010.

Person in charge: Mathilde Cannat
Involved partners: IPGP, ITU, CEREGE, DEU, IMST, IFREMER, UPC, SEND, CSIC, IMI

Task 1d) – Plan and implement the Virtual Institute VISO

The objective of the VISO workshop was to provide the planned large-scale marine infrastructure, partner countries and interested organizations, such as fisheries and the petrol & gas industry, with strategies for ensuring the durability of observatory data. Workshop preparation was coordinated by UiT and the event took place in Tromso, Norway on 11-12 June 2009.

Activity 1d2: Workshop conclusions

The workshop was attended by 80 scientists and engineers from around the world and from major marine research stakeholders, including industrial sectors that are directly or indirectly related to deep-sea observatories. The group discussions highlighted the urgent need to understand the effect of climate change on the ocean, because the ocean is becoming more acidic, minimum oxygen zones are expanding and anoxic dead zones are appearing in formerly rich fishing places. All of these changes threaten ocean health and the ability of the earth to support human life. The lack of deep-sea observations needs to be counteracted, especially for decision-makers trying to find better supports to communicate to end-users. The education issue is also essential, with an increasing need for training specialists with environmental backgrounds. The report following the workshop (D53) was submitted in November 2009 (month 33).

The objective of VISO is to insure continued scientific planning and networking between the EMSO observatory nodes after the end of the ESONET NoE. VISO will also be a useful structure for interacting with industry through the ESONET-EMSO community, and will link

ocean scientists and engineers to an international team, in partnership with the main non-European deep-sea observatory initiatives. VISO will also promote European approaches (methods and equipment) outside Europe, for science- and industry-driven deep-sea observational needs.

As VISO is based on a computer network, the Institute of Geology at UiT is planning to hire a Master student, who will be co-supervised by researchers in the Computer Science department. We are planning to send this student for a short period to the USA to learn from the existing US Ocean Observatory Initiative (OOI) (Scripps Institution of Oceanography).

Persons in charge: Jurgen Mienert, Bénédicte Ferré
Involved partners: All partners were involved

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

No real deviations, but a few months of delay in completing some deliverables this year. We should catch up over the next few months.

2.1.4 Deliverables list

Del. no.	Deliverable name	Work package no.	Date due	Actual/ Forecasted delivery date	Estimated indicative person-months (*)	Used indicative person-months (*)	Lead contractor
D53	Report on creation of VISO	WP1	31	33			UiT
D54	Report of 2nd and 3rd call for exchange of personnel	WP1	33	37			IPGP
D55	Report on 2nd All Regions Workshop	WP1	35	37			IPGP-IFREMER
D56	Membership of regional implementation groups	WP1	32	36			IPGP-IFREMER

(*) if available

2.1.5 List of milestones:

Milestone no.	Milestone name	Work package no.	Date due	Actual/Forecasted delivery date	Lead contractor
M1-28	1st VISO workshop	WP1	28	28	UiT
M1-32	2nd All Regions Workshop	WP1	32	32	IPGP

2.2 WP 2 – Standardisation and Interoperability

Persons in charge: **Christoph Waldmann** (waldmann@marum.de)
Contact: +49 421 218 65606
Institution: Universität Bremen (UniHB)

Names and institutions of the participating persons:

Task	Persons in charge of Task Teams	
WP 2 STANDARDISATION AND INTEROPERABILITY	Christoph Waldmann	KDM-UniHB-MARUM
2a) Sensors and scientific packages	Christoph Waldmann	KDM-UniHB-MARUM
2b) Quality assurance, Quality control	Anne Holford	UniAbdn
2c) Underwater intervention	Jean- Francois Drogou	IFREMER
2d) Sharing testing facilities	Jean Marvaldi	IFREMER
2e) Contribution to GEOSS standardization and implementation activities	Eric Delory	dBScale
2f) Organisation of the Best Practices Workshop #2 at IFREMER	Christoph Waldmann	KDM-UniHB-MARUM
2g: Organisation of equipment tests on cabled sites with training activities	Christoph Waldmann Jean Marvaldi	KDM-UniHB-MARUM IFREMER
Names of other participants (and institution names):		
Antoni Manuel (UPC)	Jean-Yves Royer (CNRS-IUEM)	
Klaus Schleisiek (SEND)	Gabriel Gorsky (CNRS-LOV)	
Michael Klages (KDM-AWI)	Jon Campbell (NERC-NOCS)	
Vasilios Lykousis (HCMR)	Jesper Zedlitz (University of Kiel)	

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

WP2 addresses standardisation and interoperability issues from a hardware standpoint. Sensor interfacing, description of calibration procedures, related quality management issues and underwater intervention procedures are the topics that are addressed in this work package. The aim is not to cover the theme in full breadth but to investigate, understand, evaluate and recommend selected practices and standards for future use. To do so, it is necessary to form teams on the European and international level.

Task 2a: To develop a strategy for evaluating sensor interface standards and demonstrate their applicability.

Task 2b: To set up a quality management framework in regards to operational considerations within the framework of sea observatories.

Task 2c: To formulate recommendations on underwater intervention procedures within the framework of sea observatories.

Task 2d: To increase capabilities and share usage of existing facilities.

Task 2e: To develop links to GEOSS activities.

Task 2f: To organise the 2nd Best Practices Workshop.

Task 2g: To organise equipment tests on cabled sites.

The stakeholders within WP2 have always strived for a cooperative approach in carrying out the planned work and to demonstrate the concepts at selected events like the MARTECH workshop in Barcelona in November 2009. The 2nd Best Practices Workshop, organised in Brest in October 2009, was a central event for WP2 for presenting the collected knowledge to other Partners and to formulate plans for future actions. In Europe, the ocean science community is in the favourable situation of being able to use existing deep-sea and shallow-water cabled observatories that have been established for neutrino telescopes. Therefore, it has been decided to specifically allocate funds to test concepts and instruments under long-term deployment conditions.

2.2.2 Progress towards objectives – tasks worked on and achievements made

Task 2a) – Sensors and scientific packages

Within WP3 of the ESONET NoE, sensor packages have been classified into two categories: generic ones and specific ones (see WP3 report). This selection was based on the scientific demand as defined by participating experts in the field of deep-sea research. WP2 addresses standardisation and interoperability issues of both types of sensor, packages.
Within this task, testing and evaluating selected interface standards such as IEEE 1451 continued and has led to demonstrations of plug-and-work capabilities for certain sensor types. This was a major step towards confirming the capabilities of IEEE 1451 and also helped walk through the different procedures that are necessary to make implementing this standard possible. With the software modules that have evolved from work on this topic, other ESONET Partners can now easily join WP2 activities and contribute to the evaluation of the sensor interface standardisation concepts. Along with the activities in WP9, different levels of interoperability can now be addressed, starting on the sensor interface level and moving up to the level of a service-oriented architecture of data distribution. In cooperation with the ESONET PESOS group, we plan to promote the developed standardisation concepts and rouse the interest of European SMEs. IFREMER has developed a special micro-controller board that is well-suited for implementing the above-described concepts and can be made available to interested parties. This board will facilitate the introduction of the developed standardisation concepts. Activities 2a1-2a3 are dedicated to specific interoperability issues. Some activities are related to specific types of sensors that cannot be standardised at their current stage [of development], but are of importance for future observatory design and they are being updated in light of the constraints imposed by observatories. This is treated as an additional activity not listed in the original DoW: Activity 2a4.

Activity 2a1: **Preparation and implementation of the international OGC interoperability experiment**
During 2009, the 2nd Ocean Science Interoperability Experiment managed by SURA was carried out. The experiment ended on 19 November 2009.
The main goals were

-to demonstrate automated retrieval and installation of IEEE 1451 and OGC SWE components from instruments that implement the MBARI PUCK protocol. These

components included IEEE 1451 TEDS, Sensor Model Language (SensorML) documents and instrument driver software to be executed on the instrument "host" computer.
-to experiment with approaches to automatically detect when a sensor has been installed, removed or exchanged.

ESONET participants:

- Polytechnical University of Catalunya (UPC) – Joaquin del Rio Fernandez, Dan Toma
- Bremen University – Christoph Waldmann
- SEND Offshore Electornics GmbH – Klaus Schleisiek

Other Participants:

- MBARI – Kent Headley, Carlos Rueda, Tom O'Reilly
- SmartBay Canada – Neil Cater, Eric Davis
- Axys Technologies – Chris Ng, Reo Phillips
- Compusult Ltd – Angela Amerault, Robert Thomas
- RBR Ltd – Greg Johnson, Graham Jones
- Christian Albrechts University at Kiel – Jesper Zedlitz

The full report of the objectives achieved can be downloaded from http://www.oostethys.org/ogc-oceans-interoperability-experiment. The major achievement of this task was the successful completion of an interoperability experiment within the ESONET group composed of UPC, IFREMER, KDM-UniHB and the dBscale and SEND companies. The concepts that were evaluated were the standards IEEE 1451, the PUCK protocol from MBARI and different hardware and software implementations. IFREMER suggested using a newly developed micro-controller board that also allows for Ethernet access. In association with MARUM and CSIC, IFREMER implemented the prototype of the Sub-Sea Smart Sensor (4S) and it will be tested on OBSEA (project set up with MBARI and NEPTUNE Canada). In 2009, IFREMER designed and manufactured the first set of "Smart Sensors" electronic boards. These prototypes were fully tested and qualified from a hardware point of view. A library of drivers was developed by IFREMER and UPC/SARTI in C language, to drive all embedded sub-assemblies. The development of the "Smart Sensors" software application will take place in 2010.

Since this activity has been carried out as part of an international initiative led by the Open Geospatial Consortium, these concepts will have an impact on the ocean science community worldwide. Regular international telephone conferences were organised to allow for a coordinated approach. The final demonstration was carried out at the MARTECH conference in November 2009 in Barcelona, Spain.
This activity forms the basis for defining the prototype implementation of a standardised sensor interface as described in deliverable report D8.

Activity 2a2: **Dissemination of the results of the standardisation activities**
During the OCEANOBS meeting in Venice, two White Papers that deal with the use of Sensor Web Enablement [(framework of open standards for Web-connected sensors and sensor systems)] and quality management issues were prepared (J. Fredericks; Integrating QA/QC into Open GeoSpatial Consortium Sensor Web Enablement, and B. Burnett; Quality Assurance of Real-Time Ocean Data (QARTOD)). These papers again evolved from an international partnership with US research programmes, the QARTOD and Q2O projects.

Activity 2a3: **Generic functional diagram of an ocean observatory**
As part of the 2nd Best Practices Workshop, a reference model for ocean observatories was developed that helps to focus discussions on individual components and interfaces. This is published in the deliverable report D50.

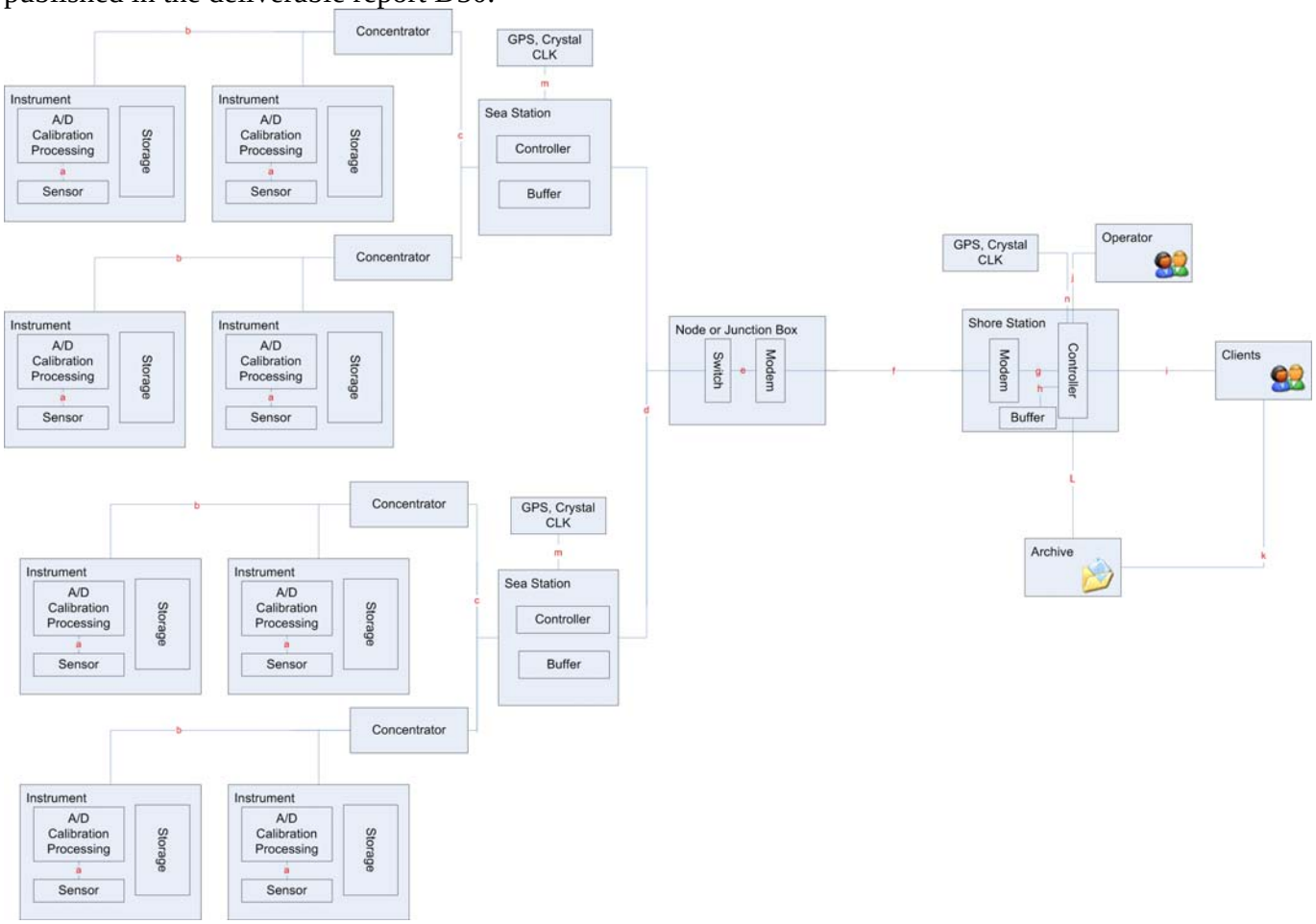

Figure 2.1: Observatory reference model

Activity 2a4: efforts on specific sensor modules
In the framework of the ANTARES site, CNRS-LMGEM developed a new device to measure *in situ* O_2 dynamics in the water column (up to 6,000 m depth) called IODA6000 as part of the French ANR program POTES, in collaboration with CPPM (Centre de Physique des Particules de Marseille, ANTARES). We have been measuring °T, Salinity and O_2 concentrations since December 2007 and O_2 consumption from May to December 2008 and since December 2009 at 2000 m depth at the ANTARES site (NW Mediterranean Sea). These measurements provide high-frequency *in situ* real-time data. Since January 2009, a monthly cruise (of 3 days) has been carried out. The objective is to calibrate and validate *in situ* real-time measurements using CTD-O_2 profiles. These activities are supported by FP6 ESONET NoE, FP7 EuroSITES, INSU Opera, INSU Dark Vador, Université de la Méditerranée AAMIS, CPER PRIMA.

- KDM-Jacobs University (JUB) is participating in the NEPTUNE Canada project. Laurenz Thomsen is PI for the Barkley Canyon activities and has regular contacts with the NEPTUNE Canada coordinators. Tests with EU equipment have been performed

off Vancouver Island and new ROV transport technology has been tested with JUB's deep-sea crawler. Since September 2009, JUB has had access to an internet-operated vehicle, which has successfully carried EU sensor packages to 900 m water depth off Vancouver Island. KDM was regularly informed about these developments.

- As a general contribution to standardisation and interoperability, INGV has undertaken adaptations to increase the compatibility and interoperability of its own equipment (observatories, handling systems, etc.). This activity also included verification of the Partners' infrastructure features and the definition of the practical procedures for interfacing with the existing infrastructure of other ESONET Partners. The INGV activities in this WP have also extended access to INGV equipment to all other ESONET Partners. INGV has obtained indications for SensorML encoding of its instruments' sensing and tasking characteristics to contribute to this activity using its own specific instrumentation.

- Within the framework of the MODOO demonstration mission (DM), NIOZ defined standards for communication between the Develogic acoustic modem and a RDI Workhors ADCP (300 kHz), a Seabird CT (which is interfaced to a Wetlabs Flourometer and OBS) as well as a Technicap Sediment trap motor. An XML protocol format was developed to request data remotely, change settings and start the sediment trap motor at any given time with a definable sampling interval. These protocols and range of possible settings are currently integrated and implemented together with satellite data link protocols and will be documented as part of the MODOO project.

- As part of piezometer manufacturing and marketing (developed by IFREMER), NKE has set up the interface so that it can be used with deep-sea observatories such as Costof.

Task 2b) – Quality assurance, Quality control

Activity 2b1: Transferring quality management concepts into practical recommendations

The University of Aberdeen produced a draft template for the ESONET quality manual, paying special attention to the requirements for implementing the ESONET label and the ESONET Yellow Pages systems. Review and updates to the standard interface document, a quality plan and a quality manual will be the tasks that need to be done over the next few months, once consortium members have commented on these documents. The results from this work is summarised in the deliverable report D39.

Activity 2b2: Harmonisation with other EU projects

Through their involvement in ESONET, KM3NET and EuroSITES, Univ. Aberdeen and HCMR can provide insight into the discussions going on in all three projects. Harmonisation activities focussed on data protocols and on quality checks for procedures that have been developed within EuroSITES.

In particular, it was recommended to follow procedures developed within international and European programs (OceanSITES, SEPRISE, MyOcean, etc.): after the first level of data quality assurance, two types of daily files are produced — ASCII (Medatlas) and Binary (NetCDF) — to comply with standards.

Task 2c) – Underwater intervention

Activity 2c1: From concepts to operations: feedback on underwater intervention procedures
During the deployment of the LOOME observatory, the UniHB implemented the recommended practices and reported their experience to the task leader. This process is necessary to make progress in the simulation of underwater manipulations. A report for the LOOME DM summarises the deployment procedure. Some procedures were already provided by other demonstration missions participants during the second period.

Activity 2c2: Development of Best Practices from simulation procedures
Simulation facilities to train pilots for observatory maintenance procedures are currently under construction at IFREMER and KDM-UniHB. Although commercial systems are available, they do not provide the flexibility that is needed for simulating scientific operations. Both partners are working closely together to tackle particular issues such as simulating the plugging process for underwater connectors.

Deliverable report D51, under the responsibility of IFREMER, is scheduled to be completed later than foreseen due to important health problem of the main responsible. Only a draft is provided now to present the status of the work done. The final version is postponed to September 2010..

Task 2d) - Sharing testing facilities

Activity 2d1: Practical implementation of device testing concepts
This activity focuses on promoting discussion and exchanges of information between ESONET Partners on
- existing testing facilities: on land, in coastal water areas or deep-sea sites;
- functional and environmental test procedures of equipment;
- calibration of sensors and measuring systems.
The final objective is to attain shared use of Partner facilities and to draw up an agreed set of testing and calibration procedures for common use by the ESONET community.
During the previous ESONET Periods, ESONET Partners were requested to provide information on their existing testing facilities and the test and calibration procedures that they use; this information is to be compiled and made available to ESONET members. A collaborative BSCW space was opened to register gathered information and to be a proposal and discussion forum.
During the last quarter of 2009, the content of this collaborative space was transferred to the "ESONET Partners only" web pages, with help of ESONET Partner ALTRAN/ATLANTIDE
http://www.esonet-noe.org/partners_only/work_package_space/wp2_standardization_and_interoperability

The structure of the database is as follows:
0- Notes on database set-up process and organisation of information
1- Infrastructures and facilities
1.1- Land-based Laboratory Facilities
1.1.1- Environmental or operational testing facilities
1.1.5- Sensor and measuring system calibration facilities

1.1.9- Discussion and proposal document area
1.2- Coastal Water Test Areas
1.2.1- Infrastructures and facilities
1.2.9- Discussion and proposal document area
1.3- Deep-Sea Infrastructures
1.3.1- Infrastructures and facilities
1.3.9- Discussion and proposal document area
2- Procedures
2.1- Environmental Tests
2.1.1- Procedure descriptions
2.1.9- Discussion and proposal document area
2.2- Operational Tests
2.2.1- Procedure descriptions
2.2.9- Discussion and proposal document area
2.3- Sensor and Measuring System Calibration
2.3.1- Procedure descriptions
2.3.9- Discussion and proposal document area

The ESONET Best Practices Workshop organized in Brest in October 2009 provided a good foundation from which to continue the discussion on sharing testing facilities. Again, as in the other tasks, specific sensors were selected to undergo the suggested procedures. In coordination with WP3, the selected sensors should be part of the defined generic sensor package and CTDs can serve as a good model for that purpose.
In January 2010, UPC received the renewal of its ISO 17025 accreditation by ENAC (Spanish National Accreditation Body). Facilities, such as the hyperbaric chamber, temperature chamber, shake table, etc., and calibration procedures to, for example, validate the junction box of the marine observatory OBSEA and marine instruments, such as ocean-bottom seismometers, CTDs, etc. were thus officially endorsed. It is recommended that other European laboratories follow this example and seek accreditation according to this ISO standard.
As part of the testing operations (Task 2g), a new testing facility is being prepared for the ALBATROSS line (Autonomous Line with a Broad Acoustic Transmission for Research in Oceanography and Sea Sciences). ALBATROSS proposes to set up the framework for multi-disciplinary work around the ANTARES telescope. The main objective is to reinforce the multi-disciplinary scientific work already carried out at the ANTARES node and to implement the appropriate instrumentation for oceanography, using wireless real-time data transmission via the deployment of a secondary junction box.

Activity 2d2: Comparison of underwater acoustic modems

In underwater interventions, acoustic modems play an important role, from interconnecting individual sensor packages by a wireless communication system to the verification of turning rates of ROV cable using a modem that is attached to the cable. Extensive tests of acoustic modems were conducted as part of ESONET and resulted in a report that describes a comparison of systems from different commercial suppliers.
Two modems were deployed off Nice for testing the acoustic link between the seafloor and surface buoys (Evologic and SERCEL).

Task 2e) Contribution to GEOSS standardisation and implementation activities
Activity 2e1: Organisation of GEOSS workshop and active participation in GEOSS committee meetings
One of the major activities within GEOSS is the introduction of standards for data collection and dissemination. The idea is to use open standards and an open architecture to allow for the best use of the available information. ESONET Partners are involved in different initiatives related to GEOSS, such as the Standards and Interoperability Forum and the regular attendance of GEO task team meetings (S&T, ADC, etc.). GEOSS principles have been taken into account in setting up a web front-end for the ESONET sensor registry.

In May 2009, a GEOSS workshop was organised that addressed ocean-related issues. This was also a chance to compare the status of ocean activities in fields such as meteorology which will help introduce GEOSS principles into ocean sciences.
The final report of the workshop can be found on
http://www.ieee.org/organizations/pubs/newsletters/oes/html/spring09/GEOSS_Workshop.pdf.
. During Period 3, dBscale has been involved in different initiatives related to GEOSS, periodically attending the Standards and Interoperability Forum for the design of a Taxonomy of standards, and the regular attendance of GEO task team meetings.
In addition to these GEOSS-related activities, other activities are involved in this Task, including continuous update of ESONET for the GEOSS website, the report on the GEO SIF meeting in Washington DC held at IEEE headquarters (E.Delory gave attendees a presentation of ESONET WP2 & WP9 activities).

D41 has been delayed due to difficulties in getting feedback from e-mail invitations to participate in an online survey. We are currently working with WP9 to directly contact the implicated parties (Data management and Infrastructure leads) for each ESONET node.

Task 2f1) Organisation of the 2nd Best Practices Workshop at IFREMER
The organization of the 2nd Best Practices Workshop brought 70 experts in the field of marine technology from different European institutions together. A report on the workshop is currently being finalised. With the involvement of partners from the US and other countries outside Europe, the obtained results should have a broader impact.

The 2nd Best Practices Workshop was divided into three sections:

- Generic Instrumentation
- Infrastructure
- Standardisation and interoperability

The guiding idea was to focus the discussions on topics that are of immediate relevance for ongoing work within ESONET. Regarding sensor standardisation, the foremost task was to come up with a reference model to have a common reference for interfaces and functional blocks. The infrastructure section mainly addressed issues such as corrosion during long-term deployments, the design of individual observatories and the evaluation of critical components such as acoustic modems and their role as a medium to transfer commands and data. Under the topic of generic instrumentation, the use of different types of acoustic sensors was a major point of discussion. Instruments, such as ADCPs, could serve as a template for other instrument types to define Best Practices procedures for handling and operation. Biochemical sensors hold significant interest for the ocean science community as they help elucidate

processes involved in modelling exchange processes in the water column and interfaces. Finally, during a session focussing on underwater intervention, information on ROV manipulation procedures in use at different European institutions was shared.

Activity 2f2: Reporting from the Best Practices Workshop

Individual results of the 2nd Best Practices report have been already compiled, such as the observatory reference model for the integration and operation of instruments. When the last input has been received, the deliverable report D50 will be finalised. Only a draft version is delivered.

Task 2g: Organisation of equipment tests on cabled sites with training activities

The ESONET NoE still suffers from insufficient access to online data. Most DMs are run with lander deployment/retrieval and subsequent data publication. ESONET needs a Web portal with real-time web interface from online observatories. This was a major recommendation during the 2009 review of ESONET in Brussels.

From test sites, the Web portal could be launched with a real-time web interface and provide incoming data and chart underwater interventions to all users (the ESONET community, public, industry and politicians). This will allow ESONET Partners as well as the general public (to a certain extent) to actively participate in ESONET research.

As new technologies or sampling programs are experimented, real-time data connections will allow ESONET operators to immediately gauge progress. Particularly at coastal test sites, ESONET operators would be able to send a maintenance ship and ROV to the study sites on short notice in case of problems. Coastal test sites thus provide the best sites to try out new equipment for ESONET. However, deep-sea tests are also required to develop and validate deployment procedures.

Consequently, a test call, “Integrated organisation of tests and observatory methodologies on cabled ESONET observatory sites” was published in June 2009. Emphasis was put on ten key issues. The call focussed on long-term deployment in deep-sea water and technical issues.

The ESONET Coordinator received six proposals generally involving only one site.

Only three involved ESONET sites: ANTARES, NEMO-East Sicily, Koster Fjord. Three proposed sites are in shallow water: Koster Fjord, Koljo Fjord, OBSEA.

The steering committee decided to include deep-water and shallow-water sites, with the shallow-water sites having a role as a testbed and a demonstrator for concepts. For instance, at OBSEA, standardisation concepts have been implemented that are of importance for future observatory systems, not just in Europe but also in other parts of the world. Koljo Fjord is ideal for testing the performance of biochemical sensors in a highly diverse environment. The ANTARES and NEMO-SN1 observatories will be used for the evaluation of ROV manipulation procedures at deep-water sites. Common training of engineer and students will be part of the work programme and due to the fact that this call addresses sites with real-time capabilities, public outreach can be included as well.

The Coordination team was mandated by the Steering Committee (07 October 2009) to manage a proposal integrating a maximum of proposed tests in a coherent way.

A "Consensus" meeting involving participants was organised in Barcelona, Spain on 20-21 November 2009 to prepare a merged proposal. Then the test call was discussed during the 2nd Best Practices Meeting in Brest (08 October 2009).

Main recommendations were defined based on the discussions and according to the list of items considered for analysing the proposals.

Now, the organisation of equipment tests at cabled test sites are well underway. A single proposal was compiled and evaluated by external reviewers. This task will be summarised in Deliverable D58.

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

Due to some changes in the progression of the project such as the planning of cruises, etc., some deliverables, such as D39, have been delayed. Telephone conferences have been scheduled to discuss open issues and to continue to work towards the defined goals. The partners involved in the task feel that it is important to use the experience gained during the DM operations for the compilation of the deliverable reports. This is specially the case for the deliverable D41 that needs more input from the DMs. Consequently only a draft version is provided and a final version will be delivered in period 4.
The deliverable D50 is provided in an acceptable version but more inputs are expected to finalise it in a good version.
The deliverable D51 is six months delayed due to health problem of the main responsible of this report.

2.2.4 Deliverables list

Del. no.	Deliverable name	Work package no.	Date due	Actual/ Forecasted delivery date	Estimated indicative person-months (*)	Used indicative person-months (*)	Lead contractor
D58	Report on selected test experiments on cabled sites	WP2	32	38	35	35	UniHB-IFREMER
D39	Prototype quality management manual	WP2	32	38	40	40	UniABDN
D41	Result and analysis of GEOSS and standards survey in ESONET	WP2	29	30-43	60	60	dBscale
D50	Report on Second Best Practices Workshop	WP2	33	36-43	35	35	KDM
D51	Training and simulation manual	WP2	32	38-43	30	30	IFREMER
D52	Report on the contribution to international standardisation initiatives	WP2	32	34	35	35	KDM
D8	Prototype implementation of example standardised sensor system	WP2	30	33	65	65	KDM
D57	Intermediate report from underwater	WP2	33	36	40	40	IFREMER

Del. no.	Deliverable name	Work package no.	Date due	Actual/ Forecasted delivery date	Estimated indicative person-months (*)	Used indicative person-months (*)	Lead contractor
	acoustic modems inter-comparison experiment						

* if available

2.2.5 Milestones list

Milestone no.	Milestone name	Work package no.	Date due	Actual/Forecasted delivery date	Lead contractor
M2-30	IEEE 1451 implemented according to OGC IE2 requirements	WP2	30	30	UPC
M2-29	Report on GEOSS workshop released	WP2	29	29	DBscale
M2-32	Evaluation of first successful instrument deployments	WP2	32	32	IFREMER
M2-29	Completion of 2nd Best Practices Workshop	WP2	29	29	KDM
M2-28	Information of deliverable D10 made available on ESONET website	WP2	28	28	IFREMER

2.3 WP 3 – Scientific Objectives and Observatory Design

Persons in charge**: Henry Ruhl** (h.ruhl@noc.soton.ac.uk)
Contact: +44 23 8059 6365
Institution: NERC-NOCS

Names and institutions of the participating persons:

Task	Persons in charge of Task Teams	
WP 3 SCIENTIFIC OBJECTIVES AND OBSERVATORY DESIGN	Henry Ruhl	NOCS
3a) Scientific objectives	Henry Ruhl	NOCS
3b) Generic Science modules	Jens Greinert	NIOZ
3c) Specific science modules	Louis Géli	IFREMER

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

Henry Ruhl at NERC-NOCS leads WP3 activity. During Period 3, the main activities included updating the D11 and D13. The main activities/tasks of WP3 overall are
3.a.1 – To update scientific objectives;
3.a.2 - To participate in workshops with HERMES, EuroSITES, MERSEA/MyOcean, EUROCEANS;
3.b.1 – To Update the generic parameters list;
3.b.2 - To establish links between generic technology and scientific needs;
3c - To define specific science modules.
All of these objectives have been achieved to at least a basic level with refinements planned for Period 4.

2.3.2 Progress towards objectives – tasks worked on and achievements made

Task 3a) – Science objectives

Activity 3a1: Update of scientific objectives

This was first delivered in period 2 and was updated again during period 3 (D11) including literature review, input from workshops and feedback from the 2nd period review. The process of linking the science objectives to science module design requirements began during Period 3. The regional implementation groups have been identified in WP1. A key topic of the All Regions Workshop was indeed to get updates on planning progress for each node from regional representatives. Breakout groups were set up to further encourage discussion of regional and site specific concerns. This information is being used to update implementation plans and identify areas where further input is needed in Period 4. NOCS and IFREMER also

organized a session at the 2009 Best Practices Workshop to review aspects related to the analysis of long-term data from deep-sea observatories.

Many Partners directly participated in updating D11 during Period 3, including NERC-NOCS, IFREMER, KDM, INGV, ISMAR, UAç, FFCUL, CISC, UGOT, ITU, UniABDN, UPC, IPGP, MI, NIOZ,HCMR, UiT, and FFCUL. D11 was submitted to Progress in Oceanography for publication.

Activity 3a2: Input from other European programs

A dedicated workshop took place in Period 2. However, interaction between HERMIONE, EuroSITES, EMSO, and others continued to be facilitated by the participation of many Partners in more than one of the relevant research programs. These interactions included the 2009 European Geophysical Union meeting, GEOSS Workshop XXVII, the VISO workshop and the 2009 All Regions and Best Practices workshops. The discussions and outputs from these workshops facilitated progress in all other areas of WP3, most directly in updating D11 and D13.

Task 3b) – Generic Science modules

Activity 3b1: Update the generic parameters list
Activity 3b2: Link between generic technology and scientific needs
Updating the generic parameters list was also a topic that benefited from discussions at the above-mentioned workshops. The generic sensor module had been defined during an earlier stage of the project. There are no changes to the generic science module composed of a CTD-type sensor module that also records O_2, turbidity and current data. In addition, an important passive acoustics module was defined for geosciences and ecology.
More specifically, a Best Practices session on the generic module occurred with outputs being included in D13. This session concluded that the existing list was appropriate given factors such as commercially available sensors operating down to 6000 m depth with an endurance of 12 months or more. However, several other sensors are now being considered for addition to the generic parameters list including CO_2, chl-a fluorescence, and time-lapse photography. Variants for pelagic and benthic environments were also introduced in D5 and these will be redefined in Period 4. Links between generic technology and scientific needs were outlined in D13. The questions that can be addressed using with the generic parameters were outlined.

Task 3c) – Specific science modules

Activity 3c1: Definition of specific science modules and links to generic technology
Specific science modules were also outlined in D13 including several examples of how these modules have come together to form various observing systems. We also examined links between specific science modules and scientific objectives to complement 3b2. A relational database between objectives, specific questions and observatory module requirements is being created that will ultimately form an appendix to D13. Like D11, many Partners have contributed to D13 preparation during Period 3, including NOCS, IFREMER, NIOZ, KDM, ISMAR, UGOT, DBSCALE, and SEND. Node-specific workshops are also being organised

to round out planning in demonstration missions (DMs) and have (or will) include workshops for Celtnet/Porcupine and Ligurian nodes. In addition, a new section focusing on acoustic observatory modules and objectives is being prepared. This is being led by FORTH. NERSC, CINTAL, and ULB. The specific topics include the role of sound in the observation of the ocean, inverse problems in underwater acoustics related to the monitoring of the marine environment, ocean acoustic tomography and geoacoustic inversions, acoustic observables and inversion techniques, instrumentation for ocean acoustic observatories, stationary vs. mobile observatories, deep-water vs. shallow-water issues, ongoing experiments and IPs. In their partner-level reporting for Period 3, several Partners indicated several progress areas that fall mostly outside of the DM activities and are only partially captured in D11 and or D13, including NGI, HCMR, FORTH, ULB, CNRS, NOCS, ITU, NERSC, and DEU-IMST.

NGI deployed an autonomous piezometer system at a gas industry site with a water depth of 1300 m. The monitoring system collects data at 18, 20, and 65 m below the seabed and 4 months of data have already been recovered.

CNRS/LOV developed and tested an underwater vision profiler to quantify marine particles including sedimentation and resuspension rates with a 3000 m depth rating, which can easily be modified.

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

2.3.4 Deliverables list

Del. no.	Deliverable name	WP no.	Date due	Actual/Forecasted delivery date	Estimated indicative person-months (*)	Used indicative person-months (*)	Lead contractor
D11-2010	Report on scientific background and objectives	WP3	33		33		NOCS
D13-2010	Report on science modules	WP3	33		33		NOCS

* if available

2.3.5 Milestones list

Mil. no.	Milestone name	Work package no.	Date due	Actual/Forecasted delivery date	Lead contractor
3.a.	Update	WP3	M33		NOCS
3.b.	Update	WP3	M33		NOCS
3.c.	Update	WP3	M33		NOCS

2.4 WP 4 – Demonstration Missions

Persons in charge: Laura Beranzoli (beranzoli@ingv.it)
Contact: +39 65 18 0418
Institution: Istituto Nazionale di Geofisica e Vulcanologia

Names and institutions of the participating persons:

Task	Persons in charge of Task Teams	
WP4 DEMONSTRATION MISSIONS	Laura Beranzoli	INGV
4a) Call for proposal	Laura Beranzoli Mathilde Cannat	INGV IPGP
4b) Demonstration missions: follow-up and reporting	Laura Beranzoli	INGV
Names of other participants (and institutions names): UPC, KDM-UniHB/MARUM, FFCUL/CGUL, INGV, CNR-ISMAR , INFN, CSIC, dBScale, BHT, Tecnomare-ENI, KDM-AWI, IFM-Geomar (a KDM partner), IFREMER, UiT, MPI ITU, CNRS, DEU/IMST, HCMR (for participation in the preparation meetings for the DM in the Marmara Sea, regarding the deployment of KATERINA, a prototype radon sensor), DOP/UAÇ, IPGP, CNRS-F, CNRS-C, SOPAB, Leibniz Institute of Marine Sciences, NERSC, NERC-NOCS, IMI, NIOZ, UniABDN.		

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

Task 4a: The WP4 work objective is to establish a framework for the development of demonstration missions (DMs) as practical opportunity for ESONET Partners to colloborate on high-quality experiments, thus strengthening the potential to make a real step toward integrating equipment, methodologies and facilities and meeting important scientific and technological challenges. The WP aims to define the criteria and procedures for DM selection and, upon the approval of the Steering Committee, to start the selection process, including evaluating and ranking proposals.

Task 4b: To monitor the development of DMs on the basis of semester reporting and to facilitate the profitable use of DM results.

2.4.2 Progress towards objectives – tasks worked on and achievements made

Task 4a) – Call for proposals

Task 4a had already been completed at the end of Period 2 with the selection of DMs submitted to the 2nd Internal Call for DMs. The present reporting period thus includes only Task 4b.

Task 4b) – Demonstration missions: follow-up and reporting

Period 3 started with completion of the 2nd Call for DMs, which maintained the same selection procedure as the 1st Call, but thematic areas were slightly modified to favour proposals from oceanography, environmental and climate change disciplines. Three DMs

were approved, with the indication from the Steering Committee that two of them be merged as they both concentrated on the Artic node.
According to the same document structure set up during the 1st Call, the implementation plans, i.e. the reference documents for each DM development, were collected for the new DMs, AOEM and MODOO, in Spring 2009. The process of signing the Grant Agreements, which constitutes the formal framework for the development of the DMs, was thus started.
An updated summary of the DMs approved by the ESONET Steering Committee is given in Table 4.1 and Fig. 4.1.

Table 4.1 Demonstration missions approved by ESONET

DM Name	Coordinator	Start Date	End Date	Duration (months)	DM progress (months since start)
DMs approved in the 1st Call					
LIDO	Universitat Politecnica de Catalunya (E) Michel André	01.09.2008	31.08.2010	24	9
LOOME	Max Planck Institute MM (D) Dirk de Beer	01.02.2008	31.12.2010	35	16
MARMARA-DM	IFREMER (F) Louis Geli	01.04.2008	30.09.2010	30	14
MOMAR-D	IFREMER (F) Pierre-Marie Sarradin	01.09.2008	31.08.2010	24	9
DMs approved in the 2nd Call					
AOEM	National Oceanographic Centre Southampton (UK) Ian Wright	01.07.09	31.10.2010	16	To be started
MODOO	IFM-GEOMAR (D) Johannes Karstensen	01.05.09	30.09.2010	17	1

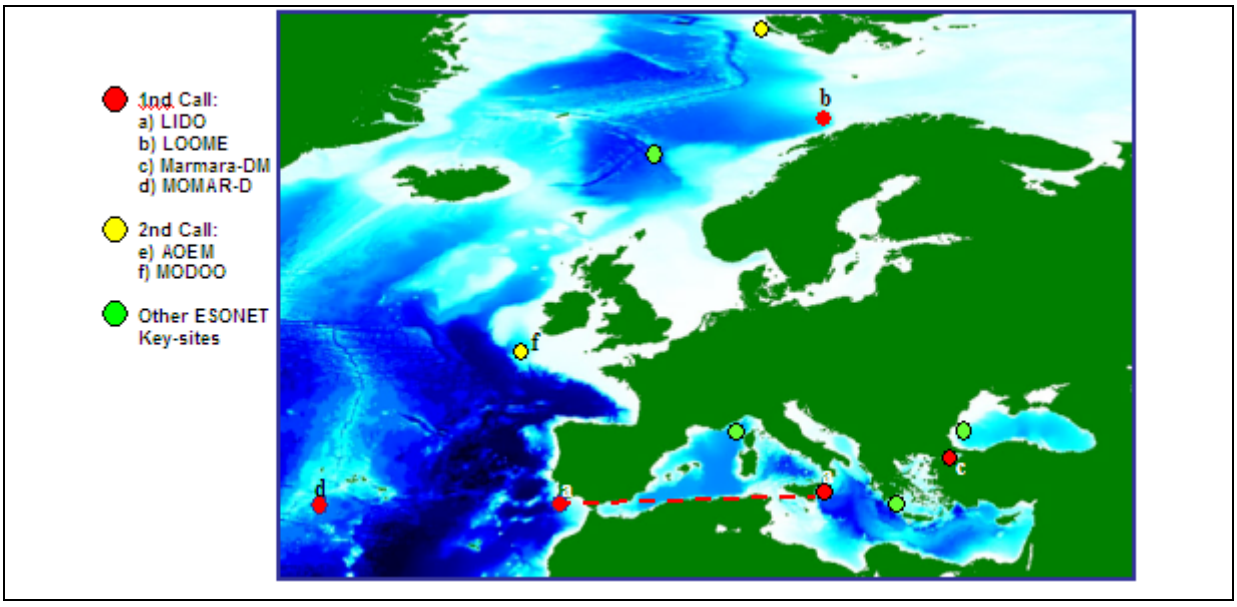

Figure 4.1. Location of ESONET demonstration missions

According to the ESONET DoW, periodic reports of each in-progress DM (LIDO, LOOME, MARMARA-DM, MOMAR-D) and the ones that have just started (AOEM and MODOO), were due in May 2009 from the DM Coordinators to complete the 2nd Periodic Report on DM status (D45a) and deliver it by June 2009. The Marmara DM semester report was sent in September 2009, during the preparation and organisation of the 2nd All Regions Workshop. This caused an additional delay and the final version of D45a was completed and delivered in early November 2009. In spite of this delay, the 2nd All Regions Workshop provided the opportunity to have a general view on and discuss the status of the work developed by the Partners in the DMs, with additional details on the first scientific and technical results. Period 3 of ESONET has been fundamental for the development of the DMs, because for most DMs, the technical work needs to be completed for the experiments at sea planned for the second half of 2009.
The LOOME DM continued to monitor the Håkon Mosby mud volcano (Norwegian Margin) already started the previous year. A new seafloor platform equipped with sensors was deployed together with an OBS to extend the recording of measurements previously acquired with autonomous sensors (e.g., temperature and pore pressure).

The LIDO DM proceeded with a new deployment of the GEOSTAR multi-parameter observatory and its instrumented surface buoy at the Iberian Margin site, in collaboration with the NEAREST EC Project to detect potential tsunami signals and subsequently notify a shore station. The enhanced NEMO-SN1 observatory, following hardware and software adaptations, underwent a test phase in view of deployment in Summer 2010.

The MARMARA-DM developed a set of sea operations geared to the characterisation of the seismogenic fault area using acoustic detection of gas emissions, AUV micro-bathymetry and sea-bottom deployment of BOB (acoustic gas bubble detector), en-route surveys to map and sample dissolved gas in the water column and high-resolution 3D seismic surveys on the western area. Deployment of seafloor monitoring modules included SN-4, a seafloor multi-parameter observatory of the GEOSTAR type, and 10 OBSs and 5 piezometers.

The MODOO DM mainly addressed outlying and building hardware, in particular the Data Collection and Dissemination (DCD) node to be connected to the MODOO lander and mooring. This is in view of the deployment and the recovery cruise in the Porcupine Abyssal Plain off southwest Ireland scheduled for May/June 2010.

The MOMAR-D is proceeding with the final definition of the observatory and the start the technological work: designing and building the sensors/nodes, adapting sensor software to SEAMON technology. The objective is to start trials in Brest by Spring 2010. The cruise to implement the observatory infrastructure on Lucky Strike (Azores), is now scheduled for September 2010 (R/V *Pourquoi pas*? and ROV *Victor 6000*).

The AOEM (ESONET Arctic site), for which the Grant Agreement and Implementation Plan had to be amended, commenced in July 2009 with the preparation of the geophysical experiments for assessing the variability of the acoustic signature of the bubble plumes in the water column, monitoring the thermal signal of fluids expelled from the sediment and determining the micro-seismological expression of hydrate dissociation and fluid escape. The technical work that has started includes the identification of available technical solutions for data transfer from Fram Strait moorings to land and of feasible ocean water column deliverables that can be collected from the cabled network and meet the requirements of user community.

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

3. Delay in the signature of the AOEM DM Grant Agreement (2nd Call). The delay was due to the planned participation of an institution which is not an ESONET consortium Partner. This Sub-contracting was not provided for ESONET, so the ESONET Coordinator prepared a request of contract amendment including modifications of financial information. This amendment request took a longer time than expected. .

4. The delivery of Marmara-DM semester report was delayed for about 3 months. This was in part due to the overlap of the report deadline with the preparation and subsequent development of sea operations in the Sea of Marmara, which involved all the Partners of the DM. This kind of delay may be recurrent at this stage (at-sea operations) and are difficult to overcome given the large number of partners involved in DM reporting. Repeated solicitations and reminders with warnings of cutting off DM funds to Partners may be necessary to achieve punctual reporting.

Note from the coordinator: the deliverable D45b is not delivered yet due to the delay of the deliverable D45a.

2.4.4 Deliverables list

Del. no.	Deliverable name	WP no.	Date due	Actual/Forecasted delivery date	Estimated indicative person-months (*)	Used indicative person-months (*)	Lead contractor
D45a	Second periodical report	WP4	28	31	278.5		INGV

Del. no.	Deliverable name	WP no.	Date due	Actual/Forecasted delivery date	Estimated indicative person-months (*)	Used indicative person-months (*)	Lead contractor
	on Demonstration Missions						
D45b	Third periodical report on Demonstration Missions	WP4	33	39	278.5		INGV

* if available

2.4.5 Milestones list

Mil. no.	Milestone name	WP no.	Date due	Actual/Forecasted delivery date	Lead contractor
M4-30	Status report on Demonstration Missions	WP4	30	36	INGV

2.5 WP 5 – Implementation Strategies

Persons in charge: **Mick Gillooly** (michael.gillooly@marine.ie) and Fiona Grant (fiona.grant@marine.ie)
Contact: +353 91 387200
Institution: Marine Institute

Names and institutions of the participating persons:

Task	Persons in charge of Task Teams	
WP 5 IMPLEMENTATION STRATEGIES	M. Gillooly Fiona Grant Juanjo Dañobeitia	IMI IMI CSIC
5a) Science, Engineering and business plans for generic cable and stand-alone sites	Fiona Grant Jaume Piera Olaf Pfannkuche	IMI CSIC IFM-GEOMAR
5b) Legal, Ethical and Environmental (LEE)	Fiona Grant Jaume Piera Olaf Pfannkuche	IMI CSIC IFM-GEOMAR
5c) Comparative work	Fiona Grant Jaume Piera Olaf Pfannkuche	IMI CSIC IFM-GEOMAR
5d) Reporting to EMSO and mobilising the NoE on long-term strategy funding plan	Fiona Grant Mick Gillooly Roland Person Paolo Favali	IMI IMI IFREMER INGV
5e) Reporting to EMSO and mobilize the network of excellence on logistical, engineering and technical aspects of deep-sea observatories	Jean-François Rolin Monty Priede Anne Holford	IFREMER UniABDN UniABDN
5f) High level implementation structure/organization and regional integration bodies	Fiona Grant Mick Gillooly Roland Person Paolo Favali	IMI IMI IFREMER INGV

Names of other participants (and institutions names):

Juanjo Danobeitia (CSIC)
Xavier Gracia (CSIC)
Michel André (UPC)
Edi Bauerfeind (AWI)
Norman Lochthofen (AWI)
Nick O'Neill (SLR Consulting)
Ana Colaço (University of Azores)
Pier Luigi Franceschini (INGV)
Mathilde Cannat (IPGP)
Jean-Jacques Destelle (CNRS)
Jérôme Blandin (IFREMER)
Yves Auffret (IFREMER)
Jean-François Drogou (IFREMER)
Henry Ruhl (NOCS)
Louis Geli (IFREMER)
Jean-François Masset (IFREMER)
Hanne Sagen (NERSC)

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

WP5 is to utilise and build on the outputs of the ESONIM SSA and includes joint activities of ESONET NoE members for the 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 for proposals, if required.

Task 5a:
5a1: 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.

5a2: The objective is to provide the over-arching specification of user needs and scientific justification for the establishment of a stand-alone site.

5a3: 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 provide updated cost estimates.

5a4: The objective is to develop an engineering solution for the design, development, construction and deployment of a stand-alone system and to provide cost estimates, which can be used in the Financial task.

5a5: The objective is to review the business plan and financial model from ESONIM and produce an overall estimate.

5a6: The objective is to develop a business plan and financial model for a stand-alone observatory.

Task 5b:
5b3: To comment and complete the LEE database.

5b4: The objective is to draft a final report on suggested best practices and guidelines

Task 5c:
To compare the over-arching specification of user needs and the scientific justification for the establishment of a cabled observatory versus a stand-alone site.

Task 5d:
To ensure reporting to EMSO and mobilise the ESONET Network of Excellence on a long-term strategy funding plan.

Task 5e:
To ensure reporting to EMSO and to mobilise the ESONET Network of Excellence on logistical, engineering and technical aspects of deep-sea observatories.

Task 5f:
To propose a high-level implementation structure/organisation and Regional Integration Bodies.

2.5.2 Progress towards objectives – tasks worked on and achievements made

Task 5a) - Science, Engineering and business plans for generic cable and stand-alone sites
Activity 5a1: Science – Generic cable site WG
Activity 5a2: Science – Stand-alone site WG
Activity 5a3: Engineering – Generic cable site WG
Activity 5a4: Engineering – Stand-alone site WG
Activity 5a5: Business plan and financial model – Generic cable site WG
Activity 5a6: Business plan and financial model – Stand-alone site WG
Considerable advances were achieved in WP5 over the course of Period 3 for the ESONET NoE. In the previous reporting period, report D5 had been prepared and delivered which outlined the preliminary work done in the Generic Cable and Generic Stand-alone WGs (Task 5a). The science, business and engineering backgrounds for each solution have been fully described in D5.

Task 5b) – Legal, Ethical and Environmental (LEE)
Activity 5b3: Phase 3. Analysis of content
Activity 5b4: Phase 4. Best Practices and guidelines
These activities are reported below for a more comprehensive reading.

Task 5c) – Comparative work
For D48, the focus of some WP5 participants was mainly on Task 5c – Comparative work between the two work groups (WGs) from a science, engineering and business plan/costing perspective. This work has primarily been done by Fiona Grant (IMI) in conjunction with Jaume Piera and Xavier Garcia (CSIC). Important background work had already been done by other WP participants listed above. The science and engineering elements were prepared by CSIC colleagues while the IMI focused on comparative costings for both solutions. There was also an update for some of the legal issues around the application for ERIC status and decommissioning.

In parallel with the process of reporting to EMSO on the implementation model (D46), the project coordinators and Steering Committee members strove to finalise the implementation plan for ESONET-EMSO. This work also formed the basis of D48. Jean-Francois Rolin (IFREMER) and Fiona Grant (IMI) devoted time to the refinement of the cost models for the revised implementation plans. This work has proven invaluable for funding agencies and the Steering Committees of both the ESONET and EMSO projects.

D47, the online database to include local, national and European legal, ethical and environmental (LEE) documents became available in early 2010 for use by Partners and the EMSO PP. It proved an invaluable information source for the preparation of material on Regional Legal Entities for ESONET/EMSO.

Michel Andre of UPC has headed the LEE work being done as part of WP5 and prepared the report on the LEE Best Practices. This report and annexes have been completed and form part of D48.

Task 5d) – Reporting to EMSO and mobilising the NoE on long-term strategy funding plan

In Period 3, WP participants focused on a variety of tasks and deliverables, many of which were complementary in nature. There was considerable synergy between the ESONET and EMSO projects in Period 3, which is one of the main tasks of this work package.

Fiona Grant was primarily responsible for the delivery of D14, which was based on the online database (D47) collated by colleagues at UPC and Atlantide.

The D46 Report to EMSO on the implementation model (ESONET NoE) was a collaborative effort led by Nick O'Neill of SLR Consulting, with significant input from Jean-Francois Rolin (IFREMER), Mick Gillooly (IMI), Roland Person (IFREMER), Paolo Favali and Pier Luigi Franceschini (INGV), Henry Ruhl (NOCS) and Fiona Grant (IMI). The Steering Committee members had an advisory and editing role in the preparation of the document, which is to be presented to the ESONET and EMSO Strategic (STRAC) committees in late February 2010.

There are a number of annual deliverables in WP5 – namely D20-2010 to D23-2010. These are prepared primarily by IFREMER with back-up assistance by the WP5 leader.

Task 5e) – Reporting to EMSO and mobilising the network of excellence on logistical, engineering and technical aspects of deep-sea observatories

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Task 5f) – High-level implementation structure/organisation and Regional Integration Bodies

These are activities slated for the next 18 months.

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

For WP5. Period 3 of the project was a busy one for WP5 participants who are on course to deliver a number of key elements of the project before the final phase of the NoE (Period 4). The link with EMSO- PP activities is reinforced implying common activities with EMSO partners to discuss on the common infrastructure (see deliverable D46), and for instance the fleet. Due to the need of a more mature vision of the possible infrastructures the deliverable D20 –2010 and D22-2010 are delayed to September 2010.

2.5.4 Deliverables list

Del. no.	Deliverable name	WP no.	Date due	Actual/ Forecasted delivery date	Estimated indicative person-months (*)	Used indicative person-months (*)	Lead contractor
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	WP5	30	36	22.5		IMI
D20-2010	Report on long-term planned research and co-operation between research organization in Europe	WP5	36	43			IFREMER
D21-2010	Document outlining agreement on co-operation between organizations involved in developing technology (internationally and fleet related)	WP5	36	38			IFREMER
D22-2010	Report on confidential meetings between commercial companies and ESONET WP leaders	WP5	36	43			IFREMER
D23-2010	Report on meetings to discuss long-term funding for seafloor observatories involving representatives from funding agencies	WP5	36	38			IFREMER
D46	Report to EMSO on Implementation model (ESONET NoE)	WP5	30	36	7		IMI
D47	Online database to include local, national and European legal, ethical and environmental (LEE) documents	WP5	30	36	23		UPC
D48	Final report on Best Practices, guidelines for LEE issues and implementation plans	WP5	30	36	24		UPC

* if available

2.5.5 Milestones list

Mil. no.	Milestone name	Work package no.	Date due	Actual/Forecasted delivery date	Lead contractor
-	-	-	-	-	-

2.6 WP 6 – Socio-Economic Users

Persons in charge: **Juan Miguel Miranda** (jmiranda@fc.ul.pt)
Contact: +351 217 500 809
Institution: Fundacao da Faculdade de Ciencias da Universidade de Lisboa

Names and institutions of the participating persons:

Task	**Persons in charge of Task Teams**	
WP 6 SOCIO ECONOMIC USERS	Juan Miguel Miranda	FFCUL
6a) Core services stakeholders	Nick O'Neill	SLR Consulting
6b) Regional services stakeholders	Juan Miguel Miranda	FFCUL
6c) Promotion and SME policy	Jean-François Rolin	IFREMER
Names of other participants (and institutions names): Vasilios Likousis (HCMR)		

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

According to the DoW of ESONET, the objectives of WP6 are to determine/outline (i) direct clients for data, information and/or infrastructure; (ii) indirect users of information, such as education or outreach programs; (iii) possibilities for integration within decision-support tools. This involves the (i) development of permanent contacts with identified potential users; (ii) development of models for evaluating the benefits of the European Seas Observatory Network to its users; (iii) assessment of the impact of ESONET on European society as a whole; (iv) discussion with the military and industry to explore possible synergy; (v) identification of limitations of available observation technology, to foster development, by the European private sector (SMEs), of new tools for the submarine monitoring of the Earth, either sensors, data-browsers or value-added services.

These objectives are met by (i) promoting the need for subsea observatories, disseminating the results of ESONET NoE and (ii) establishing permanent links to socio-economic users. These objectives require developing stronger links between the present and future stakeholders of ESONET, disseminating the latest results of the network to the general public and promoting the harmonious development of the different regional infrastructures.

Task 6a: To organise meetings with stakeholders of the core services

Task 6b: To organise formal meetings with ESONET node stakeholders during the 2nd All Regions Workshop based on the implementation plans.

Task 6c: To promote and define ESONET SME policy

2.6.2 Progress towards objectives – tasks worked on and achievements made

Task 6a) - Core services stakeholders
The attendance of IFREMER, FFCUL & SLR at events and conferences, the workshops that have been organised, the stands visited and exhibitors approached in the previous period resulted in more and more equipment manufacturers and service providers becoming aware of the ESONET NoE. Industry players have shown increasing interest since the start of the demonstration missions (DMs). Equipment manufacturers have seen that funds are spent on ocean observatory activities. As a result, companies have become more pro-active in populating the Yellow Pages of ESONET suppliers. This was apparent at the 2nd Best Practices Workshop on 8-9 October 2009 at IFREMER-Brest. In June 2009, at the VISO Workshop in Tromso, Norway, industry stakeholders of ESONET formed a working group to discuss how the service companies and customers of ESONET observatories could contribute to the implementation of ocean observatories in Europe. At the Steering Committee Meeting in Amsterdam in December 2009, this initiative was pursued by defining the role of the industry core services stakeholders in the implementation plan for ESONET.

Task 6b) – Regional services stakeholders
HELLENIC SITE: Dissemination of data and information products of the stand-alone POSEIDON-Pylos Observatory (Hellenic site): All data produced by the POSEIDON-Pylos observatory have been integrated into the POSEIDON information system. The daily files in ASCII/MEDATLAS or NetCDF formats are made available to the scientific community through an ftp server. This type of dissemination is mainly for operational systems that use automated download procedures. Off-line data are also made available through the web system of the POSEIDON system (www.poseidon.hcmr.gr). This web page offers several functionalities for end-users and regional services, including

- a quick look at the latest data (a subsample of parameters) in tabular form. This is an open service that allows users to have an overview of the latest marine observations in their area of interest. It is mainly targeted to the wider user community (general public) and to regional services; meteorological, surface oceanographic (temperature, waves, currents), water column (salinity, temperature, ambient/biological noise) and seabed (temperature, water column pressure/tsunami) parameters are displayed;

- a viewing service (static graphical display) of a time series of the last 15 days. This service is also open to all users and allows a detailed overview of the variability occurring over the previous 2 weeks. The service is targeted to both the wider public and scientific users of the system and thus includes all parameters monitored by the buoy network.

Discovery and download service for all data of the system: The data that have been collected during the whole POSEIDON-network operation are easily accessible through a Web interface to the system's database. The database is updated daily, offering full access to both archived and recent data. The user has also access to multiple metadata information regarding the buoy sensors, location, operational period and other combined information. This service is targeted to the scientific community and is restricted to registered users.

Task 6c) – Promotion and SME policy

In the past 12 months, most efforts were focussed on developing the interface with the private sector. In particular, this involves the development and implementation of ESONET Yellow Pages (EYP), the promotion of ESONET within the private sector via the activity in PESOS and the publication of ESONEWS as a tool to disseminate the objectives and the current implementation status of the project.

Activity 6c1: Initiating communication policy with ESONET News

Issues of ESONEWS were devoted to DMs, where results could already be shown. Volume 3, issue 1 was dedicated to the Marmara and MomarD DMs; Issue 2-3 was a 16 page newsletter entirely dedicated to LOOME. ESONEWS now has a wide distribution among equipment manufacturers, service companies and potential end-users. In addition to distribution by email as an e-zine, hard copies are regularly distributed at conferences and workshops. ESONEWS is printed (1500 copies each issue) and distributed by post to the ESONET community. The newsletter is also distributed electronically as pdf files through ESONET web page. Through ESONEWS, the companies who supply equipment and services to ocean observatories and potential new end-users of ocean observation services are kept informed of the progress in installing ocean observation sites in Europe and how they can participate.

Figure 6.1: Some pages of the ESONEWS Newsletter

Activity 6c2: SME Group operations (PESOS)

Prior to the Oceans 09 Conference, the PESOS management committee sent out invitations to all ocean observatory equipment suppliers who had exhibited at Oceanology International 2008 to attend an ESONET information meeting in Bremen. The PESOS Meeting was held on 13 May 2009, during the IEEE Ocean's 2009 meeting, where progress on the development of ESONET observatories was presented to companies and SMEs in the ocean industry sectors. The first release of ESONET Yellow Pages (EYP) was also presented. In addition to description of equipment, performances and links to the manufacturer's website, EYP displays the level of testing, standardisation and the diversity of use. The pages include a forum-like exchange of experience on long-term behaviour, good practices, calibration

methods, and references on use of equipment by members of the ESONET community. The advantages of participating in EYP were presented to the companies attending.

Figure 2: Jean-François Rolin presenting the strategy of ESONET to the private sector at the IEEE Ocean's 09 Meeting.

The feedback from the more than 25 representatives of the private sector who attended was very positive. The role of the EYP in conveying information on existing technology that can be used to develop the subsea observatory network was emphasised. Also, the follow-up meeting in Tromso, Norway in June 2009 brought together members of PESOS to discuss how industry could contribute to the implementation of ocean observatories in Europe. PESOS members continue to use formal meetings at conferences, ESONEWS and the EYP to interact with ESONET Partners on matters of mutual interest, to learn about the activities of other equipment suppliers in ESONET and to develop synergies between equipment and service companies involved in ocean observatories for mutual benefit.

Activity 6c3: ESONET Yellow Pages (EYP)

The development of the EYP was a priority in the last 12 months. EYP was presented at the Bremen PESOS meeting to obtain feedback from the PESOS group on the information inventoried and made available, the quality of the web interface and the future developments. EYP is now available online. The home page is presented in Figure 6.3.

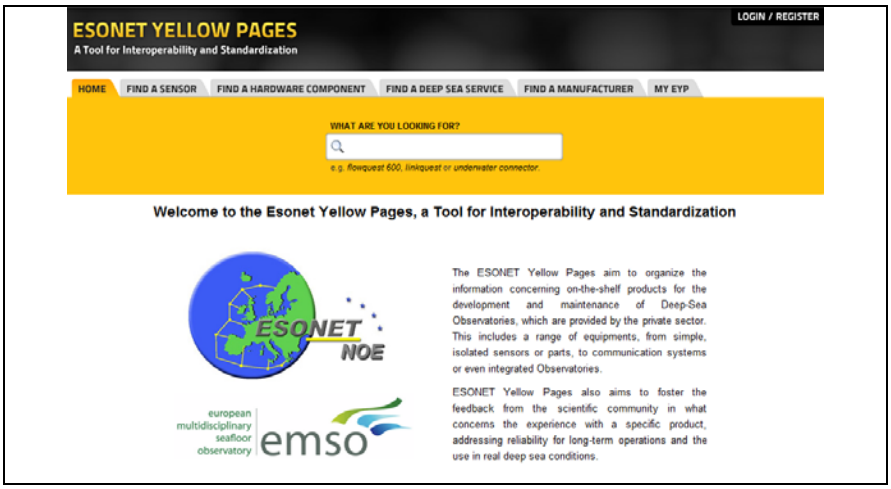


Figure 6.3: ESONETt Yellow Pages homepage

Five levels of information are organised within EYP.

The first level involves the sensors. Most of the work effort on the development of EYP was directed towards organising sensor information as a database to prepare for future compatibility with standardisation procedures on SensorML description. Each sensor is described by a set of characteristics that allow easy comparison between different alternatives available on the market.

Sensors are organised in categories: ADCPs, Conductivity, CTDs, Current meters, Depth, DO sensors, Flow meters, Fluorometers, Geophones, Hydrophones, Magnetometers, Multiparameters, PAR sensors, pH sensors, Pressure sensors, Redox, Sediment traps,Temperature, Tiltmeters, Transmisiometers, Turbidity and Water samplers. These categories and the structure of each category can be dynamically changed by a web interface open only to users with adminstrator status.

The second level of information involves the "hardware components" for deep-sea observatories. It contains information on a set of devices, namely acoustic releases, cameras, connectors, etc. These devices are described in the same way as sensors, and organised by category: Acoustic releases, Cameras, Connectors, Data loggers, Floats, Housings, Lasers, Lights, Underwater batteries, Underwater cables, Underwater switches.

The third level of information involves services. This level is still under development but intends to give information on services that are relevant to deep-sea observatories and provided by the private sector in a broad sense: hardware, data processing, operation, etc..

The forth level of information involves manufacturers. Here, information on the companies that are able to provide equipment, supplies or services connected with the objectives of ESONET are included. More than a 100 different manufacturers are already inventoried and correctly linked to the products they market.

The amount of information is increasing continuously, along with the number of users. In an annex, we present the automated analysis of EYP use. A tool was designed to monitor the characteristics of the user community. Results have been presented in D17.

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

Concerning Deliverable D17 "REPORT ON PROMOTION AND SME POLICY" it was decided to prepare an updated version after the consolidation of EYP and PESOS. The new version is now available.

2.6.4 Deliverables list

Del. no.	Deliverable name	Work package no.	Date due (month)	Actual/Forecasted delivery date	Estimated indicative person-months	Used indicative person-months	Lead contractor
D15	ESONET News "ESONET News Europeans observe the deep-sea"	WP6	26	28	25.5		FFCUL
D15	ESONET News "ESONET News Europeans observe the deep-sea"	WP6	29	32	41		FFCUL
D15	ESONET News "ESONET News Europeans observe the deep-sea"	WP6	32	32	8		FFCUL
D15	ESONET News "ESONET News Europeans observe the deep-sea"	WP6	35	38	10		FFCUL
D15	ESONET News "ESONET News Europeans observe the deep-sea"	WP6	38	40			FFCUL
D17-2009	Report in promotion and SME policy	WP6	30	33			FFCUL

2.6.5 Milestones list

Milestone no.	Milestone name	Work package no.	Date due (month)	Actual/Forecasted delivery date	Lead contractor
M6-26	ESONEWS	WP6	26	26	FFCUL
M6-29	ESONEWS	WP6	29	29	FFCUL
M6-33	Formal Regional Nodes Meetings	WP6	33	28	FFCUL

2.7 WP 7 – Education and Outreach

Persons in charge: **Prof. Laurenz Thomsen** (l.thomsen@jacobs-university.de)
Contact: +49 421 200 3254
Institution: Jacobs University Bremen

Names and institutions of the participating persons:

Task	Persons in charge of Task Team	
WP 7 EDUCATION AND OUTREACH	Laurenz Thomsen	JUB
7a) Educational Tools		
7b) Web portal with real-time web interface		
Names of other participants (and institutions names):		
Autun Purser (KDM-JUB) Anastasios Tselepides (HCMR)		

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

The main objective of outreach and training is to develop and support comprehensive interdisciplinary programs for research, education and public outreach on deep waters around Europe.

2.7.2 Progress towards objectives – tasks worked on and achievements made

Task 7a1
Web page update (D49)
The web page has been kept up to date, with announcements, training workshops and further details on ESONET. New sections on demonstration missions (DMs), ESONET special reports, links to other European ocean projects, new school material links were added.
The site now includes GOOGLE ANALYTICS code – we can track how visitors arrive on the page (search engines, other pages etc), what pages are of interest, in which countries the pages are consulted, how long visitors stay and where they go.

IFREMER's Communications Department has supported the ESONET Coordination team by making the the dedicated visual style more vibrant and by updating communication tools. Leaflets, logo, internet sites and PowerPoint templates will thus be improved and more effectual.

SOPAB – Oceanopolis continued to take part in the organisation of a side event at Oceanopolis to promote the MOMAR-D cruise and took part in the conference OCEANOBS'09 (Venice, September 2009) where they held HD video interviews: four interviews with scientists involved in ESONET and three interviews with leaders of three international observatory networks (NEPTUNE Canada, Doonet Japan, OOI USA). These videos will be used in the future and can be incorporated on the Web. SOPAB also made a 10 min film called "Why observe the Oceans?" It is an HD video film in three versions (English, French and international) targeted to the general public. It underlines the need for

observatories to better understand the oceans, as well as seafloors, and their interactions with the atmosphere.

INGV is producing videos tailored to the general public and scientists. Starting from the second semester of Period 3, a 3D video related to the sea operations of LIDO and Marmara-DM DMs were produced.

Translations
The translation of ESONET material continues. The main website was translated into numerous languages: French, Swedish, Turkish, Russian, German, Spanish, Bulgarian, Welsh, Romanian. The 'Ocean Monitoring' game is being translated into several languages. The Interactive modules were translated into Greek, for use at the Crete Aquarium.
The ESONET brochure was translated into Spanish, Swedish, Bulgarian. ALTRAN translated some of the "Training & Outreach" web pages from English to French

School Materials School Page (D49)
A 47 page .pdf teaching aid was produced to introduce ocean science to 10–14 yr olds. The package was specifically designed to fit in with national curriculums. Special attention was given to requirements for online, real-time data acquisition.
There is an interactive 'Schools' page with various modules relating to ESONET activity.
UAC is developing a educational kit/game.

Task 7a2
Training workshops
Two workshops were held this year: one general workshop in Bremen, Germany associated with IEEE and one geohazard-specific workshop in Turkey. A report was submitted to the Coordinator (Deliverable D40).

A training workshop on "Seafloor observation Techniques for Marine Geohazards Monitoring" was organized by ITU in Istanbul on 18-19 August 2009. More than 50 participants from different organisations in Turkey and Europe attended the workshop. The abstracts and presentations are published on the project website: http://www.esonet.marmara-dm.itu.edu.tr).

D32 Introduction to Demonstration missions
Introductory pages were published online for the DM sites LIDO, LOOME, MoMAR, Marmara and MODOO. Links and up-to-date information for each mission is provided.

Task 7a 3
Deliverable D65. By using the Crete Aquarium (Thalassokosmos) as an education and outreach vehicle, ESONET has strengthened and promoted educational possibilities for students of all ages, as well as the general public. In 2009, Thalassokosmos received a total of 300 000 visitors of whom 59 000 (approx. 20%) were schoolchildren and students. Of these, 26 000 came in organised groups from their institutions, while the remaining 33 000 came as independent visitors. Despite the recent financial crisis, visitors in 2009 increased by 15% compared to 2008. A further increase is expected for 2010. Through Thalassokosmos, HCMR built an educational website displaying ongoing research projects and class material for students and the general public. A variety of academic courses (introduction to the marine environment, marine pollution, marine biodiversity, tropical ecology, etc.) are available as deliverables of the EU project ORION. ESONET is taking advantage of the course material

produced within ORION and has added a technological perspective. Outreach initiatives were undertaken at various levels during the last year. TV, radio and press interviews and articles presented the main aims of ESONET to the general public in Greece and to the visitors of Thalassokosmos.
A series of meetings were held between FFCUL and Lisbon Aquarium to discuss the installation of a plasma screen to diffuse outreach information prepared by ESONET. As a result an agreement was reached and communicated to WP7 coordination.

Task 7a4
Communication in outreach-dedicated meetings was carried out throughout 2009 by all Partners involved. Through Thalassokosmos, HCMR built an educational website displaying ongoing research projects and class material for students and the general public. A variety of academic courses (introduction to the marine environment, marine pollution, marine biodiversity, tropical ecology, etc.) are available as deliverables of the EU project ORION that has produced a wealth of educational material linking teachers, schoolchildren and undergraduate students. The aim of this course is to provide basic knowledge on the marine environment for those entering this field of study for the first time as well as for those whose profession requires them to take decisions relating to, or having an effect on the marine environment. It also provides an overview of the marine environment for educators engaged in environmental studies at varying levels. ESONET is taking advantage of the course material produced within ORION and has added a technological perspective.

Outreach initiatives were undertaken at various levels during the last year. TV, radio and press interviews and articles presented the main aims of ESONET to the general public in Greece and to the visitors of Thalassokosmos. Every summer Thalassokosmos and HCMR-Crete receive a significant number (30-40) of European and international students as trainees who are exposed to the ongoing research activities and goals of ESONET.
HCMR produces a variety of novel thematic maps most of which are readily available to universities, schools, research centres, companies and NGOs. ESONET further enhanced these activities and has contributed to a better understanding of the marine environment.

Task 7a5
Introduction to Carbon Capture and Storage CCS (Deliverable D63)
The introductory, interactive module on Carbon Capture and Storage (CSS) within the oceans is interactive and online. The module contains up-to-the-minute links to news reports, projects and reviews on each CSS technique. The online module has an additional ‘Seismic’ section.

In response to the 2009 annual review and recommendations of the reviewers in Brussels, the ESONET outreach page has been reciprocally linked to a selection of European FP6 and particularly FP7 programmes.

Deliverable D64 – This deliverable was transferred from the KOSTOBS site to the Koljo Fjord test site as suggested by the WP7 leader. D64 will be delivered by UGOT when the Koljo Fjord test observatory has been implemented, installed and is running, and when training on this test observatory site has been carried out. Expected delivery time for D64 is Autumn 2010.

Task 7b – Build a Web portal with a real-time web interface
Through ESONET, a Web portal with a real-time web interface has been installed at Thalassokosmos. The webcam has been installed in the main tank and will soon be in

operation. There were a few technical shortcomings that will soon be overcome once the necessary spare parts arrive. Information and data derived from platforms that have been deployed in the Deep South Ionian (KM3Net and Eurosites projects) will soon be available for streaming via the ESONET Web portal.

The LAB-UPC has developed different educational tools as well as a website (http://listentothedeep.net**),** where the public can connect in real-time to the underwater acoustic world of the different observatories. The website is also being developed to be accessible to the disabled. The interface is being adapted for public display in aquaria and museums, especially Oceanopolis.

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

D30 – Web terminal. Terminals were delivered to two aquaria, but until live data can be made available, only basic ESONET info can be delivered. Since no real-time ESONET data are available for aquaria terminals, a new interactive ESONET presentation designed by Jacobs University with input from Partners has been implemented.
D64: Training on KOSTOBS test site is delayed due to the delay in selecting the test sites. In addition the site for training has been changed to Koljo-Fjord

2.7.4 Deliverables list

Remark: deliverables of WP7 are not classified as reported in the DoW, but as “o” other, which covers websites, quiz, games and posters.

Del. no.	Deliverable name	WP no.	Date due	Actual/Forecasted delivery date	Estimated indicative person-months (*)	Used indicative person-months (*)	Lead contractor
D18	Web portal	WP7	30	Delayed	9		
D30	Web terminal	WP7	30	2 of 3	1		
D32	Intro Demo Missions	WP7	26	26	3		
D40	Report on 2nd training workshop	WP7	26	26	0.6		JUB
D49	Fully established outreach web page	WP7	30	30	14		JUB
D63	ESONET intro on CCS ocean technologies	WP7	30	30	1		JUB
D64	Training on KOSTOBS testsite	WP7	32	Switched Koljo-Fjord	4		UGOT
D65	Outreach and communication in ESONET via aquaria network	WP7	36	36			SOPAB

* if available

2.7.5 Milestones list

Mil. no.	Milestone name	WP no.	Date due	Actual/Forecasted delivery date	Lead contractor
M7-25	Second training workshop held for better integration of ESONET Partners	WP7	25		JUB
M7-30	Outreach web page fully established to inform the public on ESONET	WP7	30		JUB

2.8 WP 8 – Management Activities

Persons in charge: **Roland Person** (roland.person@ifremer.fr)
Contact: +33 298 224 096
Institution: IFREMER

Names and institutions of the participating persons:

Task	**Persons in charge of Task Teams**	
WP 8 Management activities	Roland Person Ingrid Puillat	IFREMER IFREMER
	Partner members	Steering Committee
8a) General Assembly	Ingrid Puillat	IFREMER
8b) Meeting organization	Ingrid Puillat	IFREMER
8c) Information management and yearly reporting	Ingrid Puillat	IFREMER
8d) Link with European Commission	Roland Person	IFREMER
8e) Link with European projects	Roland Person	IFREMER
8f) ESONET Label	Roland Person	IFREMER
8g) Worldwide cooperation on cabled sub sea observatories	Imants G. Priede	UniABDN

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

This workpackage covers all the management activities of the ESONET network, which comprises three Governing Bodies (the General Assembly (GA), the Strategic Committee (STRAC) and the Steering Committee (SC)), three Advisory Councils (the Scientific Council, the Test and Operation Council (TOC) and the Data Management Council (DMC)), as well as eight Workpackages (WPs) of activities (a 9th WP is dedicated to ESONET Coordination). The Coordinators make sure that the organisational, management and governance structure of the ESONET NoE aims at ensuring balanced participation of the different types of members in the network: large institutions, university laboratories, major industrial groups, SMEs; efficient decision-making and high-quality management of the network's resources.

One of the main objectives of WP8 is also to coordinate the integration of the community on different topics and across different WP activities. Some tasks such as reporting and follow-up of the links with the European Commission and other EU projects are a fundamental part of the WP8 tasks. The ESONET network is composed of 56 partners, which makes the coordination of ESONET relatively complex. This is why we decided to provide methods and procedures for managing ESONET. Indeed, for the second time, one of the main objectives for this reporting period was to continue continuation of online reporting systems and training sessions. We also continued to improve the financial management at the WP level. Two other fundamental objectives are to enhance the definition of the ESONET Label and the organisation of the 2nd All region Workshop and the 2nd Best Practices Workshop, in addition to the usual meetings (Steering Committee, etc.).

2.8.2 Progress towards objectives – tasks worked on and achievements made

Task WP 8a) - General Assembly
There was no General Assembly during Period 3. The Third General Assembly is planned for November 2010.

Activity 8a1: General Assembly preparation
-
Activity 8a2: General Assembly reporting
-

Task WP 8b) - Meeting organization

As Coordinator, IFREMER manages the meetings' agendas and invitations, the reporting of the meetings and their approval.

Activity 8b1: Steering Committee Meetings
Six Steering Committee meetings were co-organised, including two virtual SC meetings:
- 18-20 March 2009: London, United Kingdom
- 22 April 2009: Vienna, Austria, EGU
- 28 July 2009: Audioconference SC meeting
- 06-07 October 2009, Paris, France, 2nd All Regions Workshop
- 03 December 2009, Amsterdam, the Netherlands
- 13 January 2010: Audioconference SC meeting for financial issues

Activity 8b2: Strategic Committee (STRAC) meeting joint with EMSO Strategic Board

The preparation of a joint ESONET-EMSO STRAC meeting, namely the "Meeting with funding agencies", started in January 2010, but took place in March 2010, in Period 4. Consequently the meeting discussions will be reported in the next periodic activity report.

Activity 8b3: ESONET Council meetings: jointly with the General Assembly
No council meetings were held.

Activity 8b4: Other workshops: VISO, All Regions, Best Practices, etc.

- A meeting was organised with administrative and financial staff of KDM at MARUM offices, Bremen, in May 2009. This meeting was organised by I. Puillat in order to discuss the reporting process and communication problems with KDM members involved in ESONET. A list of contact persons was drawn up. The reporting difficulties from the perspectives of both KDM and coordination were discussed. As a result, reporting in 2010 clearly improved.
- To optimise the third yearly ESONET reporting, a training workshop was organized at IFREMER headquarters in Issy-les-Moulineaux in January 2010, to give information on the ESONET reporting website and on reporting processes in general. All tutorials and PowerPoint documents were made available on the restricted part of the ESONET website: http://www.esonet-noe.org/partners_only/reporting_process_3rd_period.

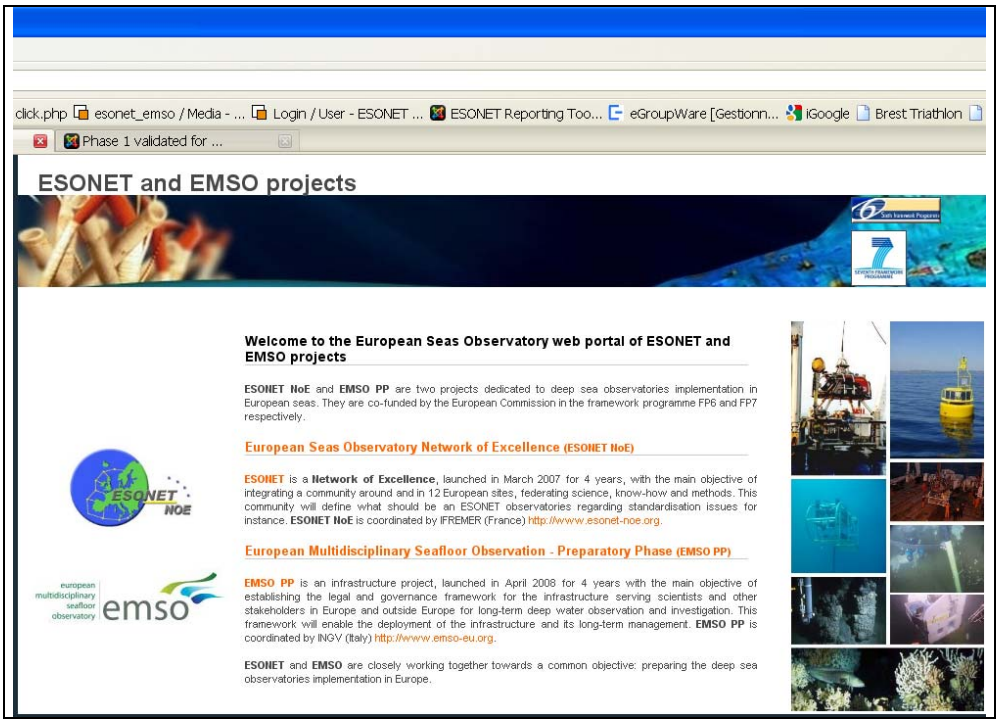
All the information concerning the ESONET meetings and workshop are available on the ESONET website: http://www.esonet-noe.org/news_and_events/esonet_workshops_and_meetings.
The minutes and reports of workshops are also available, on the restricted part of the ESONET website:
http://www.esonet-noe.org/partners_only/minutes_meetings_and_workshops_reports.

Task WP 8c) - Information management and yearly reporting

Task 8c involves the yearly reporting activities for the European Commission. Due to the large number of partners involved (56 Partners), ESONET yearly reporting was anticipated by one and a half months and began on 15th January 2010. It is impossible to manage the information flow from 56 Partners in 45 days, the time allotted to most European projects. In addition, Partners are not familiar with NoE specificities, which leads to many questions on financial issues and erroneous financial statements at the last minute. The example of the first ESONET reporting is eloquent. Indeed, inadequate and incomplete reports were received late and only half of the Forms C were sent to the European Commission, which caused a 6 mo. delay in receiving the official letter of acceptance. In comparison to the first reporting period, the second ESONET reporting was anticipated one month in advance. Satisfactory reports and all Forms C were sent to the European Commission on schedule and the letter of acceptance was received in August 2009.

Thus, we concluded that anticipating reporting was an excellent initiative and was repeated for the third ESONET report. We anticipated the activity reports from of Partners and WP leaders by one and a half months and the last 45 days were dedicated to financial reporting only. We also decided to use the online reporting tool again, which was updated.

Activity 8c1: The common esonet-emso.org portal



The common ESONET-EMSO Web portal has been updated with a new design. Both projects are briefly described and the visitor can be redirected to the ESONET site or the EMSO site by clicking on the dedicated links. This task was carried mainly by ESONET Partner Altran/ATLANTIDE with the help of IFREMER Computing Services.

Activity 8c2: The reporting tool

The online reporting tool is available at the same address:
http://www.ifremer.fr/application/reporting/esonet/

Regarding the reporting tool, a new version of Joomla was installed by Altran. All Partner usernames and passwords were kept.

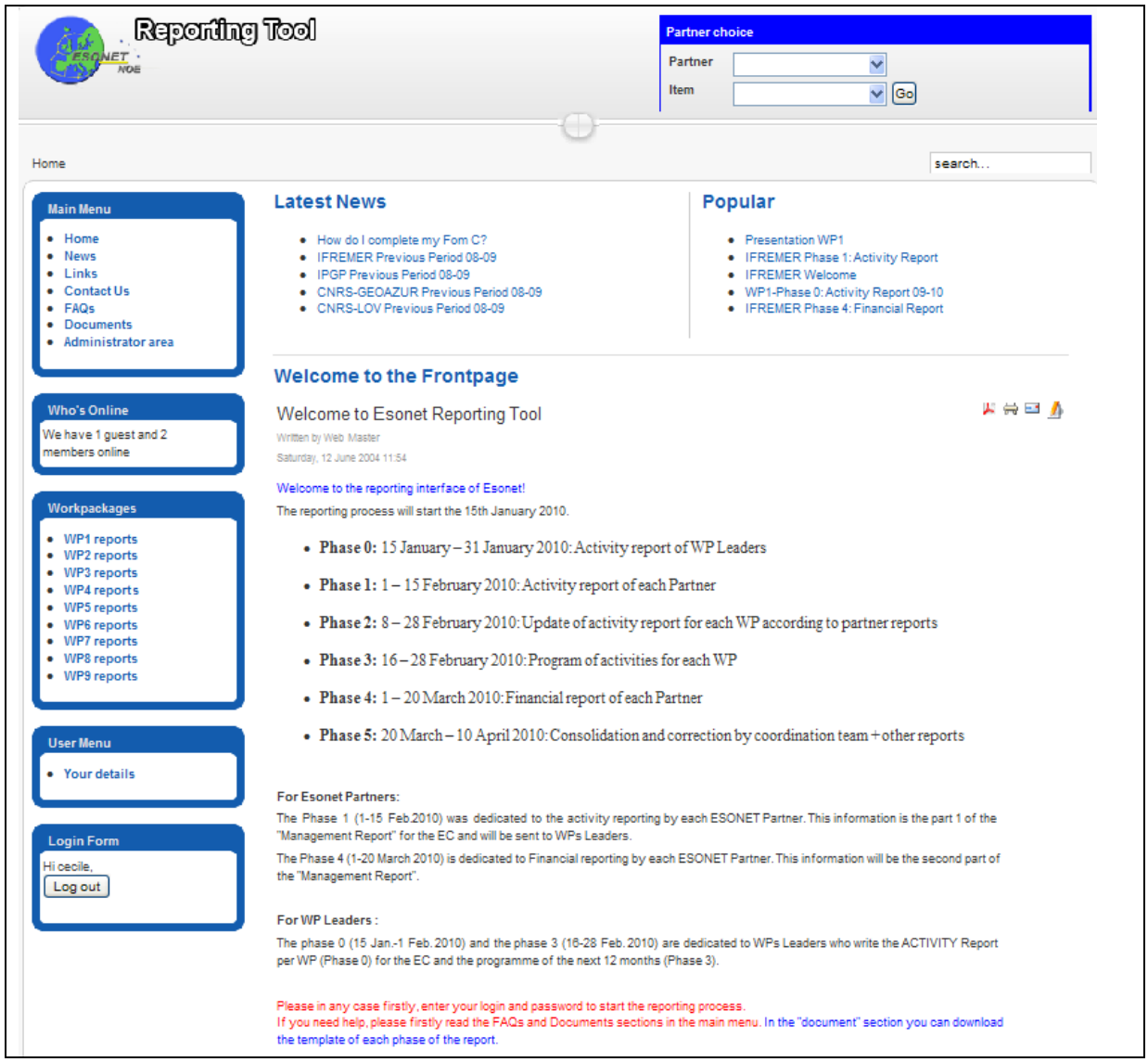


Figure 8.1: Welcome page of the reporting tool

As in the last version, all contents reported can be read by all ESONET Partners after logging in. The FAQ section and the Reference Document section are always available.
This online reporting tool allows the Coordination Team to track the reporting process in real time, request corrections or make some corrections.

The Third Reporting process was divided into five reporting steps:
- Phase 0: 15 – 31 January 2010: Activity Report from WP Leaders
- Phase 1: 1 – 15 February 2010: Activity Report from each Partner
- Phase 2: 8 – 28 February 2010: Update of Activity Report for each WP according to Partner reports
- Phase 3: 16 – 28 February 2010: Programme of Activities for each WP
- Phase 4: 1 – 20 March 2010: Financial Report from each Partner
- Phase 5: 20 March – 10 April 2010: Consolidation and correction by Coordination Team + other reports

- Phase 0 is dedicated to reporting the activities in each WP during the reporting period. To help WP Leaders, the Coordination Team sent information (Phase 2), compiled according to WP, from Phase 1 to each WP Leader.
- Phase 1 is dedicated to reporting the activities of each ESONET Partner per WP, without any financial statement. At this stage, the estimated person-months spent on each WP were requested in order to inform WP Leaders about the activities declared by Partners. Partners were also requested to inform WP leaders about their intended activities for the next 18 months in each WP.
- Phase 3 is dedicated to making a programme of activities for each WP for the final 12 months of the project, starting from 01 March 2010. Only WP Leaders can complete phase 0, 2 and 3.
- Phase 4 is dedicated to the financial statements of each Partner, including draft Form C.

For the second consecutive year, a training session for reporting in ESONET was organised at IFREMER headquarters in Issy-Les-Moulineaux on 22 January 2010. Eighteen participants attended this one-day meeting, of which six attended this meeting by videoconference.

Name	Institution	Country
Catherine Audebert	AWI	Germany
Cemil Gurbuz	BU KOERI	Turkey
Pierre Henry	CEREGE	France
Patricia Brunier	CEREGE	France
Eric Delory	DBSCALE	Spain
Seda Okay	DEU-IMST	Turkey
Livia Moreira	FFCUL	Portugal
Cristina La Fratta	INGV	Italy
Dimitar Petkov Dimitrov	IO-BAS	Bulgaria
Inmaculada Lopez	IPGP	France
Umut B. Ülgen	ITU-EMCOL	Turkey
Autun Purser	JUB	Germany
Pieter Honkoop	NIOZ	Netherlands
Agnieszka Janczy	SLR	Ireland

Ana Colaço	UAc	Portugal
Angelique Prick	UiT	Norway
Gillian Hewison	UniABDN	United Kingdom
Neus Salleras	UPC	Spain

Here is the programme of the meeting:

TIME	TOPIC	DOCUMENT/ INITIATOR
Morning 9H30-12H30	**Introduction** - General presentation - Update of ESONET contract with EC - Presentation of the reporting process: what is expected from the EU? - Results and conclusions after the previous reporting process	
	11H00 – Coffee Break	
	Presentation of the online system and procedures: - Time schedule for reporting - The online system: a reporting management tool - New version - Information available in the system	
LUNCH	Campanile Restaurant – *213 rue Jean-Jacques Rousseau – Issy-Les-Moulineaux (~15€/person)*	
Afternoon 14H-16H00	Information input - description of activities per WP and task by task - financial statement: o definition of main cost categories, eligible costs, cost models, etc. o budgeted costs and person-months o person-months to be distributed among ESONET WPs o other - Form C o How should Form C be filled out? o Who should sign Form C? o other	
	Any questions you would like to ask and Discussion	

Slides are available on the ESONET website and a FAQs section was opened in the online reporting tool.

Results was better than expected:

- Phase 0: 9 WP reports were ready in draft version by the beginning of February.

- Phase 1: most partners wrote their activity report by the 15 February deadline. On 21 March 2010, only 7 Partner activity reports were not fully completed (phase 1).
- Phase 2: the final version of the WP activity reports was almost reached on 20 March 2010, including Partners' contribution and was sent to a translator the week after for corrections. The delay incurred is explained by the delay due to Partners in phase 1.
- Phase 3: Program of activities: this was slightly delayed: 3 weeks after the deadline fixed by the Coordination Team, three WP activities descriptions were missing. The delay is related to the one incurred in phase 2.
- Phase 4: As usually this step is more difficult than other ones. Partners have some difficulties in getting the audit certificate in due time to consolidate their financial report. Partners managed under clause 23 face the problem of multi institutional contractor. For instance CNRS cannot prepare its form C until all laboratories including CNRS members and third parties finish their financial report. This imply additional delay in the managmement report preparation for the coordination team. Consequently a second version of the management report is expected.

Task WP 8d) - Link with European Commission

WP8 is in charge of compiling Deliverables and yearly reporting for the European Commission. The reporting process for the Period 2 was closed with the official letter of acceptance received on 31 August 2009.

One request for a contract amendment was sent to the European Commission on 12 August 2009 and was officially accepted on 08 December 2009 (see Amendment n°4 in the restricted part of the ESONET website:

http://www.esonet-noe.org/partners_only/official_documents/contractual_documents).

This request was to add the SEND Off-Shore Electronics GmbH entity as a Contractor as of 01 August 2008. The amendment was also to formalize the end of the participation of the following contractors:

- SIS Sensoren Instrumente Systeme GmbB as of 23 October 2008 and
- SEND Signal Elektronik GmbH as of 30 June 2008

Moreover, the special Clause 23 was also modified:

- The "College de France" was added as a "Third Party" of CEREGE, represented by the Contractor CNRS.

The revised Annex I, dated 1 July 2009 was also sent with the letter requesting the amendment. Furthermore, some contractors' details were updated.

During the 2nd ESONET Reporting, the European Commission made some significant comments, which resulted in the rejection of some Partners' costs:

- For HCMR: certain sub-contracting costs were not foreseen in the DoW. Therefore, 20 000 € was disallowed, of which 10 000 € of sub-contracting costs from the first reporting period. One request for contract amendment concerning sub-contracting is in progress. These costs are to be reported in the "adjustment of previous period" in the next reporting period, if the request of contract amendment is accepted by the European Commission.
- For CSIC and UPC: An audit certificate was missing. The requested contribution of UPC was excluded from the payment but can be reported in the "adjustment of previous period" in the next reporting period if UPC provides an audit certificate for Period 2.

- For FUGRO BV: Form C was submitted by Fugro AS (Norway), which is not part of the ESONET Consortium. Therefore, the costs and the requested contribution were disallowed. These costs have to be reported in the "adjustment of previous period" in the next reporting period.
- For SEND Off-Shore: The SEND Off-Shore Contractor was not yet been included in the ESONET Contract. Thus, the costs and the requested contribution of SEND Off-Shore were excluded from the payment. From this second reporting period, SEND Off-Shore was included as Contractor in the ESONET Contract. These costs have to be reported in the "adjustment of previous period".

Task WP 8e) - Links with European projects

Links with:

- EMSO PP: the links are continuous since the projects are closely collaborative and are working hand in hand. The most visible part of this association is highlighted by the WP5 tasks and by common ESONET-EMSO activities, such as the preparation of the STRAC meeting. A preparation document was discussed during the ESONET SC meeting in Paris in October 2009 and was written in the framework of WP5, under the direction of the SLR Partner. A draft was presented at the Amsterdam SC meeting, January 2010, then presented to the STRAC members in March 2010. In addition ESONET coordination team participated in the ERIC meeting in Brussels, October 2009.
- EuroSITES: the coordinator of EuroSITES was invited to participate in the 2nd All Regions Workshop in Paris, October 2009. The MODOO DM involved a EuroSITES region. Some common technical activities are still in progress, such as data management: Maureen Pagnani, in charge of data management in the EuroSITES project is still participating in the ESONET Data management with PANGAEA and IFREMER. Thus, links between both projects were reinforced.
- SEADATANET: This project shares common activities with ESONET and EuroSITES, as people involved in data management participate in all three projects.
- GMES: a report outlining the possible contribution of ESONET to GMES core services was prepared in October 2009. This document was the basis of discussions with MyOCEAN MS coordinator, P. Bahurel and SAFER coordinator, D. Hello, Infoterra. Thereafter, we tried to organise a wider discussion with the ESONET consortium by inviting both SAFER and My OCEAN representatives to participate in the 2nd All regions Workshop, in Paris, Oct. 2009. This collaborative work is described in deliverable D67.

Task WP 8f) ESONET Label

The ESONET Label has four main objectives to ensure that ESONET observatories observe systems at a highly controlled quality level and with a durable integration of the sea observatory community at the European level. This includes acceptable constraints on technology to deploy environmentally friendly sea observatories. Different classes of labels were defined according to criteria met and to the type of observatory. The ESONET Label document is currently in its third updated version. This document is continuously updated according to incoming results. Moreover, WP Leaders continue to work on it.

Task 8g) – Worldwide cooperation on cabled sub sea observatories
This task 8g, formerly Task 1e "International cooperation" covers the worldwide cooperation on cabled subsea observatories. Participation in IASSOO (International Association for Sub-Sea Observatory Operators) belongs to this task.
A meeting on IASSOO was held on 23 September 2009 in Venice, Italy and organised by IFREMER.
Here is the list of attendees:

List of attendees	
Name	**Institute**
Roland Person	IFREMER, ESONET NoE
Ingrid Puillat	IFREMER, ESONET NoE
Chris Barnes	University of Victoria, NEPTUNE Canada
John Delaney	University of Washington, OOI
Yoshiyuki Kaneda	JAMSTEC, DONET
Paolo Favali	INGV, ESONET NoE
Bénédicte Ferré	UiT, ESONET NoE
Javier Gilabert	Polytechnic University of Cartagena ESONET NoE
Christoph Waldmann	KDM-MARUM, ESONET NoE

A contract for this International Association has already been prepared. This Association is only for cabled observatories.

IASSOO objectives:
- To develop deep-sea observatory sciences and data exchanges between members
- To ensure public outreach for wider understanding of observatories

Main roles of the IASSOO Association:
- To provide support to common research activities
- To associate methods of data processing
- To support common communication vehicles: posters, newsletters, website

Possible domains of activities:
1. Underwater Technology
2. Standards
3. Legal issues
4. Underwater intervention
5. Data management
6. Cyber-infrastructure
7. Sensor tests

Type of activities:
1. Exchange of personnel
2. Exchange of information

3. Common reports
4. Common publications
5. ….

It would be probably be judicious to start with easy tasks and a limited program to launch the activity of IASSOO: e.g. a website, a poster and a newsletter.
During this meeting, some names for the association were proposed:
- IASSO(O)O: International Association for Sub Sea (Ocean) Observatory Operators
- IACOOI: International Association of Cabled Ocean Observatories Integration
- INNOVATION: InterNatioNal Ocean obserVAtory association

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

No deviations.

2.8.4 Deliverables list

Del. no.	Deliverable name	Work package no.	Date due	Actual/Forecasted delivery date	Estimated indicative person-months (*)	Used indicative person-months (*)	Lead contractor
D67	ESONET contribution to GMES	WP8	36	36	3		IFREMER
D68	ESONET Label definition	WP8	36	38	3		IFREMER

* if available

2.8.5 Milestones list

Mil. no.	Milestone name	Work package no.	Date due	Actual/Forecasted delivery date	Lead contractor
-	-	-	-	-	-

2.9 WP 9 – Networking ESONET Data Management

Persons in charge: **Robert Huber** (rhuber@wdc-mare.org)
Contact: +49 421 218 65593
Institution: KDM-Universität Bremen (KDM-UniHB)

Names and institutions of the participating persons:

Task	Persons in charge of Task Team	
WP 9 Networking ESONET Data Management	Robert Huber	UniHB
9a) Data management plan	Michel André	UPC
9b) ESONET knowledge base	Robert Huber	UniHB
9c) ESONET data infrastructure: Sensor registry	Robert Huber	UniHB
9d) ESONET Data infrastructure: SOS development and implementation	Thierry Carval Michel Treguer	IFREMER
9e) ESONET Data infrastructure: prototype implementation	Robert Huber	UniHB
Names of other participants (and institutions names): Jean-Jacques Destelle (CNRS) Vasilios Lykousis (HCMR) Peter Sigray (SU) Eric Delory (DBSCALE) Maureen Pagnani (NOCS)		

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

Task 9a: To document data management as it is handled [now] at various sites in ESONET, and to use this information as a basis for a data management protocol for the future continuation of ESONET.

Task 9b: To set up a general information platform for data from all ESONET institutions and observatories.

Task 9c: To compile a central catalogue of observatories and sensors with metadata encoded in OGC-standard SensorML by interface

Task 9d: To develop OGC-standard SOS interface for managing deployed sensors and retrieving sensor data

Task 9e: To implement ESONET data acquisition, data exchange and data archiving and publication procedures.

2.9.2 Progress towards objectives – tasks worked on and achievements made

Task WP 9a) – Data management plan

Documenting data management, as it is handled at various ESONET sites, will serve as a basis of a data management protocol for the future continuation of ESONET-EMSO. In cooperation with WP2, a survey of the current data management activities at ESONET sites was carried out and, following phone and email interviews as well as personal communication during the 2nd All Regions Workshop, provided a good overview of each site's data management status. Project Partners have been asked to provide information on how the Partner's data will be stored initially, whether the Partner's data will be accessible via the Internet — and if so, where —, which data centre will be responsible for the long-term data storage (e.g. WDC-MARE, Sismer) and if their data management allows for access to observatory data via the Sensor Observation Service (SOS). Additionally, a LIDO meeting in Catania (Italy, January 2009) further clarified issues related to the future data infrastructure as well as the data management plan. A data management meeting with ANTARES and WDC-Mare groups is anticipated before the end of February 2010. Results of these surveys and meetings will be presented the deliverable D70 (Updated data management plan). As most Partners will only support a subset of the ESONET data infrastructure, the data management plan currently focuses on LIDO, because this DM has made the most progress towards fully implementing ESONET data infrastructure. Therefore, LIDO and its implementation at the NEMO and ANTARES sites will serve as an example for the management of acoustic data streams and their distribution according to ESONET standards, e.g. through SOS. It will further document the best practices for long-term data archiving.

D70 – Updated management plan (Month 36), to be submitted

Task WP 9b) – ESONET knowledge base

Based on the experience of the first two periods, as well as according to the new needs of the evolving ESONET data infrastructure, the knowledge base has been completely revised.

The new knowledge base will serve as the main ESONET data and information portal. It offers a user-friendly overview on the most important and recent information and data products of each ESONET site. It provides a simple geographical overview of the position of the site, as well as some background information and basic metadata, such as coordinates, etc., on this ESONET site. An overview of most recent additions to the data archive will be offered as well as a preview of real-time data (SOS) if available. Links to special portal pages which offer full access to both data archive and near real time data (SOS client) will also be available as well as subscription options to data news feeds. Also, links and overview information on Sensor Registry data as well as data management plan will be provided.

As a first step a data portal prototype (mock-up), which serves as a design as well as functionality template, was developed, presented and intensively discussed with ESONET members during the ESONET 2nd All Regions Workshop. Currently, a demonstration version developed from this mock-up, which is based on a XML configuration and offers dynamic, hierarchical access to ESONET sites, is under development.

Most critical for the implementation of the Sensor Registry was the final decision on an ESONET SensorML consensus. This consensus has been reached to define an ESONET instrument profile for SensorML. From the beginning, the data management group was aware that this task must include many other initiatives at an European as well as international level. Extensive email and telephone discussions tgether with participants of EuroSITES, OceanSITES, MBARI, OSIRIS and other projects have led to an ESONET instrument profile that is compatible with the OceanSITES low-level instrument profile and the OSIRIS

instrument profile. The ESONET SensorML profile has been defined with an XML schema with embedded schematron rules. Delivery of this document and specifications is due for the end of February 2010.
The development of the Sensor Registry interface was closely related to this task and several data entry templates as well as XML templates have been created, e.g. SML templates for LIDO DM hydrophones and the different sensor types available on ESONET Yellow Pages (EYP). This lays the groundwork that will eventually allow access the Sensor Registry Interface from the EYP site (Period 4), instead of having to access a generic SML registration template (still available for custom sensors).
So far, the new templates available include (list to be completed during Period 4):

- Acoustic Doppler Current Profiler
- Conductivity Meter
- CTD
- Current Meter
- Depth/Pressure Sensor
- Dissolved Oxygen Sensor
- Fluorescence
- Hydrophone (LIDO DM)
- Thermometer

The Sensor Registry interface is also being updated to use XSLT Standard Style Sheets. Among obvious benefits of using this standard, this will allow the integration of the OSIRIS Schematron, as decided during the last DMC Meeting, and the ESONET schematron when it becomes available.
D44 ESONET knowledge base (Month 42): work in progress

Task WP 9c) – ESONET Data infrastructure: sensor registry
Most critical for the implementation of the Sensor Registry was the final decision on a ESONET SensorML consensus. This consensus has been reached to define an ESONET instrument profile for SensorML. From the beginning, the data management group was aware that this task must include many other initiatives at an European as well as international level. Extensive email and telephone discussions with participants of the EuroSites, OceanSites, MBARI, OSIRIS and other projects have led to an ESONET instrument profile that is compatible with the OceanSITES low-level instrument profile and the OSIRIS instrument profile. The ESONET SensorML profile has been defined with an XML schema with embedded schematron rules. Delivery of this document and specifications is due for the end of February 2010.
The development of the Sensor Registry interface was closely related to this task and several data entry templates as well as XML templates have been created e.g. SML templates for LIDO DM hydrophones and the different sensor types available on ESONET Yellow Pages (EYP). This lays the groundwork that will eventually allow access the Sensor Registry Interface from the EYP site (Period 4), instead of having to access a generic SML registration template (still available for custom sensors).

So far, the new templates available include (list to be completed during Period 4):

- Acoustic Doppler Current Profiler
- Conductivity Meter
- CTD
- Current Meter
- Depth/Pressure Sensor

- Dissolved Oxygen Sensor
- Fluorescence
- Hydrophone (LIDO DM)
- Thermometer

The Sensor Registry Interface is also being updated to use XSLT Standard Style Sheets. Among obvious benefits of using this standard, this will allow the integration of the OSIRIS Schematron, as decided during the last DMC Meeting, and the ESONET schematron when it becomes available.
The IFREMER SOS development is progressing very well, a first prototype will be presented as a Milestone at the end of month 36. This SOS server implementation currently supports time series, and vertical profile support is under development. Regarding metadata, the IFREMER SOS supports dynamic SensorML metadata (metadata queried from the database) and static SensorML (SensorML file is created externally and registered with the SOS server). As an additional service, the built-in SOS client, which is also provided by IFREMER, offers a display of a restricted set of metadata, and a display of an extended set of metadata is under development. The SOS client also offers observation plots: currently one-parameter plots can be drawn (i.e. temperature *versus* time plot), and x-parameters plots are under development. New graphical components and algorithms are being tested to improve plot display performances.
Additionally, some ESONET Partners (UPC, UniHB) tested or implemented third-party SOS server software solutions, such as the Oosthethys SOS package or the 52°North SOS server.
A web-based SOS client was developed by WDC-MARE. It provides several configuration options such as choice of offerings, selection of temporal coverage, display of parameter titles or accuracy of results. As the XML outputs of these SOS products were quite heterogeneous, this client was developed to support several SOS web servers such as the 52°North, OosThethys SOS servers as well as the new IFREMER SOS server. This SOS web client offers a simple graphical output of the SOS data, as well as the possibility to download the data in tab-separated ASCII format.

D42: sensor registry documents, jointly with WP2 (Month 30): delivered on time
D71: Sensor registry (Month 42): work in progress

Task WP 9d) – ESONET data infrastructure: SOS development and implementation

Contribution to D43 Data infrastructure productive version (Month 42)

Milestone: SOS service prototype (Month 36)

Task WP 9e) – ESONET data infrastructure: prototype implementation

The data infrastructure prototype will implement the ESONET data acquisition, data exchange as well as data archiving and publication procedures as drafted in D19. It will use OGC SOS clients for automated data flow from the observatories to the data archive. The integrated sensor registry will use OGC CSW for sensor discovery and registration. Further, the OAI-PMH protocol will be used to include data from third-party data centres to the portal. The prototype infrastructure will be tested as part of demonstration activities (WP4). For these activities, close collaboration with WP2 will be continued. In a later phase, the SDI will be contribute to the marine core service of GMES, the SeaData net project of the EC DG research, and the GEOSS observing system at a worldwide level, via the mentioned OGC standards. Considering the above-mentioned status of the demonstration missions and the

consequent lack of test cases for the data infrastructure, we propose to postpone D43 to month 42.

D43 Data infrastructure productive version (Month 42): work in progress

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

Considering that the demonstration missions cannot significantly feed the data portal before end of 2009, the deliverable D44 "ESONET knowledge base" was postponed to month 42 (Sept 2010). Due to the consequent lack of test cases for the data infrastructure, D43 was also postponed to month 42.

2.9.4 Deliverables list

Del. no.	Deliverable name	Work package no.	Date due	Actual/Forecasted delivery date	Estimated indicative person-months (*)	Used indicative person-months (*)	Lead contractor
D70	Updated management plan	WP9	36	36			NOCS
D42	Sensor registry documents	WP9	30	30			UniHB

* if available

2.9.5 Milestones list

Mil. no.	Milestone name	Work package no.	Date due	Actual/Forecasted delivery date	Lead contractor
M9-1	Integration of sensor registry data	WP9	34		UniHB
M9-4	SOS service prototype	WP9	36		IFREMER

3 CONSORTIUM MANAGEMENT

3.1 Consortium management tasks and their achievements

After the bankruptcy of the SEND Signal Elektronik company the coordination sent several letters to the liquidator in order to request an audit certificate for the form C already sent to the Commission. This would make the cost and requeted contribution accepted and reimbursed. After several Emails and a formal letter in English, a German version has been sent (see hereafter a copy). The answer received explained that the company was already liquidited. Consequently, the coordination expects now an action from the European Commission.

After the eviction of the SIS company (decision agreed after General assembly meeting in October 2008) the coordination team sent a letter to remind that a Form C justifying at least the amount of money transeferred for the 1st prepayment, with an audit certificate, are expected. It was also reminded to reimburse the consortium if not cost justification is provided. Nevertheless no answer has been received. Consequently, the coordination expects now an action from the European Commission

SIS

Ifremer

DAJ N° c 143

Issy-les-Moulineaux, 09 FEV. 2010

By express mail

SIS sensoren Instrumente System GmbH
Mühlenkoppel 12
D-24222 Schwentinental
GERMANY

For the Attention of Mr Rainer Maassen

Object : Contract n°036851 - ESONET
N/Ref : n°07/1216510/BF

Dear Mr Maassen,

Ifremer reminds you Ifremer letter dated 7th July 2009, where Ifremer, acting as coordinator of ESONET project, requested that SIS:

- fill in the Form C as requested by the European contract for the period from the 1st March 2007 – 29th February 2008,
- join an audit certificate in order to certify the costs indicated in your Form C. If your requested contribution is less than 2 000 euros, you must reimburse the difference between the 2 000 euros payment and the amount of your requested contribution.

In case of a requested contribution equal to zero, SIS will have the contractual obligation to reimburse the whole of the 2 000 euros pre-financing payment.

Consequently, if no response within 30 days, Ifremer will request that the balance due by SIS to be refunded to Ifremer.

Yours sincerely,

Xavier REBARDY
Legal counsel

Institut français de Recherche pour l'Exploitation de la Mer

Etablissement public à caractère industriel et commercial

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155, rue Jean-Jacques Rousseau
92138 Issy-les-Moulineaux Cedex
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SIRET : 330 715 368 00297
TVA intracommunautaire :
TVA FR 48 330 715 368

Téléphone 33 (0)1 46 48 21 00
Télécopie 33 (0)1 46 48 21 21
http://www.ifremer.fr

SEND Signal

Ifremer

DAJ N° 1179

Issy-les-Moulineaux, 03 DEC. 2009

By DHL

GGV
Herrengraben 5,
20459 HAMBURG
DEUTSCHLAND

z. Hd. Dr Olaf Büchler

Referenz: ESONET NoE Vertrag mit der europäischen Kommission
FP6 Vertrag nb #: GOCE 036851
Betreff: Abrechnung der SEND Signal Elektronik GmbH im ESONET Projekt
N/Ref : 07/1216510/BF

Institut français de Recherche pour l'Exploitation de la Mer

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télécopie 33 (0)1 46 48 21 21
http://www.ifremer.fr

Sehr geehrter Herr Dr. Büchler,

aus dem europäischen NoE (Network of Excellence) Projekt ESONET hat die SEND Signal Elektronik GmbH vor ihrer Insolvenz zwei Zahlungen erhalten: Es wurden am 13.7.2007 € 2.000,- und am 2.6.2008 € 1.500,- überwiesen. Für die erste Periode des ESONET Projekts (1.3.2007 bis 29.2.2008) hat die SEND Signal Elektronik GmbH € 16.012,- förderfähige Kosten geltend gemacht und eine Förderung von € 4.500,- beantragt (gemäß anliegender Kopie des SEND Formblatts C).

Um die vertraglichen Verpflichtungen gegenüber der Europäischen Kommission zu erfüllen, hat der ESONET-Koordinator im Namen aller Mitglieder des ESONET Konsortiums Sie per E-Mail aufgefordert, einen Prüfungsbericht (audit certificate) beizubringen, der die im Formblatt C für die SEND Signal Elektronik GmbH in dieser Periode geltend gemachten Kosten rechtfertigt.

Wenn Sie als Insolvenzverwalter der SEND Signal Elektronik GmbH einen Prüfungsbericht gemäß den beigefügten Richtlinien beibringen, werden wir der SEND Signal Elektronik GmbH den noch ausstehenden Differenzbetrag zwischen den geleisteten Zahlungen und der beantragten Zahlung in Höhe von € 1.000,- zahlen.

Sollte jedoch bis Ende August 2009 kein Prüfungsbericht beigebracht worden sein, so ist die SEND Signal Elektronik GmbH verpflichtet, den gesamten Zuwendungsbetrag von € 3.500,- an ESONET zurückzuerstatten; gleichzeitig wird Ifremer im Namen des ESONET NoE ein Gerichtsverfahren initiieren.

Mit freundlichen Grüßen

M. STAHLBERGER
Director of Legal Affairs and Contracts

GGV
Insolvenzverwalter GbR

ARRIVÉE
14 DEC. 2009
DAJ 2360

GGV Insolvenzverwalter GbR / Herrengraben 5 / D-20459 Hamburg

N°	DATE 14.12.09
1425	Action / Info
DGA	
DAF	
DAJ	X
DRH	
CST	
DMON	
DPS	
DEU	
DRI	
DV	
DCOM	

Ifremer
Institut francais de Recherche
pour l'Exploitation de la Mer
Siège social
rue Jean-Jacques Rousseau 155
92138 Issy-les-Moulineaux Cedex
France

Axel Raap
Rechtsanwalt
Dr. Olaf Büchler
Rechtsanwalt
Philipp-A. Wagner
Rechtsanwalt

9. Dezember 2009
Bü/we

Insolvenzverfahren über das Vermögen der SEND Signal Elektronik GmbH
Amtsgericht Hamburg, Geschäfts-Nr.: 67g IN 185/08
Ihr Zeichen: 07/1216510/BF
ESONET NoE FP6 Vertrag nb: GOCE 036851

Sehr geehrte Damen und Herren,

unter Bezugnahme auf Ihr Schreiben vom 03.12.2009 teile ich Ihnen mit, dass ich die weitere Erfüllung der bestehenden Vertragsverhältnisse im eröffneten Insolvenzverfahren gemäß § 103 InsO ablehne. Den Eröffnungsbeschluss füge ich anliegend in Kopie bei.

Ihre Forderung können Sie mit dem beiliegenden Formular zur Insolvenztabelle anmelden.

Mit freundlichen Grüßen

Dr. Olaf Büchler
als Insolvenzverwalter

- Abschrift -

67g IN 185/08

AMTSGERICHT HAMBURG
BESCHLUSS

Über das Vermögen

des im Register des Amtsgerichts Hamburg unter HRB 60677 eingetragenen SEND Signal Elektronik GmbH, Rostocker Straße 20, 20099 Hamburg, gesetzlich vertreten durch den Geschäftsführer Klaus Schleisiek, Breite Straße 159, 22767 Hamburg

Geschäftszweig: Entwicklung und Produktion von und Handel mit Hard- und Computersysteme.

wird wegen Zahlungsunfähigkeit und Überschuldung heute, am 01.07.2008, um 10:43 Uhr das Insolvenzverfahren eröffnet.

Die Eröffnung erfolgt aufgrund des am 22.05.2008 bei Gericht eingegangenen Antrags des Schuldners.

Zum Insolvenzverwalter wird ernannt Rechtsanwalt Dr. Olaf Büchler, Herrengraben 3, 20459 Hamburg.

Forderungen der Insolvenzgläubiger sind bis zum 22.08.2008 unter Beachtung des § 174 InsO beim Insolvenzverwalter anzumelden.

Die Gläubiger werden aufgefordert, dem Insolvenzverwalter unverzüglich mitzuteilen, welche Sicherungsrechte sie an beweglichen Sachen oder an Rechten des Schuldners in Anspruch nehmen. Der Gegenstand, an dem das Sicherungsrecht beansprucht wird, die Art und der Entstehungsgrund des Sicherungsrechts sowie die gesicherte Forderung sind zu bezeichnen. Wer diese Mitteilungen schuldhaft unterlässt oder verzögert, haftet für den daraus entstehenden Schaden (§ 28 Abs. 2 InsO).

Wer Verpflichtungen gegenüber dem Schuldner hat, wird aufgefordert, nicht mehr an diesen zu leisten, sondern nur noch an den Insolvenzverwalter.

Termin zur Gläubigerversammlung, in der auf der Grundlage eines Berichts des

Insolvenzverwalters über den Fortgang des Verfahrens beschlossen wird (Berichtstermin) und Termin zur Prüfung der angemeldeten Forderungen (Prüfungstermin) ist am

Montag, 22.09.2008, 10:25 Uhr,

im Gebäude des Amtsgerichts Hamburg, Sievekingplatz 1, 20355 Hamburg, 4. Etage, Sitzungssaal B405.

Der Termin dient zugleich zur Beschlussfassung der Gläubiger über

- die Person des Insolvenzverwalters,
- die Einsetzung und Besetzung des Gläubigerausschuss (§ 68 InsO),
- gegebenenfalls die nachfolgend bezeichneten Gegenstände:
  - Entscheidung über die Wirksamkeit der Verwaltererklärung zu Vermögen aus selbstständiger Tätigkeit (§ 35 Abs. 2 InsO),
  - Zwischenrechnungslegung gegenüber der Gläubigerversammlung (§ 66 Abs. 3 InsO),
  - Hinterlegungsstelle und Bedingungen zur Anlage und Hinterlegung von Geld, Wertpapieren und Kostbarkeiten (§ 149 InsO),
  - Entscheidung über den Fortgang des Verfahrens (§ 157 InsO),
  - besonders bedeutsame Rechtshandlungen des Insolvenzverwalters (§ 160 InsO); insbesondere: Veräußerung des Unternehmens oder des Betriebs des Schuldners, des Warenlagers im ganzen, eines unbeweglichen Gegenstandes aus freier Hand, einer Beteiligung des Schuldners an einem anderen Unternehmen, die der Herstellung einer dauernden Verbindung zu diesem Unternehmen dienen soll, die Aufnahme eines Darlehens, das die Masse erheblich belasten würde, Anhängigmachung, Aufnahme, Beilegung oder Vermeidung eines Rechtsstreits mit erheblichem Streitwert,
  - Betriebsveräußerung an besonders Interessierte oder Betriebsveräußerung unter Wert (§§ 162, 163 InsO),
  - Beantragung der Anordnung oder der Aufhebung der Anordnung einer Eigenverwaltung (§§ 271 und 272 InsO),
  - die Zahlung von Unterhalt aus der Insolvenzmasse (§§ 100, 101 InsO)
- und unter Umständen zur Anhörung über eine Verfahrenseinstellung mangels Masse (§ 207 InsO).

Nimmt an der Gläubigerversammlung kein stimmberechtigter Gläubiger teil (Beschlussunfähigkeit), so gilt die Zustimmung zu besonders bedeutsamen Rechtshandlungen des Insolvenzverwalters als erteilt (§ 160 Abs. 1 Satz 3 InsO).

Der Insolvenzverwalter wird beauftragt, die nach § 30 Abs. 2 InsO zu bewirkenden Zustellungen an die Schuldner des Schuldners (Drittschuldner) sowie an die Gläubiger durchzuführen (§ 8 Abs. 3 InsO).

Hamburg, 01.07.2008
Amtsgericht

Dr. Schmidt
Richter am Amtsgericht

- 1 -

Forderungsanmeldung im Insolvenzverfahren

Anmeldungen sind stets nur an den Insolvenzverwalter (Treuhänder, Sachwalter) zu senden, nicht an das Gericht. Bitte beachten Sie auch das gerichtliche Merkblatt zur Forderungsanmeldung.

Schuldner	
Insolvenzgericht: Amtsgericht	**Aktenzeichen**

Gläubiger Genaue Bezeichnung des Gläubigers mit Postanschrift (kein Postfach!), bei Gesellschaften mit Angabe der gesetzlichen Vertreter.	**Gläubigervertreter** Die Beauftragung eines Rechtsanwalts ist freigestellt. Die Vollmacht muß sich ausdrücklich auf Insolvenzsachen erstrecken. ☐ Vollmacht anbei bzw. folgt umgehend
BLZ: Kto:	BLZ: Kto:
Geschäftszeichen	**Geschäftszeichen**

Angemeldete Forderungen

Ihre Forderungen sind in einer Summe anzugeben. Bei mehreren Forderungen ist eine Aufstellung beizufügen, aus der sich die Gesamtforderung ergibt.

Hauptforderung im Rang des § 38 InsO (notfalls geschätzt)	€
Zinsen, höchstens bis zum Tag vor der Eröffnung des Verfahrens % aus € seit dem	€
Kosten, die vor der Eröffnung des Verfahrens entstanden sind	€
Summe	€

- 2 -

Nachrangige Forderungen (§ 39 InsO)
Diese Forderungen sind nur anzumelden, wenn das Gericht ausdrücklich hierzu aufgefordert hat (§ 174 Abs. 3 InsO). Die gesetzliche Rangstelle ist durch ankreutzen zu bezeichnen. Ab Nachrang 3 sind Zinsen und Kosten gesondert anzugeben und der jeweiligen Hauptforderung zuzuordnen (vgl. § 39 Abs. 3 InsO).

1. ☐ Nachrang des § 39 Abs. 1 Nr. 1	€
1. ☐ Nachrang des § 39 Abs. 1 Nr. 2	€
1. ☐ Nachrang des § 39 Abs. 1 Nr. 3	€
1. ☐ Nachrang des § 39 Abs. 1 Nr. 4	€
1. ☐ Nachrang des § 39 Abs. 1 Nr. 5	€
1. ☐ Nachrang des § 39 Abs. 2	€
Zinsen (§ 39Abs. 3) zu Nachrang 3 - 4 - 5 - 6	€
Kosten (§ 39Abs. 3) zu Nachrang 3 - 4 - 5 - 6	€
Summe der nachrangigen Forderungen	€

Abgesonderte Befriedigung unter gleichzeitiger Anmeldung des Ausfalls wird beansprucht.
☐ Ja, Begründung siehe Anlage
☐ Nein

Forderung aus vorsätzlich begangener unerlaubter Handlung
☐ Ja, die Tatsachen, aus denen sich ergibt, dass es sich nach der Einschätzung der anmeldenden Gläubigern oder des anmeldenden Gläubigers um eine Forderung aus einer vorsätzlich begangenen unerlaubten Handlung der Schuldnerin oder des Schuldners handelt, sind in der Anzeige genannt.
☐ Nein

Grund und nähere Erläuterung der Forderungen (z.B.Warenlieferung, Miete, Darlehen, Reparaturleistung, Arbeitsentgelt, Wechsel, Schadenersatz)

Als Unterlagen, aus denen sich die Forderungen ergeben, sind beigefügt (möglichst in zwei Exemplaren):

....
(Ort) (Datum) (Unterschrift und evtl. Firmenstempel)

Bitte reichen Sie diese Anmeldung und alle weiteren Unterlagen immer in zwei Exemplaren ein. Beachten Sie auch die Hinweise im gerichtlichen Merkblatt zur Forderungsanmeldung

- 1 -

Forderungsanmeldung im Insolvenzverfahren

Anmeldungen sind stets nur an den Insolvenzverwalter (Treuhänder, Sachwalter) zu senden, nicht an das Gericht. Bitte beachten Sie auch das gerichtliche Merkblatt zur Forderungsanmeldung.

Schuldner	
Insolvenzgericht: Amtsgericht	**Aktenzeichen**

Gläubiger Genaue Bezeichnung des Gläubigers mit Postanschrift (kein Postfach!), bei Gesellschaften mit Angabe der gesetzlichen Vertreter.	**Gläubigervertreter** Die Beauftragung eines Rechtsanwalts ist freigestellt. Die Vollmacht muß sich ausdrücklich auf Insolvenzsachen erstrecken. ☐ Vollmacht anbei bzw. folgt umgehend
BLZ: Kto:	BLZ: Kto:
Geschäftszeichen	**Geschäftszeichen**

Angemeldete Forderungen

Ihre Forderungen sind in einer Summe anzugeben. Bei mehreren Forderungen ist eine Aufstellung beizufügen, aus der sich die Gesamtforderung ergibt.

Hauptforderung im Rang des § 38 InsO (notfalls geschätzt)	€
Zinsen, höchstens bis zum Tag vor der Eröffnung des Verfahrens % aus € seit dem	€
Kosten, die vor der Eröffnung des Verfahrens entstanden sind	€
Summe	€

- 2 -

Nachrangige Forderungen (§ 39 InsO)
Diese Forderungen sind nur anzumelden, wenn das Gericht ausdrücklich hierzu aufgefordert hat (§ 174 Abs. 3 InsO). Die gesetzliche Rangstelle ist durch ankreutzen zu bezeichnen. Ab Nachrang 3 sind Zinsen und Kosten gesondert anzugeben und der jeweiligen Hauptforderung zuzuordnen (vgl. § 39 Abs. 3 InsO).

1. ☐ Nachrang des § 39 Abs. 1 Nr. 1	€
1. ☐ Nachrang des § 39 Abs. 1 Nr. 2	€
1. ☐ Nachrang des § 39 Abs. 1 Nr. 3	€
1. ☐ Nachrang des § 39 Abs. 1 Nr. 4	€
1. ☐ Nachrang des § 39 Abs. 1 Nr. 5	€
1. ☐ Nachrang des § 39 Abs. 2	€
Zinsen (§ 39Abs. 3) zu Nachrang 3 - 4 - 5 - 6	€
Kosten (§ 39Abs. 3) zu Nachrang 3 - 4 - 5 - 6	€
Summe der nachrangigen Forderungen	€

Abgesonderte Befriedigung unter gleichzeitiger Anmeldung des Ausfalls wird beansprucht.
☐ Ja, Begründung siehe Anlage
☐ Nein

Forderung aus vorsätzlich begangener unerlaubter Handlung
☐ Ja, die Tatsachen, aus denen sich ergibt, dass es sich nach der Einschätzung der anmeldenden Gläubigern oder des anmeldenden Gläubigers um eine Forderung aus einer vorsätzlich begangenen unerlaubten Handlung der Schuldnerin oder des Schuldners handelt, sind in der Anzeige genannt.
☐ Nein

Grund und nähere Erläuterung der Forderungen (z.B.Warenlieferung, Miete, Darlehen, Reparaturleistung, Arbeitsentgelt, Wechsel, Schadenersatz)

Als Unterlagen, aus denen sich die Forderungen ergeben, sind beigefügt (möglichst in zwei Exemplaren):

....
(Ort) (Datum) (Unterschrift und evtl. Firmenstempel)

Bitte reichen Sie diese Anmeldung und alle weiteren Unterlagen immer in zwei Exemplaren ein. Beachten Sie auch die Hinweise im gerichtlichen Merkblatt zur Forderungsanmeldung

Merkblatt
zur Forderungsanmeldung im Insolvenzverfahren (§ 174 InsO)

Nach Eröffnung des Insolvenzerfahrens haben die Insolvenzgläubgerinnen und -gläubiger Ihre Forderungen bei der Insolvenzverwalterin oder beim Insolvenzverwalter anzumelden. Fehlerhafte Anmeldungen können das Verfahren verzögern. Gläubigerinnen und Gläubiger sollten deshalb im eigenen Interesse die folgenden Hinweise und die Angaben auf dem Anmeldeformular sorgfältig beachten. Nähere Einzelheiten ergeben sich aus der Insolvenzordnung, insbesondere aus den § 38-52, 174-186 InsO. Rechtsauskünfte zu Einzelfragen darf das Gericht nicht erteilen. Dies ist Sache der Rechtsanwältinnen und Rechtsanwälte, Notarinnen und Notare sowie der zugelassenen Rechtsbeistände.

1) **Forderungsanmeldung**
Forderungen der Insolvenzgläubigerinnen und -gläubiger sind nicht beim Gericht sondern bei der Insolvenzverwalterin oder beim Insolvenzverwalter anzumelden. Insolvenzgläubigerinnen und -gläubiger sind Personen, die einen zur Zeit der Eröffnung des Insolvenzverfahrens begründeten Vermögensanspruch gegen die Schuldnerin oder den Schuldner haben (§ 38 InsO).

Ist eine Sachwalterin oder ein Sachwalter bzw. eine Treuhänderin oder ein Treuhänder bestellt (§§ 270, 313 InsO), so ist die Forderungsanmeldung dort vorzunehmen.

2) **Inhalt und Anlagen der Anmeldung**
Bei der Anmeldung ist der Grund der Forderung anzugeben, damit die Insolvenzverwalterin oder der Insolvenzverwalter sie überprüfen kann (z.B: Warenlieferung, Miete, Darlehen, Reparaturleistungen, Arbeitsentgelt, Wechsel, Schadenersatz).

Alle Forderungen sind in festen Beträgen in inländischer Währung geltend zu machen und abschließend zu einer Gesamtsumme zusammenzufassen.

Zinsen können grundsätzlich nur für die Zeit bis zur Eröffnung des Verfahrens (Datum des Eröffnungsbeschlusses) angemeldet werden. Sie sind unter Angabe von Zinssatz und Zeitraum auszurechnen und mit einem festen Betrag zu benennen.

Forderungen, die nicht auf Geld gerichtet sind oder deren Geldbetrag unbestimmt ist, sind mit ihrem Schätzwert anzumelden.

Forderungen in ausländischer Währung sind in inländische Währung umzurechnen und zwar nach dem Kurswert am Tag der Verfahrenseröffnung (§ 45 InsO).

Der Anmeldung sind die Beweisurkunden und sonstige Schriftstücke beizufügen, aus denen sich die Forderung ergibt. Bevollmächtigte von Gläubigerinnen und Gläubigern sollen der Anmeldung eine besondere Vollmacht für das Insolvenzverfahren beifügen.

Um die Feststellung der Forderung zu erreichen, sind Titel im Original beizufügen.

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3) **Gläubigerinnen und Gläubiger mit Absonderungsrechten**
Gläubigerinnen und Gläubiger, die aufgrund eines Pfandrechts oder eines sonstigen Sicherungsrechts abgesonderte Befriedigung an einem Sicherungsgut beanspruchen können, sind Insolvenzgläubigerinnen und -gläubiger, soweit ihnen die Schuldnerin oder der Schuldner auch persönlich haftet. Diese persönliche Forderung können sie anmelden.

4) **Nachrangige Insolvenzgläubigerinnen und -gläubiger**
Eine Sonderregelung gilt für die sog. nachrangigen Insolvenzgläubigerinnen und -gläubiger (§ 39 InsO). Nachrangige Forderungen sind u.a. die während der Verfahrenseröffnung laufenden Zinsen, die Kosten der Verfahrensteilnahme, die Geldstrafen, Geldbußen, Ordnungsgelder und Zwangsgelder, die Forderungen auf eine unentgeltliche schuldnerische Leistung oder auf Rückgewähr eines kapitalersetzenden Gesellschafterdarlehens oder gleichgestellter Forderungen.

Solche nachrangigen Forderungen können nur angemeldet werden, wenn das Gericht die Gläubigerinnen und Gläubiger ausdrücklich zur Anmeldung solcher Forderungen aufgefordert hat (§ 174 Abs. 3 InsO). Bei ihrer Anmeldung ist auf den Nachrang hinzuweisen und die von der Gläubigerin oder von dem Gläubiger beanspruchte Rangstelle zu bezeichnen.

5) **Anmeldung in Parallelverfahren**
Ist bei Personengesellschaften (z.B. GbR, OHG, KG) sowohl über das Gesellschaftsvermögen als auch über das Vermögen eines persönlich haftenden Gesellschafters das Insolvenzverfahren eröffnet, so ist für jedes Verfahren eine vollständige Forderungsanmeldung mit den notwendigen Unterlagen einzureichen. Andernfalls kann die Anmeldungen nur in einem Verfahren berücksichtigt werden.

6) **Nachträgliche Forderungsanmeldung**
Forderungen, die erst nach Ablauf der gerichtlich festgelegten Anmeldefrist angemeldet werden, können unter Umständen ein zusätzliches Prüfungsverfahren erforderlich machen. Die Kosten der zusätzlichen Prüfung hat die säumige Gläubigerin oder der säumige Gläubiger zu tragen (§ 177 Abs. 1 Satz 2 InsO).

7) **Ansprüche auf Insolvenzgeld**
Arbeitnehmerinnen und Arbeitnehmer, Auszubildende oder Heimarbeiterinnen oder Heimarbeiter haben bei Insolvenz ihres Arbeitgebers einen Anspruch auf Insolvenzgeld. Voraussetzung ist, daß sie bei Eröffnung des Insolvenzverfahrens oder bei Abweisung des Insolvenzantrages mangels Masse für die letzten dem Insolvenzstichtag vorausgehenden drei Monate des Arbeitsverhältnisses noch Arbeitsentgelt beanspruchen können. Das Insolvenzgeld wird auf Antrag ausgezahlt. Die Höhe richtet sich nach dem rückständigen Nettoarbeitsentgelt. Nähere Informationen sind bei den Arbeitsämtern erhältlich. Soweit Insolvenzgeld gezahlt wird, geht der Anspruch auf rückständiges Arbeitsentgelt auf die Bundesanstalt für Arbeit über.

8) **Prüfung der Forderungen und Wirkung des Bestreitens (Widerspruch)**
Die angemeldeten Forderungen werden im Prüfungstermin geprüft. Im Verfahren für Verbraucherinnen und Verbraucher oder Selbständige mit geringfügiger wirtschaftlicher Tätigkeit kann die Prüfung auf Anordnung des Gerichts auch im schriftlichen Verfahren stattfinden. Zum Bestreiten einer angemeldeten Forderung sind die Insolvenzverwaltung, Schuldnerin oder Schuldner sowie jede Insolvenzgläubigerin oder jeder Insolvenzgläubiger berechtigt. Die Forderungen können ganz oder teilweise nach ihrem Betrag oder ihrem Rang bestritten werden.

Wird eine Forderung nicht oder nur von der Schuldnerin oder vom Schuldner bestritten, so gilt sie für das weitere Insolvenzverfahren entsprechend der Anmeldung als festgestellt (§ 178 InsO). Bei angeordneter Eigenverwaltung verhindert auch der Widerspruch der Schuldnerin oder des Schuldners die Feststellung der Forderung (§ 283 Abs. 1 Satz 2 InsO).

Der wirksame Widerspruch gegen eine angemeldete Forderung hat folgende Wirkungen (vgl. §§ 178-185 InsO):
- liegt für die Forderung bereits ein vollstreckbarer Schuldtitel vor (Urteil, notarielles Anerkenntnis, Steuerbescheid u.ä.), so ist es Sache der oder des Bestreitenden, den Widerspruch mit den allgemein zulässigen Mitteln weiterzuverfolgen.
- liegt ein solcher Schuldtitel noch nicht vor, so obliegt es der vermeintlichen Gläubigerin oder dem vermeintlichen Gläubiger, die Feststellung der Forderung auf dem allgemein vorgesehenen Rechtsweg zu betreiben. Die oder der Bestreitende muß also damit rechnen, daß wegen Widerspruchs Klage gegen sie/ihn erhoben wird.

9) **Teilnahme an Gläubigerversammlungen, Vertretungsnachweis**
Jede Gläubigerin oder jeder Gläubiger kann persönlich am Prüfungstermin oder an den sonstigen Gläubigerversammlungen teilnehmen. Gesetzliche Vertreterinnen und Vertreter oder Bevollmächtigte haben ihre Vertretungsberechtigung im Termin nachzuweisen. Als Nachweis kann ein aktueller Handelsregisterauszug oder eine schriftliche Vollmacht vorgelegt werden. Zusätzlich ist der Personalausweis mitzubringen.

10) **Information über das Ergebnis der Forderungsprüfung**
Eine Pflicht, am Prüfungstermin teilzunehmen oder für eine Vertretung zu sorgen, besteht nicht. Das Gericht informiert allerdings nach der Forderungsprüfung nur diejenigen Gläubigerinnen und Gläubiger, deren Forderung ganz oder teilweise bestritten worden sind. Ihnen erteilt das Insolvenzgericht von Amts wegen einen Auszug aus der Insolvenztabelle, aus dem das Ergebnis der Prüfung hervorgeht.

Gläubigerinnen und Gläubiger, deren angemeldete Forderung weder von der Insolvenzverwaltung noch von einer Insolvenzgläubigerin oder einem -gläubiger (noch von der Schuldnerin oder dem Schuldner im Falle der Eigenverwaltung) bestritten worden sind, erhalten keine besondere Nachricht des Gerichts (§ 179 Abs. 3 InsO).

11) **Hinweise zur Feststellung streitiger Forderungen**
Im Prüfungsverfahren hat das Insolvenzgericht nur die Erklärungen der Beteiligten zu beurkunden. Ist die angemeldete Forderung einer Insolvenzgläubigerin oder eines Insolvenzgläubigers im Insolvenzverfahren nicht (vollständig) festgestellt worden, so ist die Feststellung auf dem Rechtswege zu betreiben, den die allgemeinen Gesetze hierfür vorsehen (§§ 180, 185 InsO). Das Insolvenzgericht ist insoweit nicht zuständig. Bei Meinungsverschiedenheiten über Rang und Höhe ist daher das Insolvenzgericht nicht einzuschalten.

Zivilrechtliche Forderungen sind im ordentlichen Verfahren je nach Grund vor den Zivil- oder Arbeitsgerichten geltend zu machen. Örtlich zuständig ist bei den Zivilgerichten ausschließlich das Gericht, in dessen Bezirk das Insolvenzgericht liegt (§ 180 Abs. 1 InsO).

War zur Zeit der Eröffnung des Insolvenzverfahrens bereits ein Rechtsstreit über die Forderung anhängig, so ist die Feststellung durch Aufnahme dieses Rechtsstreites zu betreiben (§ 180 Abs. 2 InsO; § 240 ZPO).

Obsiegt die Insolvenzgläubigerin oder der Insolvenzgläubiger mit der Klage, so hat diese Person beim Insolvenzgericht unter Vorlage des rechtskräftigen Urteils die Berichtigung der Insolvenztabelle zu beantragen (§ 183 Abs. 2 InsO).

Die weiteren verfahrensrechtlichen Einzelheiten für das Vorgehen zur Feststellung streitiger Forderungen ergeben sich aus den §§ 179-185 InsO.

3.1.1 Kick off meeting and General Assembly

No kick off meeting and General Assembly were organized during this third ESONET period.

3.1.2 Consortium Agreement

No modification was made to the Consortium agreement for this reporting period.

3.1.3 Steering Committee

Minutes of the Steering Committee meeting are all available on the website (partners only area):
http://www.esonet-noe.org/partners_only

Currently, the Steering Committee includes 18 members:

Steering Committee members	Institute
Paolo Favali	INGV
Laura Beranzoli	INGV
Laurenz Thomsen	KDM-JUB
Juergen Mienert	UiT
Michael Gillooly	IMI
Per Hall	UGOT
Mathilde Cannat	IPGP
Klaus Schleisiek	SEND Off-Shore
Henry Ruhl	NERC-NOCS
Vasilios Lykousis	HCMR
Namik Çagatay	ITU
Jen Greinert	NIOZ
Christoph Waldmann	KDM-UNIHB
Jorge Miguel Miranda	FFCUL
Juanjo Dañobeitia	CSIC
Roland Person	IFREMER
Robert Huber	KDM-UNIHB
Imants G. Priede	UNIABDN

During this third year, seven Steering Committee meetings were planned:

* London (United Kingdom), 18-20 March 2009:

Questions addressed: Debriefing on the current reporting process and agenda of activities until the end of ESONET. It also focused on the 2nd Demonstration Mission and exchange of personnel budgets. The ESONET organization was also reviews (modification of WP1 and addition of a new WP9).

* Vienna (Austria), 22 April 2009

Questions addressed: Debriefing of the 2nd reporting period. This meeting focused also on financial issues and on the Grant Agreement for the two new Demonstration Missions and implementation plans.

* Virtual SC meeting, 28 July 2009

Questions addressed: This meeting focused on the choice of proposals for the 2nd call of the exchange of personnel, the new test call and the fund attribution for the MODOO Demonstration Mission.

* Paris (France), 06-07 October 2009 during the 2nd All Regions Workshop

Questions addressed: This meeting focused on the choice of the updated proposals of the 2nd call of the exchange of personnel. The AOEM Demonstration Mission budget plan was unanimously approved during this meeting. It was proposed to merge all test call proposal on one.

* Amsterdam (The Netherlands), 03 December 2009

Questions addressed: This meeting focused on financial issues, on the next reporting process and final reporting and on the preparation of the next STRAC meeting.

* Virtual SC meeting, 13 January 2010

Questions addressed: Essentially focused on the new ESONET budget negotiation.

* Virtual SC meeting, x February 2010

Questions addressed: Approval of the new ESONET budget.

3.1.4 Strategic Committee

The Strategic Committee meeting was organized at the end of this third year of the ESONET project.

ESONET Countries are represented in the Strategic Committee:

Partner	Country	Delegate
IFREMER	France	Bruno Goffé
KDM	Germany	Joachim Harms
INGV	Italy	Angela Vulcano
NOCS	United Kingdom	Ed Hill
CSIC	Spain	Beatriz Morales Nin
University of Lisbon	Portugal	Mario Ruivo
Marine Institute	Ireland	Peter Heffernan
HCMR	Greece	George Chronis
NIOZ	The Netherlands	Carlo Heip

The third ESONET Strategic Committee and funding agency meeting entitled "Towards the Creation of EMSO Research Infrastructure: Funding Agencies Meeting » took place in Strasburg (France) on the 25-26th of February 2010. (See deliverable D23)
The attendants were of high level for most countries, representing the STRAC delegates:

PARTICIPANTS	
Institution	Name
INGV - Italy INGV Board of Directors	*Paolo Favali* *Pier Luigi Franceschini* *Cristina La Fratta* *Stefano Gresta*
University of Perugia MIUR FP7 Capacities Infrastructure Delegate - Italy	*Caterina Petrillo*
European Commission	*Agnès Robin*
Ministry of Education, Research & University - Italy	*Luigi Lombardi*
ESFRI ENV.- TWG (GeoEcoMar) ESFRI ENV.- TWG and NERC	*Adrian Stanica* *Michael Schultz*
GEOECOMAR	*Gheorghe Oaie*
European Science Foundation	*Bernard Avril* *Paola Campus* *Roberto Azzolini* *Julien Weber* *Paul Egerton*
IFREMER -France	*Jean-François Rolin* *Roland Person* *Pierre Cochonat*
Ministry of Research - France	*Claude Catala*
CNRS - France	*Elisabeth Kohler*
IPGP - France	*Mathilde Cannat*
KDM - Germany	*Christoph Waldmann*
IMI - Ireland	*Fiona Grant* *Mick Gillooly*
UTM-CSIC - Spain	*Juan Jose Dañobeitia*
PLOCAN - Spain	*Jose Joaquin Hernandez-Brito*
Ministerio de Ciencia e Innovacion - Spain	*Luis E. Ruiz López de la Torre Ayllón*
HCMR - Greece	*Vasilios Lykousis*

PARTICIPANTS	
Institution General Secretariat for Reseacrh & Technology, Ministry of Education, Life, Long learning & Religious Affairs - Greece	Name *Chrysoula Diamanti*
NOCS - United Kingdom	*Henry Ruhl* *Phil Weaver*
UIT - Norway	*Juergen Mienert*
Norway Research Council	*Jon Borre Orbak*
FFCUL - Portugal	*Livia Moreira*
ITU-EMCOL - Turkey	*Namik Cagatay*
Prime Ministry Disaster & Emergency Management Presidency - Turkey	*Kerem Kuterdem*
NIOZ- The Netherlands	*Jens Greinert*
SJ BERWIN - Belgium	*Ramon Garcia Gallardo*
SRL Consulting - Ireland	*Nick O'Neill*

During the STRAC meeting, a survey of the advancement with respect to Research Infrastructure (RI) roadmaps and strategies for the different Countries was performed. The infrastructure implementation plan and costs were discussed and advisory were given by the representatives of funding agencies and the EC.

3.1.5 Advisory Councils

The Advisory Councils are composed of the Data Management Council (DMC), the Test and Operation Council (TOC) and the Scientific Council (SC). As the Advisory Councils are planned every 18 months, no councils meetings were organized during this third year of the ESONET project. The next Advisory Councils are planned with the Second General Assembly, planned at the end of 2010.

3.2 Contractors

Special clause 23:

CNRS: LMTG (Laboratoire des Mécanismes et Transferts en Géologie) and DT-INSU (Division Technique de l'Institut National des Sciences de l'Univers) Members are now represented by CNRS DR20 by means of the special clause 23 of the ESONET contract. This was updated by an amendment to the ESONET Contract, requested in August 2009 and accepted in December 2009.

Termination of some contractors:
The participation of the following Contractors is terminated from the dates specified in the following table:

Contractor	End date of participation
SIS Sensoren Instrumente Systeme GmbH	23/10/2008
SEND Signal Elektronik GmbH	30/06/2008

These terminations were updated by an amendment to the ESONET Contract, requested in August 2009 and accepted in December 2009.

Addition of contractor:
The following entity was added as Contractor with effect from the date specified in the following table:

Contractor	End date of participation
SEND Off-Shore Electronics GmbH	01/08/2008

This addition was updated by an amendment to the ESONET Contract, requested in August 2009 and accepted in December 2009.

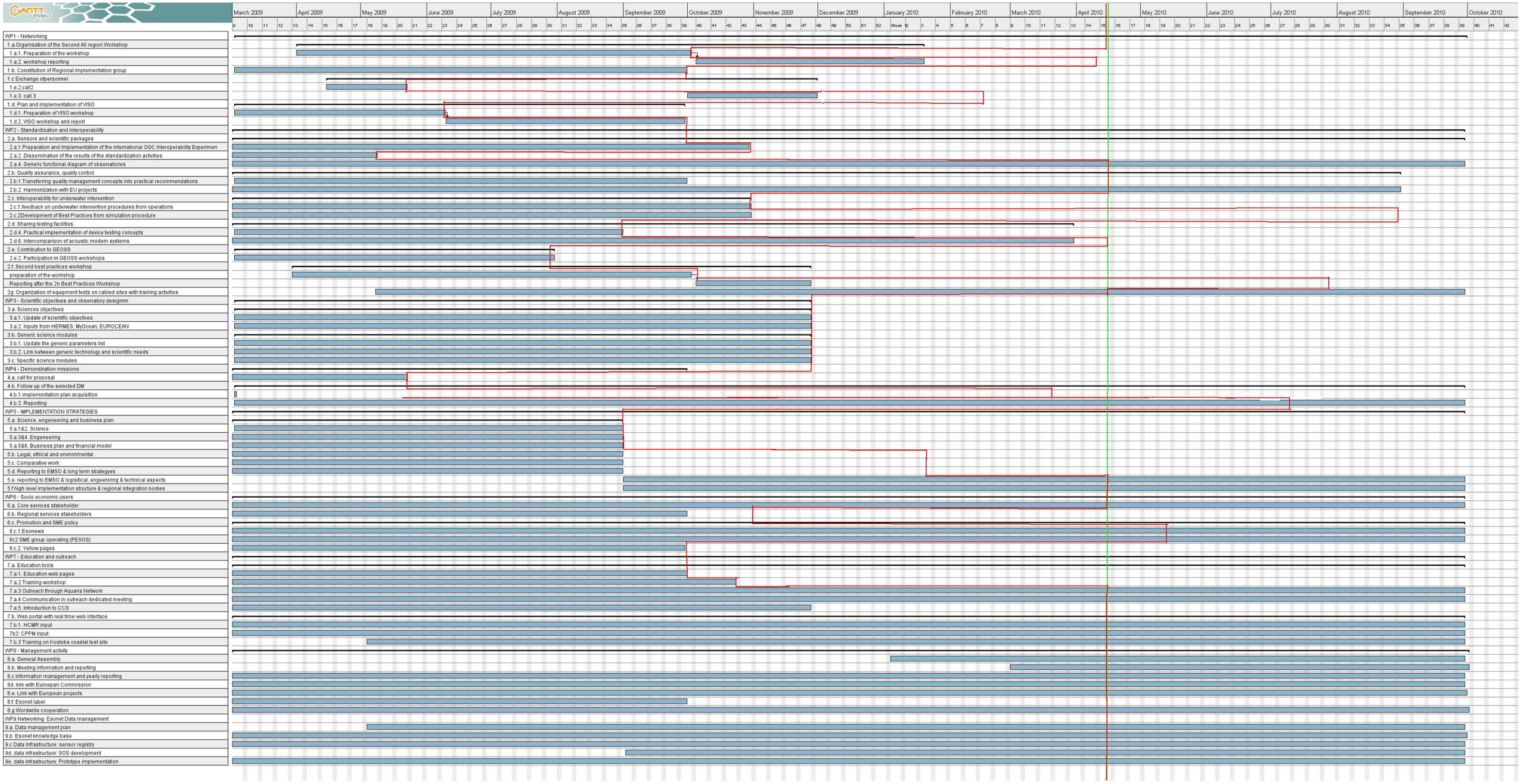
The following modifications are being processed by means of a contract amendment requested on February 2010:

3.3 Relations with other European Projects

See Task 8e in section "2.8.2 Progress towards objectives" in the WP8 Activity Report (previous pages).

3.4 Project timetable and status

3.4.1 Project time table: GANTT diagram


March 2009
April 2009
May 2009
June 2009
July 2009
August 2009
September 2009
October 2009
November 2009
December 2009
January 2010
February 2010
March 2010
April 2010
May 2010
June 2010
July 2010
August 2010
September 2010
October 2010
WP1 - Networking
1.a.Organisation of the Second All region Workshop
1.a.1. Preparation of the workshop
1.a.2. workshop reporting
1.b. Constitution of Regional implementation group
1.c Exchange ofpersonnel
1.e.2.call2
1.e.3. call 3
1.d. Plan and implementation of VISO
1.d.1. Preparation of VISO workshop
1.d.2. VISO workshop and report
WP2 - Standardisation and interoperability
2.a. Sensors and scientific packages
2.a.1 Preparation and implementation of the international OGC Interoperability Experimen
2.a.2. Dissemination of the results of the standardization activities
2.a.4. Generic functional diagram of observatories
2.b. Quality assurance, quality control
2.b.1.Transferring quality management concepts into practical recommendations
2.b.2. Harmonization with EU projects
2.c. Interoperability for underwater intervention
2.c.1.feedback on underwater intervention procedures from operations
2.c.2Development of Best Practices from simulation procedure
2.d. Sharing testing facilities
2.d.4. Practical implementation of device testing concepts
2.d.6. Intercomparison of acoustic modem systems
2.e. Contribution to GEOSS
2.e.2. Participation in GEOSS workshops
2.f. Second best practices workshop
preparation of the workshop
Reporting after the 2n Best Practices Workshop
2g: Organization of equipment tests on cabled sites with training activities
WP3 - Scientific objectives and observatory designnn
3.a. Sciences objectives
3.a.1. Update of scientific objectives
3.a.2. Inputs from HERMES, MyOcean, EUROCEAN
3.b. Generic science modules
3.b.1. Update the generic parameters list
3.b.2. Link between generic technology and scientific needs
3.c. Specific science modules
WP4 - Demonstration missions
4.a. call for proposal
4.b. Follow up of the selected DM
4.b.1 implementation plan acquisition
4.b.2. Reporting
WP5 - IMPLEMENTATION STRATEGIES
5.a. Science, engeneering and business plan
5.a.1&2. Science
5.a.3&4. Engeneering
5.a.5&6. Business plan and financial model
5.b. Legal, ethical and environmental
5.c. Comparative work
5.d. Reporting to EMSO & long term strategyes
5.e. reporting to EMSO & logisitical, engeenirng & technical aspects
5.f high level implementation structure & regional integration bodies
WP6 - Socio economic users
6.a. Core services stakeholder
6.b. Regional services stakeholders
6.c. Promotion and SME policy
6.c.1.Esonews
6c2 SME group operating (PESOS)
6.c.2. Yellow pages
WP7 - Education and outreach
7.a. Education tools
7.a.1. Education web pages
7.a.2.Training workshop
7.a.3 Outreach through Aquaria Network
7.a.4 Communication in outreach dedicated meeting
7.a.5. Introduction to CCS
7.b. Web portal with real time web interface
7.b.1. HCMR input
7b2: CPPM input
7.b.3 Training on Kostobs coastal test site
WP8 - Management activity
8.a. General Assembly
8.b. Meeting information and reporting
8.c Information management and yearly reporting
8d. link with Euroepan Commission
8.e. Link with European projects
8.f. Esonet label
8.g Wordwide cooperation
WP9 Networking .Esonet Data management
9.a. Data management plan
9.b. Esonet knowledge base
9.c Data Infrastructure: sensor registry
9d. data infrastructure: SOS development
9e. data infrastructure: Prototype implementation

3.4.2 Overview of Deliverables status

The status of the deliverables is coded with colors:

- yellow lines: delivered during previous reported period
- green lines: deliveded during this 3rd period in final version
- orange lines: delivered during this 3rd period but some improvements are expected
- red lines: not delivered: delayed to the next period

Deliverable n°	*Deliverable name*	*WP n°*	*Lead participant*	*Nature*[1]	*Dissemination level*[2]	*Date due*	*Delivery*
D1	*Define preliminary scientific priorities; Text of the call for proposal.*	*WP3 WP4*	*NOCS INGV*	*R*	*PU*	*2*	*12*
D2	*Report on regional observatory stakeholders.*	*WP6*	*FFCUL*	*R*	*CO*	*8*	*12*
D3	*ESONET class material on science background*	*WP7*	*KDM*		*PU*	*9*	*12*
D4	*Report on First educational and training workshops.*	*WP7*	*KDM*	*R*	*PU*	*12*	*12*
D6	*Proceeding of best practice workshop: sensor interface, quality insurance and specification for demonstration actions.*	*WP2*	*KDM*	*R*	*PP*	*12*	*12*
D7	*Report on constitution of integration groups; Proceedings of All Regions workshop. Report on potential creation of virtual institute.*	*WP1*	*KDM*	*R*	*PU*	*12*	*12*
D9	*Data management plan.*	*WP1*	*KDM*	*R*	*PU*	*6*	*9*
D15	*ESONET News "ESONET News – Europeans observe the deep sea"*	*WP6*	*IFREMER*	*R*	*PU*	*1 - 5 2- 8 3- 11*	*3 8 10*
D20	*Report on long-term planned research and co-operation between research organisations.*	*WP5*	*IFREMER*	*R*	*PU*	*12*	*12*
D21	*Document outlining agreement on co-operation between organisations involved in developing technology.*	*WP5*	*IFREMER*	*R*	*PU*	*12*	*12*
D22	*Report on confidential meetings between commercial companies and ESONET WP leaders working relationships and ESONET requirements.*	*WP5*	*Marine Institute*	*R*	*CO*	*12*	*12*
D23	*Report of meeting to discuss long-term funding for seafloor observatories involving representatives from funding agencies.*	*WP5*	*IFREMER*	*R*	*CO*	*12*	*12*
D24	*Report on integration between respective teams (research teams, technical teams, companies and SMEs) and working relationships beyond the life of ESONET.*	*WP5*	*IFREMER*	*R*	*PU*	*12*	*12*
D5	*First elements of individual implementation plans for specific cabled observatory sites.*	*WP5*	*Marine Institute*	*R*	*PP*	*24*	*24*
D10	*Report: exchange of personnel; common schedule and methodology of tests.*	*WP1*	*IFREMER*	*R*	*PP*	*18*	*23*
D11	*Report on scientific background and objectives.*	*WP3*	*NOCS*	*R*	*PP*	*18*	*18*
D12	*First periodical report on Demonstration Missions.*	*WP4*	*INGV*	*R*	*PP*	*18*	*22*
D13	*Report on science modules.*	*WP3*	*NOCS*	*R*	*PP*	*24*	*24*
D15	*ESONET News "ESONET News – Europeans observe*	*WP6*	*Ifremer*	*R*	*PU*	*14, 17,*	*14,17,*

[1] Nature of the deliverable using one of the following codes: R=report / P = prototype / D = demonstrator / O = other

[2] Dissemination level using one the following codes: PU = public / PP = restricted to other program participants (including the Commission Services) / RE = restricted to a group specified by the consortium (including the Commissions Services) / CO = confidential, only for members of the consortium (including the Commission Services)

Deliverable n°	Deliverable name	WP n°	Lead participant	Nature[1]	Dissemination level[2]	Date due	Delivery
	the deep sea"					*20, 23, 26, 29*	*20*
D16	*Report on core service stakeholders.*	*WP6*	*CSA*	*R*	*CO*	*18*	*24*
D17	*Report on promotion and SME policy.*	*WP6*	*IFREMER*	*R*	*PU*	*18*	*24*
D18	*Publish draft ESONET web portal.*	*WP7*	*KDM*	*O*	*PU*	*20*	*26*

Deliverable n°	Deliverable name	WP n°	Lead participant	Nature[3]	Dissemination level[4]	Date due	Delivery
D19	*Data infrastructure prototype.*	*WP1*	*KDM*	*P*	*PU*	*18*	*18*
D20-2009	*Report on long term planned research and cooperation between research organisations.*	*WP5*	*IFREMER*	*R*	*PU*	*24*	*25*
D21-2009	*Document outlining agreement on co-operation between organisations involved in developing technology.*	*WP5*	*Marine Institute*	*R*	*CO*	*24*	*24*
D22-2009	*Report on confidential meetings between commercial companies and ESONET WP leaders re working relationships and ESONET requirements.*	*WP5*	*IFREMER*	*R*	*CO*	*24*	*24*
D23-2009	*Report of on meetings to discussing long-term funding for seafloor observatories involving representatives from funding agencies.*	*WP5*	*IFREMER*	*R*	*PU*	*24*	*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*	*R*	*PU*	*24*	*24*
D25	*Specification report for demonstration actions – sensor interface.*	*WP2*	*KDM*	*R*	*PU*	*23*	*25*
D26	*Specification report for demonstration actions – quality assurance.*	*WP2*	*UNIABDN*	*R*	*PU*	*23*	*25*
D27	*Specification report for demonstration actions – subsea intervention.*	*WP2*	*IFREMER*	*R*	*PU*	*23*	*25*
D29-2008	*24th month activity report*	*WP8*	*IFREMER*	*R*	*PU*	*25*	*25*
D30	*Installation of computer terminals*	*WP7*	*KDM*	*O*	*PU*	*20*	*26*
D31	*General assembly report*	*WP8*	*IFREMER*	*R*	*PU*	*20*	*23*
D32	*Introduction to Demo Missions*	*WP7*	*KDM*	*O*	*PU*	*22*	*26*
D33	*Agreement on an International network*	*WP1*	*UNIABDN*	*O*	*PU*	*23*	*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*	*UNIBABDN*	*R*	*CO*	*23*	*23*
D35	*Recommendations for ESONET registration in GEOSS*	*WP2*	*DBScale*	*R*		*23*	*25*

[3] Nature of the deliverable using one of the following codes: R=report / P = prototype / D = demonstrator / O = other

[4] Dissemination level using one the following codes: PU = public / PP = restricted to other program participants (including the Commission Services) / RE = restricted to a group specified by the consortium (including the Commissions Services) / CO = confidential, only for members of the consortium (including the Commission Services)

Deliverable n°	*Deliverable name*	*WP n°*	*Lead participant*	*Nature*[3]	*Dissemination level*[4]	*Date due*	*Delivery*
D36	*Report of testing facilities survey*	*WP2*	*IFREMER*	*P*	*OU*	*23*	*25*
D37	*VISO Workshop preparation report*	*WP1*	*UiT*	*R*	*PU*	*24*	*24*
D38	*Finish games and quiz section*	*WP7*	*KDM*	*0*	*PU*	*24*	*24*
D53	*Report on creation of VISO*	WP1	UiT	R	PU	31	*33*
D54	*Report of 2nd and 3rd call for Exchange of Personnel*	WP1	IPGP	R	PU	33	*37*
D55	*Report on 2nd All Regions Workshop*	WP1	IPGP-IFREMER	R	PU	35	*37*
D56	*Membership of Regional Implementation Groups*	WP1	IPGP-IFREMER	R	PU	32	*36*
D58	Report on selected test experiments on cabled sites	WP1, WP2, WP7, WP9	UniHB IFREMER	R	PU	32	*38*
D39	Prototype quality management manual	WP2	UNIABDN	Rr	PU	36	*38*
D41	Result and analysis of GEOSS and standards survey in ESONET	WP2	DBscale	R	PU	29	*30-43*
D50	Report on Second Best Practices Workshop	WP2	KDM	R	PU	33	*36-43*
D51	Training and simulation manual	WP2	IFREMER	R	PU	32	*38-43*
D52	Report on the contribution to international standardisation initiatives	WP2	KDM	R	PU	32	*34*
D8	Prototype implementation of example standardised sensor system	WP2	KDM	R	PU	30	*33*
D57	Intermediate report from underwater acoustic modems inter-comparison experiment	WP2	IFREMER	R	PU	33	*36*
D11-2010	Report on scientific background and objectives	WP3	NERC-NOCS	R	PU	33	*33*
D13-2010	Report on science modules	WP3	NERC-NOCS	R	PU	33	*33*
D45a	Second periodical report on Demonstration Missions	WP4	INGV	R	PU	28	*31*
D45b	Third periodical report on Demonstration Missions	WP4	INGV	R	PU	33	
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	IMI		PU	30	*36*
D20-2010	Report on long-term planned research and co-operation between research organisations in Europe.	*WP5*	*IFREMER*	*R*	*PU*	*36*	
D21-2010	Document outlining agreement on co-operation between organisations involved in developing technology (internationally and fleet-related).	*WP5*	*IFREMER*	*R*	*PU*	*36*	*38*
D22-2010	Report on confidential meetings between commercial companies and ESONET WP leaders.	*WP5*	*Marine Institute*	*R*	*CO*	*36*	
D23-2010	Report on meetings to discuss long-term funding for seafloor observatories involving representatives from funding agencies.	*WP5*	*IFREMER*	*R*	*CO*	*36*	*38*
D46	Report to EMSO on Implementation Model (ESONET NoE)	WP5	IMI		PU	30	*36*
D47	Online database to include local, national and European legal, ethical and environmental (LEE) documents	WP5	UPC		PU	30	*36*
D48	Final report on Best Practices, Guidelines for LEE issues and implementation plans	WP5	UPC	24	PU	30	*36*
D15	ESONET News "ESONET News-Europeans observe	WP6	FFCUL	R	PU	26,29,	*28, 32,*

Deliverable n°	Deliverable name	WP n°	Lead participant	Nature[3]	Dissemination level[4]	Date due	Delivery
	the deep sea"					32,35, 38	*32*
D17-2009	Report on Promotion and SME Policy	WP6	FFCUL	R	PU	30	*33*
D18	Web portal	WP7		O	PU	30	
D30	Web terminals	WP7		O	PU	30	*30-42*
D32	Intro Demo Missions	WP7		O	PU	28	*26*
D40	Report on second training workshop	WP7	KDM/JUB	R	PU	26	*26*
D49	Fully established outreach webpage	WP7	KDM/JUB	O	PU	30	*30*
D63	ESONET intro on CCS ocean technologies	WP7	KDM/JUB	O	PU	30	*30*
D64	Training on test site	WP7	UGOT	R	PU	32	
D65	Outreach and communication in ESONET via aquaria network	WP7	SOPAB	R	PU	36	*36*
D67	ESONET contribution to GMES	WP8	IFREMER	R	PU	36	*36*
D68	ESONET Label definition	WP8	IFREMER	R	PU	36	*38*
D70	Updated management plan	WP9	NOCS	R	PU	36	*36*
D42	Sensor registry documents	WP9, WP2	KDM/UNI HB	P +R	PU	30	*30*

4 CONCLUSION

The project is well the way : since the beginning of the project 70 deliverables were expected to be delivered until now but only 7 are delayed, 10 %. Four are in intermediate version due to missing information. Discussions on the permanent structure preparation are well advanced as well as shown in deliverables 46 and 53. We are confident in a good achievement of the project.

5 LIST OF ANNEXES

5.1 Annex 1: List of ESONET Bibliography references

IFREMER

Articles

Ingrid Puillat, Roland Person, Levêque C., Drogou J., Diepenbroek M, Garreau P., Waldmann C., Auffret Y., « Standardization prospective in ESONET NoE and a possible implementation on the ANTARES Site », Nuclear Instruments & Methods in Physics research section A-Accelerators, spectrometers, detectors and associated equipment, 11 avril 2009, 602(1), p.240-245

Conference talks

Rolin Jean-François. "Initiating a market in Europe through demonstrations mission". OCEANS'09 IEEE, May 2009, Bremen, Germany

Marvaldi J, Katz U.. "Neutrino telescope – Esonet meeting with industrial companies and SMEs". OCEANS'09 IEEE, May 2009, Bremen, Germany

Rolin J.F., Waldmann C., "Integrating ocean observatories on a global scale". OCEANS'09 IEEE, May 2009, Bremen, Germany

Puillat Ingrid, Person R.. "ESONET NoE : European seas observatory network of excellence". EGU General Assembly, April 2009, Vienna, Austria

Press release

"Observatoires fond de mer - ESONET NoE Project". ESONET partners meeting, on 05-07 October 2009, Paris, France.

"BOB » observe les bulles pour surveiller la faille au sud d'Istanbul - ESONET NoE Project". November 2009.

"Bilan de la campagne BobGeo, par l'équipe scientifique à bord du *N/O Pourquoi pas ?* - ESONET NoE Project". CoralFISH, October 2009.

Press articles

"A sea-change in coastal research within the European Union - ESONET NoE Project". Interview and article of Roland Person in "International Innovation" revue, August 2009, pp09-11.

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"Un capteur de bulles pour surveiller la faille au sud d'Istanbul- ESONET NoE Project". Article in "Le Monde", November 2009.

"Que va faire BOB en mer de Marmara- ESONET NoE Project". Interview of Pierre Cochonat in "L'Humanité", November 2009.

"Observer des bulles pour prédire les séismes - ESONET NoE Project". Article in "Nice Matin" revue, November 2009.

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"Global warning could affect the oceans- ESONET NoE Project". Science News, UPI.COM, http://www.upi.com/science_News, November 2009.

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"MOMAR/D – A demonstration mission to establish a multidisciplinary observatory at hydrothermal vents on the mid-Atlantic ridge - ESONET NoE Project". ESONews, Spring 2009.

"Cruise report LOOME – ESONET demonstration mission - ESONET NoE Project". ESONews, Spring/Fall 2009.

Radio acknowledgment

MARMESONET oceanographic cruise on France info Planète mer, on November 2009 by Nathalie Fontrel.

MARMESONET oceanographic cruise on RFI Journal, on November 2009 by Bruno Faure.

CNRS-LOV

Articles

Marc Picheral, Lionel Guidi, Lars Stemmann, David Karl, Ghizlaine Iddaoud, Gabriel Gorsky (in press) The Underwater Vision Profiler 5: A novel instrument for high spatial resolution studies of particle size spectra and zooplankton. Limnology Oceanography Mathods.

Guidi, L., G. A. Jackson, L. Stemmann, J. C. Miquel, M. Picheral, and G. Gorsky. 2008. Relationship between particle size distribution and flux in the mesopelagic zone. Deep-Sea Res. I 55: 1364-1374.

Guidi, L., L. Stemmann, G.A. Jackson, F. Ibanez, H. Claustre, L. Legendre, M. Picheral and G. Gorsky. In press. Effects of phytoplankton community on production, size and export of large aggregates: A World-Ocean analysis. Limnol. Oceanogr.

Guidi, L., L. Stemmann, L. Legendre, M. Picheral, L. Prieur, and G. Gorsky. 2007. Vertical distribution of aggregates (> 110 μm) and mesoscale activity in the northeastern atlantic: Effects on the deep vertical export of surface carbon. Limnol. Oceanogr. 52: 7-18.

Stemmann, L., D. Eloire, A. Sciandra, G. A. Jackson, L. Guidi, M. Picheral, and G. Gorsky. 2008a. Volume distribution for particles between 3.5 to 2000 mu m in the upper 200 m region of the south pacific gyre. Biogeosciences 5: 299-310.

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Stemmann, L., L. Prieur, L. Legendre, I. Taupier-Letage, M. Picheral, L. Guidi, and G. Gorsky. 2008b. Effects of frontal processes on marine aggregate dynamics and fluxes: An interannual study in a permanent geostrophic front (NW Mediterranean). J. Mar. Syst. 70: 1-20.

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CNRS-CEREGE

Conference talks

Conference at ITU during a Symposium on "August 1999 Izmit Earthquake: An overview of the research in the Sea of Marmara.". Participation to INVEST IODP workshop in Bremen. Joint press releases with Ifremer and contribution to a video documentary at the occasion of Marmesonet cruise in November 2009.

CNRS-IUEM

Conference talks

Chateau, R., J.-Y. Royer, R.P. Dziak, D.W. Bohnenstielh, V. Brandon & J.H. Haxel, 2009. Hydroacoustic records of seafloor earthquakes, cryogenic sounds, and cetacean vocalizations in the Indian Ocean, *EOS Trans. Am Geophys. Un.*, *AGU Fall Meeting*, San-Francisco, CA, (14-18 December, 2009).

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Royer, J.-Y., R.P. Dziak, M. Delatre, R. Chateau, C. Brachet, J.H. Haxel, H. Matsumoto, J. Goslin, V. Brandon & D.W. Bohnenstielh, 2009. Results from a 14 month hydroacoustic monitoring of the three mid-oceanic ridges in the Indian Ocean, *Geophysical Research Abstracts*, 11, EGU2009-8341, *EGU Meeting*, Vienna, (19-23 april, 2009).

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Balanche, A., C. Guennou, J. Goslin & C. Mazoyer, 2010. Generation of hydroacoustic signals by oceanic subseafloor earthquakes: a mechanical model. *Geophys. J. Int.*, 177 : 476–480 doi:10.1111/j.1365-246X.2009.04146.x.

KDM-JUB

ESONET annual workshop: presentation by Autun Purser
ESONET steering committee meetings: participation by Laurenz Thomsen
ESONET training workshop: organization by Laurenz Thomsen, Hannes Wagner, Sibila Pandoand Katsia Patbortsava
Neptune Canada: presentation of ESONET: Laurenz Thomsen

KDM- MPIMM

Workshops/Meetings

April 2009 DM-MASOX meeting (Southampton, UK) exchange of knowledge for long-term observatories (Dirk de Beer)

June 2009 VISO workshop (Tromsö, Norway) presentation of LOOME observatory design (Frank Wenzhöfer)

Sept. 2009 LOOME recovery meeting (Uni. Gent, Belgium) discussion on recovery strategies with ROV pilots (Dirk de Beer)

Oct. 2009 All region workshop (Paris, France) presentation of LOOME observatory deployment (Dirk de Beer)

Cruises

ARK XXIV/2 RV Polarstern ROV Quest, Deployment of LOOME observatory at the HMMV (D. de Beer, A. Boetius, F Wenzhöfer, M. Viehweger, V. Asendorf)

MSM 16/2 RV Maria S Merian ROV Gent, Preparation of the observatory recovery

ISMAR

Articles

L. Pignagnoli, F. Chierici, P. Favali, L. Beranzoli, D. Embriaco, S. Monna, F. D'Oriano and N. Zitellini, (2010), "Tsunami Early Warning System: deep sea measurements in the source area", submitted to *Volume MARE* del Dipartimento Terra e Ambiente del CNR.

NERC-NOCS

NOCS conducted media outreach related to ocean observatory science objectives and deep-sea research including coverage by the BBC, United Press International, EurekAlert, and CORDIS. A new set of webpages are also under construction to consolidate information about ocean observatory science related to UK.11 and D13 regarding science objectives and modules, including the generic sensor module.

Conference talks

Ruhl, HA, L Géli, J Karstensen, A Colaço, RS Lampitt, J Greinert, O Phannkuche, and Y Auffret, Science Objectives and Design of the European Seas Observatory NETwork (ESONET), European Geophysical Union General Assembly, Vienna, Austria, 2009.

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Larkin K, HA Ruhl, et al., Benthic biology time-series in the deep sea: Indicators of change, OceanObs'09 white paper, Venice, Italy, 2009.

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Ruhl, HA, Ocean Observatories, GEOSS Workshop XXVII – Understanding the Integrated Ocean Observation System, Including Sub-surface Sensors, Bremen, Germany, 2009.

Articles

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Smith, KL, Jr., HA Ruhl, BJ Bett, DSM Billett, RS Lampitt, and RS Kaufmann, Climate and deep-sea communities, Proceedings of the National Academy of Sciences, USA (published online, November 2009).

Vardaro, MF, HA Ruhl, KL Smith, Jr., Climate variation, carbon flux and bioturbation in the abyssal North Pacific, Limnol. Oceanogr. 54: 2081-2088, 2009.

Bagley, PM, KL Smith, B Bett, IG Priede, G Rowe, J Clarke, A Walls, HA Ruhl, and DM Bailey, The DELOS project; long-term observatories in an oil field environment in the Tropical Atlantic Ocean, Ocean Observatories (book), ed. P. Favali et al., (submitted).

HCMR

TV film

Presentation of the POSEIDON-Pylos deep sea platform as part of the national marine operational monitoring system. Part of a TV film for HCMR & Greek Marine Research. Prepared for “Digital/Satellite ERT” targeting Greek audience in Greece and abroad.

Web Site

The description and data from the POSEIDON-Pylos site of the Ionian Sea are made available through the web page of the POSEIDON system (www.poseidon.hcmr.gr). The site provides, among others, access to time-series from the seabed platform either as composite graphs of the last 15 days or as raw data through direct link to the data base.

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L. Seuront, J.-P. Hermand, and J.-P. Hermand, "Optical versus ultrasonic imaging of sub-centimeter free-swimming organisms," EOS Topical Meeting on Blue Photonics - Optics in the Sea, European Optical Society, IEEE, Aug. 2009.

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ITU

Conferences organized by ITU-EMCOL

A *training workshop* on "Seafloor observation Techniques for Marine Geohazards Monitoring" was organized by ITU in Istanbul during 18-19 August 2009. More than 50 participants from different organizations in Turkey and Eurpoe ettanded the workshop. This is an important deliverable of ESONET Marmara-DM project.

An "International Symposium on 10th Anniversary of the 17 August 1999 Izmit Earthquake: An overview of the research in the Sea of Marmara region over the last 10 years" was organized at ITU in Istanbul during 17 August 2009.

The reports of the above two events can be found at the Marmara-DM project web-site: http://www.esonet.marmara-dm.itu.edu.tr

Two sessions convened by the ITU scientists Namik Çagatay and Naci Görür at the 62. International Geological Congress of Turkey during 13-17 April, 2008 in Ankara: 1) Marine and Coastal Geology, 2) Marine Geological Hazards. Several paper presentations were made in these sessions regarding the ESONET/EMSO activities in the Sea of Marmara node (see list below).

One session convened and chaired by Namik Çagatay: "Marine Geology and Geophysics" for the 2nd INTERNATIONAL SYMPOSIUM ON THE GEOLOGY OF THE BLACK SEA REGION (ISGB-2) in Ankara during 5-9 October 2009.

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Other

An ESONET training workshop on "Seafloor observation Techniques for Marine Geohazards Monitoring" and Earthquake Symposium were organized by ITU in Istanbul during 17-19 August 2009. More than 50 participants from different Turkish organizations in Turkey (Governorship of Istanbul, Istanbul Municipality, TPAO: Turkish Petroleum Corporation, TUBITAK, Scientific and Technological Council of Turkey, and MTA: Geological Suvey of Turkey) and Europe attanded the workshop. The State Minister for Science and Technology, Prof. Mehmet Ayd?n, presented the opening speech at the Symposium and was informed about the ESONET and EMSO activities at the Marmara Node. The event was covered widely with live interviews by TV channels (CNN Turk, Kanal D, ATV, Show TV) and press (Miliyet, Sabah, Hürrüyet, Vatan). Several scientists from ITU (Naci Görür, Celal Sengör, Namik Çagatay) and ESONET partners (Louis Geli, Pierre Henry, Luca Gasperini) were involved in the interviews.

A project proposal "Permanent Multidisciplinary Seafloor Observatories in the Sea of Marmara" is being currently prepared for submitting in May 2010 to the Turkish State Planning Organization (DPT) for funding.

ITU invited TPAO (the Turkish Petroleum Corporation) and MTA (Geological Suvey of Turkey) to take part in the ESONET and EMSO activities in the Sea of Marmara. An invitation letter by ITU was sent to MTA on 15 December 2009 for their collaboration in the DPT project proposal. MTA is acquiring new research vessels and ROVs that are important for the operation and maintenance of the observatories. A separate invitation to MTA was made for personnel training in marine surveys and technology involving MTA-ITU-IFREMER collaboration.

ITU contributed to a press conference held at the French Consulate in Istanbul on 15 December, at the end of the Marmesonet crusie. Initial results of the cruise were presented and the need for seafloor observatories in the Sea of Marmara was stressed. The event was covered extensively by the Turkish press and TV media. Naci Görür and Namik Çagatay gave several interviews that were published in Turkish newspapers (Miliyet, Sabah, Hürrüyet, Vatan) and broadcast on TV channels (CNN Turk, Kanal D, ATV, Show TV) from 16-18 December 2009. Namik Çagatay gave interview to a journalist from La Monde on 21) press 21 December 2009.

DEU-IMST

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Steckler M.S., Çifçi G., Demirbag, E. et al., 2009, "High Resolution Multichannel Imaging of Basin Growth Along a Continental Transform: The Marmara Sea Along the North Anatolian Fault in NW Turkey", *International Symposium on Historical earthquake and Conservation of Monuments and Sites in the Eastern Mediterranean Region, 10-12 September 2009, Istanbul, TURKEY.*

Gunay Cifci, Seda Okay, Savas Gurcay visited to Pukyong National University and Korea Ocean, Research and Development Institute and Gunay Cifci gave a seminer about ESONET and TAMAM Project between 5-16 July 2009.

Gunay Cifci, Derman Dondurur, Savas Gurcay, Selin Deniz Akhun from DEU, Caner Imren, Hulya Kurt, Duygu Timur from ITU participated to first workshop in LDEO for evaluation of the TAMAM data between 24 and 31 May 2009.

Articles

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CINTAL

Conference talks

REP10 Experiment preparation meeting held at NURC LaSpezia, IEAPM/COPPE/CINTAL meeting

5.2 Annex 2: Plan for Dissemination of knowledge

5.2.1 Exploitable knowledge and its Use

Exploitable knowledge (description)	Exploitable product(s) or Measures(s)	Sector of application	Time table for commercial use	Patents or other IPR protection	Owner and other partners involved
Long-term multiparameter monitoring at seafloor	New time series in DMs sites	Geophysics, oceanography, geochemistry	Not applicable	Not applicable	LIDO and MARMARA partnership
Data from hydrophone instrument at obsea observatory	Time series	Oceanography	2009-2010		UPC
Data from CTD instrument at obsea observatory	Time series	Oceanography	2009-2010		UPC
Video streaming from obsea camera	Video images	Oceanography	2009-2010		UPC
Audio stream (east-Sicily, ANTARES, West Med)	Audio data, time series, stats	Bioacoustics	2010		UPC
Virtual Institute of Scientific Users of Deep Sea observatories	Report	1 Data 2 Oceanography of all discipline 3 Observatories	Indefinite		All partners and oil compnies
New knowledge on operational oceanography and acoustic propagation in the fram strait	Observing systems for operational oceanography including acoustic sources and receivers	Oceanography, ocean acoustics, acoustic navigation	Parts of the ocean observing system are commercially available today and other parts are under development and may become commercial in the future		NERSC
Operation modes for the deployment of heavy equipment in the deep sea usind MODUS	Operational modes and conditions for equivalent stations like GEOSTAR	Deep sea technology	Whenever requested		BHT/INGV
Upgraded version of a multidisciplinary seafloor observatory with real-time or near real time communication	Detection of natural hazards (tsunami, earthquakes)	Oceanography, geophysics	2010		GEOASTAR consortium

5.2.2 Dissemination of knowledge including articles in press and published

Planned/Actual Dates	Type*	Type of Audience**	Targeted Countries	Size of Audience	Partner responsible/Involved
30 June 2009	Publication	Research	International		CNRS-CEREGE
November 2009	Press releases	General	France and International		CNRS-CEREGE
November 2009	Video	General	France and Turkey		CNRS-CEREGE
August 2009	Conference	Research	International	50	CNRS-CEREGE
August 2009	Poster	Research	International	500	CNRS-CEREGE
3-7 May 2009	Conference	Higher education	International	15000	CNRS-IUEM D'Eu, Brachet, Goslin, Royer, Ammann
14-18 December 2009	Conference	Higher education	International	18000	CNRS-IUEM Perrot, Goslin, Royer
11-12 February 2010	Workshop	Higher education	International	80	CNRS-IUEM Goslin, Perrot, Royer, D'Eu, Brachet
December 2009	Scientific paper	Higher education	International		CNRS-IUEM Goslin
February 2010	Exhibition, web site	General public	Europe	1000	Océanopolis
Spring/Fall 2009	ESONET Newletter	Researcher	Europe/US/Asia		KDM-MPIMM
June 2009	Poster	Researcher	Europe/US		KDM-MPIMM
November 2010	Press release	Public	USA	Large	NERC-NOCS H. Ruhl
November 2010	Press release	Public	Europe	Large	NERC-NOCS H. Ruhl
Nov-Dec 2010	Print/web news/radio	Public	International	Large	NERC-NOCS H. Ruhl
March-Dec. 2010	TV Film	General public	Greece	>10000	HCMR
2009-2010	Web site	General public	International	400 000 user sessions per month	HCMR
5-7 October 2009	ESONET General Assembly	ESONET researchers	EU & international	120	IMI
April 2009	ESFRI Roadmap projects update meeting	Higher education, research & government	Ireland	20	IMI

*Conference, Exhibition, Publications, Project web-site, Posters, Flyers, Direct e-mailing, Film/Video...
**General public, Higher education, Research Industry (Sector x)...

Planned/Actual Dates	Type*	Type of Audience**	Targeted Countries	Size of Audience	Partner responsible/Involved
14 January 2010	ESFRI Roadmap projects update meeting	Higher education, research & government	Ireland	20	IMI
January 2010	Press release-shiptime & MODOO	General public	Ireland	10 000s	IMI
April	Conference	Higher education	International	100	UAC
September	Workshop	Higher education	International	100	UAC
May 2009	Web site	General public and registered users	International	Unlimited	SRATI-UPC
May 2009	Web site	Scientific community and registered users	International	Unlimited	SARTI-UPC
10 September 2009	Euronews futuris	General public	International	Unlimited	LAB-UPC
11-12 June 2009	Workshop flyer, press, report	Researcher, press, private companies and oil industry	Norway, Europe, Japan, USA	80	UIT organized the workshop but all partners participated
Spring/Fall 2009	ESONEWS 3, 2008 cruise report for LOOME	General public, researchers…	All		UIT, AWI, IFREMER, Marum, IFM-Geomar, MPIMM
Spring/Fall 2009	ESONEWS 3, debriefing of the VISO workshop	General public, researchers…	All		UIT
11-12 June 2009	Workshop VISO	Research industry	General	80	Host: University of Tromso
21-29 June 2009	Conference	Research industry	General	40	FORTH/ICAM
21-25 Sept. 2009	Conference	Research industry, operational agencies	General	600	ESA/OceanObs09
October 2009	WS report	Research industry	All		UGOT, A. Tengberg
21/12/2009	Media briefing (LA Mond)	General public	France	30-40 Millions	ITU, IFREMER, CEREGE, ISMAR, INGV
15/12/2009	Media briefing	General public	Turkey	30-40 Millions	ITU, IFREMER, CEREGE, ISMAR

Planned/Actual Dates	Type*	Type of Audience**	Targeted Countries	Size of Audience	Partner responsible/Involved
	(CNN-Turk, NTV, ATV, TV8, KanalD, StarTV)				
17/09/2009	Press release (Hurriyet, Milliyet, Sabah, Vatan)	General public	Turkey	20-30 Millions	ITU, IFREMER, CNRS, ISMAR, INGV
17/09/2009	Media briefing (CNN-Turk, NTV, ATV, TV8, KanalD, StarTV)	General public	Turkey	20-30 Millions	ITU, IFREMER, CNRS, ISMAR, INGV
11/11/2009	Press release (Hurriyet, Milliyet, Sabah, Vatan)	General public	Turkey	20-30 Millions	ITU, ISMAR
August 2009	Conference/talk	Research	International		BU. KOERI
10/02/2010	Sky TV	Agenda	Turkey	2 Millions	Gunay Cifci
April 2009	Ocean Business09	Equipment suppliers, services providers	EU/International	+1500	SLR
May 2009	Ocean09 exhibition	Equipment suppliers, services providers, scientists	EU	1000	SLR
May 2009	Ocean09 workshop	Equipment suppliers, services providers	EU	20	SLR/IFREMER
March 2010	LEE interface	ESONET partners	All	All partners	ALTRAN/UPC
October 2010	Ocean challenge publication	Research oceanography	UK	Medium size	UNIABDN
March 2010	Oceanology international 2010	Exhibition	Worldwide	Large	UNIABDN
09/02/2010	"PESOS news" a newsletter	Companies delivering into the ocean observatory community	Europe, North-america	300	N.O'Neill, M. Miranda, C. Waldmann, JF. Rolin

Planned/Actual Dates	Type*	Type of Audience**	Targeted Countries	Size of Audience	Partner responsible/Involved
	spread by Email				
12/09/2009	Presentation of ESONET WP2 and WP9 at GEO SIF meeting Washington DC report	GEO SIF	International	20	DBSCALE
10/05/2009	Presentation of OGC/OIE experiment at GEOSS Ocean workshop, Bremen, IEEE Oceans conference	Scientists	International	40	DBSCALE and UNIHB
March 2009	Presentation	Researchers, research institute	EU, US, Canada	>40	CINTAL
July 2009	Presentation	Management, researchers	Brazil	12	CINTAL
September 2010	Conference	Scientific community			CINTAL
October 2010	Article	General public			CINTAL

5.3 Annex 3: 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	11	38	49	0	0	0
2	IPGP	4	9	13	0	0	0
4	CNRS	6	20	26	1	0	1
5	SOPAB	1	2	3	0	0	0
6	KDM	2	33	35	5	2	7
12	INGV	6	11	17	2	0	2
13	ISMAR	1	6	7	0	1	1
14	INFN	1	7	8	0	1	1
15	TECNOMARE	0	5	5	0	0	0
16	NERC-NOCS	4	14	18	0	0	0
17	HCMR	2	13	15	0	0	0
18	FORTH	0	5	5	0	1	1
19	NIOZ	1	5	6	0	0	0
20	IMI	2	5	7	0	0	0
21	UAç	6	5	11	4	0	4
22	UALG	1	3	4	0	0	0
23	FFCUL	1	7	8	0	0	0
24	CSIC						
24	UPC	4	10	14	0	3	3
25	UIT	1	3	4	0	0	0
26	NGI	0	3	3	0	0	0
27	NERSC	1	1	2	0	1	1
28	ULB	1	5	6	0	1	1
29	UGOT	0	2	2	0	0	0
30	SU	0	3	3	0	1	1
31	BHT-BERLIN	0	4	4	0	1	1
32	IO-BAS	0	2	2	0	0	0
33	ITU	1	8	9	1	4	5
34	BU.KOERI	1	5	6	0	1	1
35	DEU-IMST	1	7	8	6	7	13
36	ALCATEL	0	0	0	0	0	0
37	FUGRO	0	4	4	0	0	0
38	SLR Consulting	1	3	4	0	0	0
39	SERCEL	0	0	0	0	0	0
40	Nke	0	4	4	0	0	0
41	GURALP						
42	ALTRAN	1	4	5	0	0	0
44	UNIABDN	1	5	6	0	0	0
45	NSW	0	0	0	0	0	0
47	TESEO	0	2	2	0	0	0
49	DBSCALE	1	3	4	0	0	0
50	CINTAL	0	4	4	0	0	0
51	SEND Off-Shore	0	2	2	0	0	0
Total		63	272	335	19	24	43