Project N. 037110

NEAREST

Integrated observations from NEAR shore sourcES of Tsunamis: towards an early warning system

Instrument: STREP

Thematic priority: 1.1.6.3 GOCE (GlObal Change and Ecosystems)

D36_2: Minutes of meetings and workshops - Year two

Due date of deliverable: September 2008

Actual submission date: Sptember 30, 2008

Start date of the project: 01/10/2006 Duration: 36 months

Organisation name of the lead contractor for this deliverable: ISMAR

Project Co founded By the European Commission within the Sixth Framework Programme (2002-2006)		
Dissemination level		
PU	Public	
PP	Restricted to other programme participants (including Commission Services)	
RE	Restricted to a gruop specified by the Consortium (including Commission Services	**RE**
CO	Confidential, only for members of the Consortium (including Commission Services)	

Minutes of the 2nd mid-year NEAREST Meeting

Barcelona, May 8-9, 2008

Venue
Centre Mediterrani d'Investigacions Marines i Ambientals (CMIMA)
Consejo Superior de Investigaciones Científicas (CSIC)
Passeig Maritim de la Barceloneta, 37-49 Barcelona (Spain)

List of Participants

Organisation	Participant name
ISMAR	Nevio Zitellini
	Francesco Chierici
	Luigi Vigliotti
	Gabriela Carrara
FFCUL	Maria Ana Baptista
	Lìvia Moreira
	Cesar Andrade
	Pedro Terrinha
	Filipe Rosas
	Vasco Valadares
	Conceiçao Freitas
CSIC	Juan Jose Dañobeitia
	Valenti Sallares
	Rafael Bartomolé
	Toni Bermúdez
	Marc Ambrós
	Sara Martínez
	Alexis Vizcaino
	Josep Gallart
	César R. Ranero
	Claudio Lo Iacono
AWI	Wilfried Jokat
	Wolfram Geissler
UBO	Marc-André Gutscher
	Boris Marcaillou
INGV	Paolo Favali
	Laura Beranzoli
	Davide Embriaco
UGR	José Morales Soto
	Jose Benito Martín
	Daniel Stich
	Flor de Lis Mancilla
IM	Fernando Carrilho
CNRST	El Mouraouah Azelarab
	Mohamad HAFID
	Toto El Arbi
	Abdelouahad Birouk
XISTOS	Herculano Caetano
ASTER	Maria Grazia Zucchini
ASTER	Alessandra Borgatti
ZDF (press)	Heike Schmidt

Day 1 - Thursday 8 May 2008

Opening Session

Presentations available on the Nearest website: *Barc_intro_Danobeitia*
Barc_intro_Zitellini

After a welcome address, Juan Jose Dañobeitia from the hosting organisation (CSIC) presented the Agenda of the Meeting and showed some pictures on the sea trial and the Spanish deep sea equipment. Some practical information were communicated to the partners attending the meeting dinner.

The project Coordinator Mr Zitellini provided an introduction of the meeting agenda, illustrating the structure and the scope of each meeting session. Each sessions was aiming at achieving a complete state of the art of the project, sharing results, discussing critical aspects and identifying corrective actions for a good prosecution of the project in the following months.

The Coordinator presented the results of the first year reports delivered to the European Commission as described in the Intermediate Payment Letter. He explained that the reports submitted were in accordance with the requirements of the contract and in about two weeks the payment of the Commission's pre-financing was expected.

Moreover, he provided an overview on the main steps of the following months of project activity, especially regarding the instruments recovery in August and the refraction campaign in November.

Some practical information on the meeting organisation were communicated to the partners.

Finally, the Coordinator provided a brief updating on some collaborations with the projects ESONET – LIDO and TRANSFER. The link to Euronews website suggested by the Commission officer was presented to the partners.

Presentation and discussion of the WP1 results

Presentations made by Pedro Terrinha – FFCUL, Filipe Rosas – FFCUL, Mohamad Hafid-CNRST

Presentations available on the Nearest website: *Barc_WP1_Terrinha*
Barc_WP1_Rosas
Barc_WP1_Hafid
Barc_WP1_ElArbi

The results of WP 1 were presented.
P. Terrinha presented the main geological results derived from the analyses of the whole reflection seismic lines and stratigraphical datasets acquired during the past years in the area of the Gulf of Cadiz. All the MCS lines were calibrated by the available stratigraphic data with the aim to characterize the active faults from geometric, kinematic and chronological point of view. The study area was divided in some tectonic domains and the interpretation of the MCS lines was used to correlate, where possible, these domains. Adjoining data from the literature like epicenter locations, velocity models, gps data, focal mechanisms and so on were integrated. On the basis of the interpreted tectonic framwework the main seismogenic structure of the area were individuated and, as foreseen by the project, the active tectonic structure map and a general tectonic model were produced.
In addition an analogic structural experiment (sand boxes) was shown by F. Rosas performed on the critical tectonic area evidenced by Terrinha in its presentation. Various models spanning from simple shear deformation to low or high angle transpression were presented to explain the morphological and the tectonic evidences visible on the new bathy-morphologic map. The results of the experiment were very interesting and a discussion

followed had the main argument the relationships among the tectonics, the faulting, the fault locations and the seismicity in that particular area.

The Hafid's presentation shown the field work on the netoctonic structure present on the Moroccan onshore. The aim were to correlate the onshore and offshore tectonic structure and mapping of the potential onshore active faults in the surrounding of Lalla Mimouna hills in order to Install a mobile seismological network by the CNRST-UIT team.

E. Toto presented the results of a geophysical survey performed near Lalla Mimouna village. The aim of the survey was the study of the recent activated fault and the reconstrution of its geometry and its seismic potential at depth. The applied geophysical tomography methods efficiently captured the main structures of the investigated site revealing the presence of thrust sheets that characterize the Moroccan chain. The faults are displacing also the superficial unit rocks, which point to very likely recent activities along these structures.

Per each scientific workpackage (WP2 to WP8) an ad hoc session has been organized.
Each session has been opened by a brief report from the WP leader, outlining activities carried out during the third semester of the project, main goals achieved, deliverables produced and criticalities met (including deviations to original time schedule).
The second part of each WP session has been devoted to planning the activities to be carried out - task per tasks- in the following period, and in particular in the fourth semester of the project. A proposal was presented by the WP leader and discussed at project level, pointing out the main critical tasks to be faced.
Specific problems to be put at the attention of the Steering Committee was pointed out as well.

WP2 Analysis and planning: Tsunami source characterization
Presentations made by WP 2 Leader: Valenti Sallares – CSIC, Marc-André Gutscher – UBO
Presentations available on the Nearest website: *Barc_WP2_Sellares*
Barc_WP2_Gutscher

The activities of the WP2 were described with an overview of the objective and the starting point, the workplan and its goals. Before a detailed presentation of each tasks started, a list of the staff engaged, meetings, papers produced and research stays were presented.

CSIC activities concerning to processing of MCS legacy data have mainly concentrated on the processing of the SWIM-06 data acquired in June 2006. In particular, Rafael Bartolomé and Sara Martínez from CSIC have PSDM a total of 10 MCS profiles. The contributions of all partner involved (UBO, Ismar and FFCUL) was presented.

As for the Wide-angle reflection/refraction acquisition experiment, the task will actually start with the seismic refraction cruise. The cruise has been slightly delayed due to vessel over-commitment. It will definitively take place between October 27th and November 13th, 2007. The starting and final port have also changed: it will be Cartagena instead of Cadiz, so transits to and back from the study area will be 48 hours longer in total. This has significantly modified the initial plans, so only 2 out of the 3 initially planned profiles can be most probably shot. The number of OBS available will be 36.

Deviations from the project workprogramme
No significant deviations with respect to the initial schedule has been overseen.

Deliverable D4 (PSD-migrated MCS profiles) was planned to be delivered in month 19 instead of 18 to fit with the 18 month meeting. This extension will not affect development of the other tasks since the WA seismic cruise will not occur until month 24.

As for the refraction campaign, during the Steering Committee the logistic and participation will be discussed.

In order to discuss and decide the exact positioning of the OBS during the planned cruise, Marc-André Gutscher gave details on his presentation on the SW Iberia region: seismicity and active faults. A discussion occurred among the partners about the mapping of some gravitational structure and their eventual seismogenic role.

WP3 Analysis and planning Seismological monitoring
Presentation made by WP3 Leader: Wolfram Geissler -AWI
Presentation available on the Nearest website: *Barc_WP3_ Geissler*

The speaker reminded some details on the main goals and activities foreseen in WP3. In particular, one of the milestone was the deployment of 24 broadband ocean-bottom seismometer (OBS) for 12 months in the Gulf of Cadiz. This allowed to have a good data set for seismicity. A map of the deployed OBS was showed.

As for the expected results, the most important are:
- enhanced monitoring of seismicity of offshore fault zones
- completion of existing geoscientific data
- better insight into the seismic risk of the Gulf of Cadiz
- location reliability of future early warning system

The instrument used was the Lobster (Longterm Ocean Bottom Seismometer for Tsunami and Earthquake Research) and some technical details and recording parameters were reminded. As regards the seismic monitoring in the Gulf of Cadiz area, the FFCUL partner CGUL, in collaboration with IGIDL, pursued the continuous data collection on land stations. For the purpose of NEAREST two new BB stations were installed in 2007, one in Messejana and the other in Pedrogao. The UGR partner carried on some other activities such as: the study of seismic anisotropy by using teleseismic phases SKS recorded at 16 seismic stations of South Spain and north of Africa, the receiver functions study to define the crustal and upper mantle structure in the Gibraltar arc region, the revision of the seismicity in the Gulf of Cadiz in the period between October-2007 to March 2008 and a detailed study of the January 11th, 2008 Mw=4.4 earthquake. The data recorded illustrated the spectrograms of possible local earthquakes in the time period. A seismogram example was showed.

Progress toward the objectives:
Tasks 3.1 (Application for the broadband OBS), 3.2 (Preparation of the cruises) and 3.3 (Cruise for deployment of the broadband OBS) were already done before the Marrakech meeting. Only the last OBS were deployed in November 2007.

Next activities concern:
Task 3.4 – Cruise for recovery of the broadband OBS
- Planning/scheduling of recovery cruise in work by ISMAR
- Ordering of sub-contracted technicians for recovery by AWI
- Ordering of mobilisation, demobilisation, transportation and insurance by AWI

Task 3.5 – Pre-processing and database compilation
- Evaluation of seismic velocity (sedimentary) structure beneath the OBS-sites
- Evaluation of seismological onshore station distribution (also contribution also to WP5), which were not deployed within the current project – agreements of data exchange !
- Verification of access to digital data
- Preparation of scripts/lists for a fast pre-processing after the recovery of the instruments (OBS) in August/September 2008

Task 3.6 – Processing and interpretation of the OBS data
- Task will start in 2008/09

The distribution of the IberArray TopoIberia was showed and a detailed table on the scheduling of the future activities was presented. The speaker anticipated the main issues to be discussed during the Steering Committee with regard to the recovery cruise. These are: the time limit of the OBS insurance, the time for transit between stations, the time at each

station, the data transfer within project, the data analysis for local seismicity and teleseismic events and the data exchange with other projects.

WP4 Analysis and planning Tsunami signal detection

Presentations made by WP4 Leader Laura Beranzoli – INGV and Francesco Chierici- ISMAR
Presentations available on the Nearest website: *Barc_WP4_Beranzoli*
Barc_WP4_Chierici

The presentation started with a general overview on the objectives of the WP which is aimed at carrying out geophysical and oceanographic measurements on the seafloor and in the water column in the nearby of near-shore tsunamigenic sources for the identifications of tsunami signals. The seafloor and water column measurements will be performed by means of a deep seafloor multiparameter observatory of GEOSTAR type, developed in previous EC projects and will be transmitted to shore in real-time (some essential parameters).

The tasks 4.1 to 4.3 were already completed, while task 4.4 was at that time running. The task concerns the preparation planning and implementation of a long-term (about 1 year) mission and cruises for deployment and recovery. Next task will be about the data back-up, the quality checks and the preparation of the data base to be integrated with other data and the pre-analysis of 'parent' tsunami signals.

An image on the experiment was showed and described and the collaborations with the other partners involved was underlined. In particular, GEOSTAR includes a prototype of tsunameter developed within a collaboration between ISMAR and INGV. The tsunameter is based on three coupled sensors: a three comp. broad–band seismometer, an accelerometer and an absolute pressure gauge.

The status of the deliverables was showed and the next ones were described: D15a recovery cruise of the deep-sea platform and data quality checks and D15b cruise report both scheduled at month 24.

As for the status of GEOSTAR, the main steps were that in October INGV was able to query GEOSTAR status and download some data. The number of events recorder by the observatory revealed a good working of the event detecting system during September (no anomalous reboots of the central unit, some tenth of seismic events, good state of acoustic battery level). GEOSTAR observatory is presently working autonomously storing all sensor data on board. All data will be obtained after the observatory recovery.

<u>Deviations from the project WorkProgramme</u>

The main deviations were:

1. *Bouy Acoustic communications malfunctioning* which occured immediately after the GEOSTAR deployment
   Remedial action: the acoustic modem and the electronics of the buoy were removed and shipped to laboratory in order to set up again the communication chain. The system was restored and re-configured.
   On 17 October a new cruise took place in order to rebuild the communication on the buoy.
2. After the setup of the buoy electronics and the reconfiguration of GEOSTAR via acoustic communications (17 October 07), the acoustic system of the abyssal observatory hang up revealing a *problem of the seafloor acoustic modem*.
   Remedial action: Contacts with the acoustic communication supplier (SERCEL) started soon in order to programme an upgrade of the modem communication system to a new

and more stable release of the hardware and software configuration to be used in the next deployment.

3. *Buoy drift and ARGOS alarms emission to INGV* (19 October)
   Extraordinary cruise for the buoy recovery (19-22 October) Buoy mooring cut and mooring cable at sea

Some pictures of the buoy were showed and the status of the mooring line was described.

Since the events occurred (acoustic instability, buoy drift) call for a revision of the WP4 activity according to the available resources, a proposal to find additional resources for a Demonstration Mission was presented within ESONET a Network of Excellence funded by the European Commission and to which some Nearest partners participate. The proposal was accepted. Its name is LIDO - LIstening to Deep Ocean and the participating partners are: CSIC, FFCUL, INGV and ISMAR.

Another proposal concerned a new deployment after the recovery planned in next August: GEOSTAR will be refurbished and newly deployed (tentative time: spring 2009) for a new mission in order to fulfil the original project objectives. The place will be R/V Sarmiento de Gamboa.
To sum up the next activities will be:

- GEOSTAR recovery (August r/v Urania)
- Recovery of the buoy mooring
- Restoration of the buoy and new deployment (next year)
- Integration of seismic data in the marine data-base of the OBS data (WP3 – seismological monitoring)

F. Chierici presented ISMAR-INAF work developed for the WP4 and WP7. In particular was described a 2-D physical-mathematical model for the coupling between water column and sea bottom. The water column was treated as inviscid fluid with local compressibility, while the sea bottom was considered as porous media whose dynamics was governed by the Darcy equation. The hypothesis of small amplitude waves with respect to the water column height was introduced . This lead to linear hydrodynamics equations. The analytical solutions of this model found were in terms of the Fourier and Laplace inverse transform and a numerical code for the integration of these operators was developed. In particular a stability criteria was adopted for the numerical integration of the inverse Laplace transform. The analysis of the output results showed the key role plays in the tsunami generation by the local compressibility which introduces acoustic signal overlapped on the incompressible tsunami trend. Moreover the simulation results showed the low pass filter effect (with respect to the x-horizontal spatial coordinate) of the porous sea bottom on the free surface signal.

WP5 Analysis and planning – Data integration / Integrated Tsunami Detection Network

Presentations made by WP5 Leader: Josè Morales – UGR, Daniel Stich – UGR and Abdelouahad Birouk - CNRST
Presentations available on the Nearest website: *Barc_WP5_Morales*
Barc_WP5_Stich
Barc_WP5_Birouk

As for Task 5.1 Establishment of 3 data collectors for real-time automatic processing of data, the 3 collectors has been set up: one in Portugal, the other in Spain and a 3rd one in Morocco. This will involve: Waveform sharing between data collectors, integration of seismic data including OBS's; Integration of tide gauge data; Integration of multiparameters data from seafloor observatory.

A prototype of a data collector is already running in the each centre. It is based on SEISCOMP (2.5 and 3.0) / SEEDLINK technology implemented on a Intel/Linux platform, and it is already concentrating data, in real-time, from broad-band, short period seismic stations in Portugal Mainland, South west and Centre of Spain and Morocco. Details on each Dataconcentrators were provided.
Some efforts have been taken in order to integrate data from three tide gauges located at Cascais, near Lisbon on the western coast of Portugal Mainland, Lagos, in the southwestern coast of Algarve, and Sines, located between San Vincent cape and Lisbon.
Some details on the software, the automatic and interactive tools and the data processing were provided:
Seismic anisotropy in southern Iberia and northern Africawas investigated using shear waves splitting of teleseismic SKS phase. The anisotropy parameters for the upper mantle of the region is retrieved. 16 permanent broad band stations distribuited in the region were used in the analysis. Three different methods were used to analyze the data: cross-correlation between radial and transverse component (rotation correlation), minimum energy and minimum eingenvalue. Results were divided in three different classes (good, fair and poor) depending of the quality of the seismogram, signal/noise ratio of the phase, energy of the transversal component

Daniel Stich presented the source estimated in the Gulf of Cadiz. While Birouk gave an overview of the CNRST contribution to the WP5 activities as for the Seismic Data sharing and integration with details on the Rabat station, the data acquisition and processing system and the acquisition and installation of near real time digital tide gauge.

WP7 Analysis and planning: Modelling of tsunami impact in SW Portugal
Presentation made by the WP 7 Leader: Maria Ana Batipsta – FFCUL
Presentation available on the Nearest website: *Barc_WP7_Batipsta*

The tasks 7.1 and 7.2 were completed, so the presentation was mainly concentrated on tasks 7.3 to 7.5 and on the results presented in deliverable 25.
Tsunami hydrodynamic modeling was performed with an adopted version of the COMCOT code named COMCOT-Lx. The code solves both linear and non-linear shallow water equations on a dynamically coupled system of nested grids using finite difference numerical schemes. The simulation domain covers the eastern part of the Atlantic Ocean offshore Morocco and the Gulf of Cadiz, for the most prone tsunami generation area.
Some details are showed on the moving boundary scheme, the benchmark testing and the model earthquake. In particular, the speaker showed and described pictures from the simulation of the 1755 tsunami in the “Boca do Rio” area and along Algarve. Comments on some different modelling of tsunami impact in Casablanca were provided.

As for the Implementation of a numerical tsunami model for SW Portugal, the model performs well and results for the test areas agree with historic data. Both coastal areas in SW Portugal and Morocco are susceptible to tsunami wave inundation. All rupture mechanisms tested produce inundation of Casablanca harbour on an extension of approximately 1 km inland. Tsunami flow depths are from 2 to 8 meters at Casablanca with a maximum flow depth of about 10 meters obtain to model 2 which has a source slip of 20 metre, while the others have slip values of 10-13 meters. In all cases the maximum run up is compatible with the value of the slip of the rupture mechanism.

WP6 Analysis and planning – Paleotsunami and Paleoseismic records
Presentations made by Cesar Andrade – FFCUL; Luigi Vigliotti – ISMAR, Alexis Vizcaino – CSIC and Azelarab El Mouraouah - CNRST
Presentations available on the Nearest website: *Barc_WP6_Andrade*

Barc_WP6_Vigliotti
Barc_WP7_Vizcanio
Barc_WP7_ElMouraouah

The speaker presented the objectives of the WP. They are in particular:
- to map locations in Portugal, Spain and Morocco with high potential for preservation of records of past tsunamigenic inundation; surveying and sampling of onshore deposits;
- to locate submarine deposits in the Gulf of Cadiz eventually related with tsunami activity; coring and sampling of the sedimentary record;
- to characterise deposits using geological proxies to improve criteria for recognizing tsunami deposits and reconstruct parameters of inundations /tsunami waves
- to constrain the age of the tsunamis/earthquakes recorded on sediments using radiometric and luminescence methods;
- to propose a model of recurrence interval for Holocene large earthquakes and tsunami events occurred in Gulf of Cadiz with implications for the assessment of seismic and tsunami hazards in the SW Iberian Margin.

Some pictures of the Portuguese coastal section of Portimão - Ferragudo are showed.

Luigi Vigliotti presented the paleomagnetic analysis of the sediments collected in Boca do Rio. This analysis proved to be very important although quite difficult because of the uncertainty to recognise the tsunamigenic deposits. The work was focused on different characterisations explained and discussed during the presentation.

Azelarab ElMouraouah summarized and commented the Workshop that took place in Rabat in March 2008. The field trip was devoted to the presentation of new observations relevant to the Moroccan Atlantic coast as well as sampling in two potential sites (for details see the Minutes of the Rabat Workshop on the nearest web site, section workshops).

Alexis Vizcaino presented the off-shore paleoseismic studies (Turbidite paleoseismology) with details on the different sediments, measures, new depth model approaches and regional correlations.

From a managing point of view, due to the temporary absence of Eulalia Gracia WP leader the need of a coordination between the partners involved in this WP has been asked by the Coordinator in order to collect the different contributions needed for the reporting. Cesar Andrade from FFCUL agreed on being in charge of the collection of the reports.

WP8 Analysis and planning – Feasibility study and prototype for an EWS
Presentation made by Herculano Caetano - XISTOS simulation

The speaker presented the main progresses made with regards to the simulator. The simulator was showed with its objectives: training, validation data and as a rescue service able to manage a catastrophic situation. A description of the main characteristics of the simulator were provided: independence from the application, ease to use and openness of the system.
Images and some simulations with different parameters were illustrated to show the different effects on people, buildings, industrial areas, etc.
During the discussion, the need to translate the language of the simulator in English has been stressed and agreed.

Closing remarks (definition of the list of issues to be discussed by the Steering Committee on Friday 9th May)
(Nevio Zitellini -ISMAR)

WP9 Analysis and Planning: Circulation of project information to end-users
Presentation made by WP9 Leader: Nevio Zitellini – ISMAR and Gabriela Carrara - ISMAR
Presentation available on the Nearest website: *Barc_WP9_Carrara*

As for the progress towards objectives, the task 9.1 Project communication was completed in the previous period so as task 9.2 Project web site which is anyhow maintained periodically. The speaker underlined that a new section dedicated to the dissemination was created. This will be developed and improved during the next months with the contributions of all partners.
A brief remark on the Contact database was reported from the Steering Committee session reminding the commitment from the PIs to assure a larger cooperation between the partners.

The diffusion plan, as foreseen, includes two different actions: the first one is the diffusion of the knowledge inside the scientific community and in the second one the knowledge dissemination is addressed to a non specialistic public. The contribution to the diffusion comes mainly from:
- the NEAREST partners participation to the national and international scientific congresses;
- the production of various scientific papers published on international journals and thematic volumes (i.e. Marine Geology , Journal of Marine and Petroleum Geology, Tectonophysics, etc) or on not SCI journals.

The dissemination toward a non specialistic public has been done, in each NEAREST partner country, by radio interviews and TV appearances, internet newsletters and newspaper articles.

As for ISMAR activity, the main actions were addressed to very young people. For this purpose:
- ISMAR is participating in educational projects in schools that include the visit to the ISMAR Institute, brief lessons or talks on tsunami and the Nearest project and distribution of dissemination materials tailored on the age of the audience.
- some Italian scientific museums have been contacted in order to perform “permanent” exhibitions (for a period that can span from one week to some months) about tsunamis argument and the related NEAREST project.

Following the suggestion by NOOA and UNESCO organizations, a kit of tsunami dissemination materials were prepared to be used (some posters on tsunami meaning and behaviour written in clear, simple and impressive language; colouring albums for primary school, booklets for secondary school students, ect.). Some examples of these materials were showed. The speaker solicited translations of the documents so they will be available to a wider public.
The presentation has been concluded with a brief mention to the participation of ISMAR and INGV to the congress Geoscience Congress 2008 in Oslo with a stand and exhibition of audiovideo material and dissemination materials at different levels.

Day 2 - Friday 26 October 2007

Financial and administrative issues

The first session of the morning was addressed to project PIs, and their principal collaborators in the management of the project.

First of all, following the announcement made by N. Zitellini the day before, Aster provided details about the approval of the first year Nearest report from the Commission, enabling the second payment from the Commission, that is expected by the end of May 2008. The method of calculation of the amounts to be transferred to the partners was illustrated as well, pointing out different situations, but no criticalities.
Secondly, Aster presented the results of the updated forecast of expenses for year 2 requested to all partners in March 2008. Although 3 partners have not provided their forecast yet, the level of expenditure of the project is expected to reach the minimum amount necessary to obtain the last intermediate payment from the Commission, in spring 2009.
It was recommended for the next financial reporting, that will be prepared in October 2008, to respect exactly the procedure that will be prepared by Aster, making use of the specific template provided by Aster as well. The financial reporting procedure will be available from September 2008 also on the Nearest website.
Finally Aster illustrated the list of reports due to the Commission by 14 November 2008, which are presented in the following table, indicating the role of the different partner in the elaboration of the documents:

Acronym	WHAT	WHO
ReportPAR	**Periodic Activity Report** Including	Coordinator and WP leaders
	⇒ Publishable executive summary	coordinator
	⇒ Core report	WP leaders for section 2
	⇒ Dissemination + use plan	coordinator with contribution from all partners involved in dissemination
ReportPMR	**Periodic Management Report** Including: ⇒ List of activities performed per WP ⇒ Justification of resources ⇒ TABLE 3 – TABLE 4 ⇒ FORM C: Excel file and original signed cpy ⇒ Summary financial report *(coordinator -Aster)*	ALL
ReportCDR	**Periodic report on the distribution of the Community's contribution**	Coordinator

The prompt provision of the missing six-monthly reports was agreed with each interested PIs (CSIC, FFCUL, CNRST).

Steering Committee Meeting

The second session of the morning was addressed to the NEAREST Steering Committee meeting, involving only the responsible members for each project partner, plus some observer assistants. During the SC meeting the main critical issues of the forthcoming period were tackled.
The detailed report on the Steering Committee meeting is available in a separate specific file.

Tsunami warning and mitigation systems in NorthEast
Presentation made by Fernando Carrilho – IM
Presentation available on the Nearest website: *Barc_WP5_Carrilho*

The speaker presented the recent activities with regards to the NEAMTWS – Tsunami Warning and Mitigation System for the North-Eastern Atlantic, Mediterranean and Connected Seas. A description of NEAMTWS architecture was provided with details of the proposed seismic network.
The decisions and recommendations from the 4th ICG/Neamtws Assembly that took place in Lisbon has been:

- to improve seismic monitoring capability in North Africa
- to establish a Team-Task to define the RTWC architecture, prepare developing plans and evaluate costs and possible finantial contributions
- to harmonize methodologies and possibly software (Seiscomp 3.0 offered by Germany was accepted)
- to start a test-phase between the RTWC pre-candidates: INGV (Italy), NOA (Greece), KOERI (Turkey), BGS (UK), IM (Portugal), CEA (France) and IGN (Spain)
- and that the RTWC must have on duty sea level measurements expertise staff

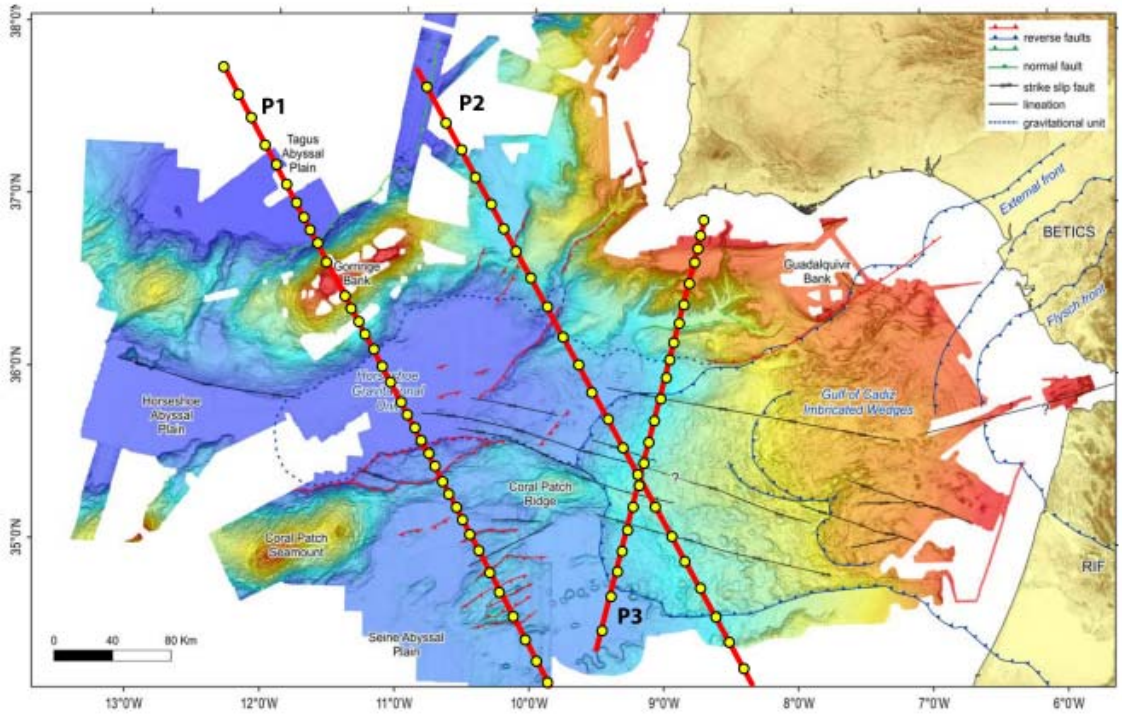
Nearest-Seismic Refraction Survey
Session coordinated by Valenti Sallares –CSIC, Toni Bermúdez- CSIC
Presentations available on the Nearest website: *Barc_SeisRefraSurvey_Sallares*
Barc_obs_Bermudez

The presentations were mainly focused on:

- description of the vessel and its potentiality
- description of the instruments (OBS from the French group by Boris Marcaillou and from Spainish one by Toni Bermúdez)
- definition of the priority scientific objectives/seismic lines
- issues such as navigation permits (Portugal/Morocco representatives), TV permits/logistics, possibility of changing port and scientific/technical crew

The definition of the refraction lines has been postponed to a restricted meeting scheduled in the afternoon. The participant were:
Nevio Zitellini
Valenti Sellares
Marc-Andrè Gutcher
Wilfried Jokat
Wolfram Geissler
Pedro Terrinha

The main decision taken were:
- The acquisition of two main refraction seismic lines located in the Gulf of Cadiz and their priority (as shown in the following figure).



- There was consesnus in that the more important line is line P1.
- The deployment of all available OBSs (36) along the line P1.
- After the acquisition of line 1 will be decided the next one (either line P2 or P3). No order of preference yet between these 2 lines. And the number of OBS along these lines will also depend on the time available and the whether conditions.

Closing remarks by Nevio Zitellini - ISMAR

The coordinator communicated to the general assembly the dates for the next meeting which has been scheduled for the October 9th and 10th 2008, taking into consideration dates of the Nearest cruises, availability of the hosting organization and in general of all partners, and need to carry out a detailed assessment of the second year results in view of the reports to be issued at the beginning of November. The meeting will take place in Berlin, and will be arranged in collaboration with TFH.

Minutes of the NEAREST Meeting

Marrakech, October 25-26, 2007

Venue
Faculté de Médicine et de Pharmacie
Université Cadi Ayyad
Marrakech (Morocco)

List of Participants

Organisation	Surname	Name	25 October	26 October
ISMAR-BO	Zitellini	Nevio	X	X
	Chierici	Francesco	X	X
	Carrara	Gabriela	X	X
	Vigliotti	Luigi	X	X
FFCUL	Baptista	Maria Ana	X	X
	Matias	Luis	X	X
	Moreira	Lìvia	X	X
	Andrade	Cesar	X	X
	Mendes Victor	Luis	X	X
	Omira	Rachid	X	X
	Terrinha	Pedro	X	X
	Freitas	Conceiçao	X	X
	Valadares	Vasco	X	X
CSIC	Gracia	Eulalia	X	X
	Sallares	Valenti	X	X
	Lario	Javier	X	X
AWI	Geissler	Wolfram	X	X
UBO	Maad	Nissrine	X	X
INGV	Favali	Paolo	X	X
	Beranzoli	Laura	X	X
UGR	Morales Soto	José	X	X
	Martín	Jose Benito	X	X
	Stich	Daniel	X	X
	Mancilla	Flor de Lis	X	X
CNRST	El Mouraouah	Azelarab	X	X
	Kasmi	Mohamed	X	X
	Iben Brahim	Aomar	X	X
	Benammi	Mohamed		X
	El Arbi	Toto	X	X
Faculté des Sciences de Rabat	HAMMOUMI	Abdellah	X	X
Protection Civile	Alaoui Smaili	Larbi	X	X
Ministère de l'Habitat et de l'Urbanisme	Sabri	Hayat	X	X
Gendarmerie Royale	Ammari	Mohamed	X	X
	Malyana	Younes	X	X
Office National de l'Electricité	El Kouri	Fouad	X	X
ASTER	Zucchini	Maria Grazia	X	X
	Borgatti	Alessandra	X	X
Advisors	Titov	Vasily	X	X
	Mikada	Hitoshi	X	X

Day 1 - Thursday 25 October 2007

Opening session

After the welcome address from the hosting organisation (CNRST), the meeting was opened by the project coordinator Mr. Zitellini. He provided an overview of the meeting agenda, illustrating the structure and scope of each meeting session, aiming at achieving a comprehensive state of the art of the project first year of activities, sharing results, discussing criticalities and identifying necessary solutions for a good execution of the project in the next months. A specific mention was given to the periodic reports to be prepared for the first reporting period underlining the importance of this phase as a check point for the progress of the project.
Finally Mr. Zitellini introduced to the partners Mr. Mikada and Mr. Titov the selected advisors invited to give suggestions and an outside view of the project achievements.

WP's state of the art and planning sessions

Per each technical workpackage (WP1 to WP9) an ad hoc session took place during the meeting.

Each session was opened by an introduction from the WP leader, outlining activities carried out, main goals achieved, deliverables produced and criticalities met (including deviations to original time schedule). In most cases the WP leader invited further speakers to illustrate specific aspects taken into consideration during the WP implementation.

The second part of each WP session was devoted to the activities planning - task per tasks- for the following period, corresponding to the second year of the project. A proposal was presented by the WP leader and discussed at project level, pointing out the main critical tasks to be faced.

Most presentations were supported by Power point slides or PDF files, available on the project website (http://nearest.bo.ismar.cnr.it/).

WP2 Analysis: Tsunami source characterisation (Leader: CSIC)

presentations made by Valenti Sellares -CSIC
Presentations available on the Nearest website : WP2_Marrakech_11_07_CSIC

The starting point for this workpackage was the state of knowledge (based on the data acquired in the area in the last 15 years) concerning location, geometry and characteristics of main active, potentially tsunamigenic faults identified in the area based on WP1 tectonic map.

As for the goals achieved the main are

- mapping the deep crustal and upper mantle structure, so that geodynamic models of the area (key to understand tectonics) can be tested;
- determining the location and crustal-scale geometry of the main fault surfaces accommodating plate convergence;
- relocating local seismicity that will be recorded in WP3 and relate earthquake activity with tectonic strain;
- constraining physical properties of structural domains and tectonic features based on seismic velocities.

Task 2.1 Reprocessing and pre-stack depth migration of existing Multi Channel System (MCS) data

The activities for this period have been concentrated on the processing of the SWIM-06 data acquired in June 2006 and a specific description of the Active Fault Map of the Gulf of Cadiz was provided. For each partner involved a brief description of the role played and the staff employed was provided.

No significant deviations with respect to the initial schedule have been foreseen.

It was suggested to extend the task two more months (up to month 24) in order to give more time to write scientific papers. This extension will not affect development of the other tasks.

Task 2.2 Wide-angle reflection/refraction acquisition experiment

Since the task wasn't started so far, its presentation was focused on some preliminary aspects such as the scheduling of the Nearest-Seis 2008 cruise and the instrumentation required.

Significant modifications on the scheduling was pointed out since the planned Wide-angle seismic survey (Nearest-Seis) has been delayed to October-November 2008 and the task has to be postponed to months 22-26.

Deliverable D5 (cruise report) would therefore be delivered at the end of the cruise (Month 25 instead of 14). Milestone M3 (end of processing and experiments at sea) should be moved from month 24 to month 28.

Task 2.3 Processing, modelling and interpretation of wide-angle seismic data

This task will start once the Nearest-Seis seismic cruise will finish (month 25). Up to now Sergi Ventosa have had a Nearest-funded 11 months grant during which he has developed two different signal processing specially designed to enhance signal-to-noise of marine Wide-angle seismic data. This filters will be included in the processing sequence of the Nearest-Seis data.

Due to the cruise delay, the processing, modelling and interpretation tasks will be delayed accordingly. Deliverable D6 (velocity and density models) should be therefore postponed to Month 34 and the related Milestone M4 (end of OBS modelling) should be moved to month 34.

Critical aspects

It was stressed the importance of taking in careful consideration:

- the selection of PSDM profiles
- the number of the OBS to perform the experiment (minimum 20; ideal 40)
- the selection of the WAS profiles

WP3 Analysis Seismological monitoring (WP3 Leader: AWI)

presentations made by Wolfram Geissler - AWI
Presentations available on the Nearest website : WP3_Marrakech_11_07_AWI

Task 3.1 - Application for the broadband OBS

The application BB-OBS at the German instrument pool was successful as well as the planning and following execution of the cruise for the deployment of BB-OBS.

During the deployment, a problem with 2 OBS was occurred so it was planned to deploy them by another vessel until end of November.

Task 3.2 - Preparation of the cruises

The preparation of the cruises was completed by ordering of consumables (anchor, batteries, etc.), sub-contracting technicians for deployment and proceeding with the mob/demobilisation, transportation and insurance aspects.

Task 3.3 - Cruise for deployment of the broadband OBS

The task included the following activities:

- preparation of OBS on land in Faro and onboard RV preparation Urania
- cruise with RV Urania, Faro August 28th--September 4th2007
- deployment of the OBS August 29th - September 2nd 2007

The cruise report was already in progress to be available at the due time.

WP4 Analysis Tsunami signal detection (WP4 Leader: INGV)

presentations made by Laura Beranzoli – INGV and Paolo Favali – INGV
Presentations available on the Nearest website : WP4_Marrakech_11_07_INGV

Task 4.1 Definition of sensor requirements and sensor selection; requirements of the detection software (e.g., detection algorithm, triggering threshold, messages) was completed within month 8

Task 4.2 Design and development of modifications (e.g., sensor supports of the frame); design and development of the software was completed within the end of month 8

Task 4.3 Integration of new sensors/devices and new software in the seafloor observatory, tests of the functionality in laboratory was completed within the beginning of month 11

Task 4.4 Preparation planning and development of a long-term mission; cruises for deployment and recovery
The ship time initially expected for month 12-13 11-12 (August 15-September 25) was assigned for the period 10 August – 5 September. The release of deliverable D13 "Deployment procedure for the deep-sea platform" -Operational procedures" was anticipated to month 10.

The cruise for deployment of GEOSTAR observatory and the surface buoy was successfully performed on month 11 (August 2007) and deliverable D14 "Deployment cruise of the deep-sea platform and cruise report" delivered in month 12.

After the reception on store of the first automatic messages from GEOSTAR to shore through the buoy, the corruption of the messages was discovered and while the deployment cruise was going, a failure in the buoy acoustic modem was discovered.

The modem was dismounted together to the buoy electronics to fix the malfunctioning. An additional cruise on the buoy deployment site was soon planned to take place by mid October 2007 with a fast ship from Lagos harbour and is aimed at for the restoration of the acoustic link.

The task is in progress as it includes the cruise for GEOSTAR recovery.

Contractors involved: INGV, ISMAR, TFH.

Task 4.5 Data back-up, quality checks, preparation of the data base to be integrated with other data; pre-analysis of 'parent' tsunami signals
One of the main next step will be the integration of seismic data in the marine data-base of the OBS data (in connection with WP3 – seismological monitoring)

Some videos and photos on the Urania campaign were showed.

WP5 Data integration / Integrated Tsunami Detection Network (WP5 Leader: UGR)

presentations made by Jose' Morales – UGR
Daniel Stich -UGR
Presentations available on the Nearest website : WP5_Marrakech_11_07_UGR
WP5_1_Marrakech_11_07_UGR

Task 5.1 Establishment of 3 data collectors for real-time automatic processing of data (one in Portugal, the other in Spain and a 3rd one in Morocco).

Two prototypes of data collector are already running:

1. in Lisbon, at IM headquarters. It is based on SEISCOMP/SEEDLINK technology implemented on a Intel/Linux platform, and is already concentrating data, in real-time, from eleven broad-band seismic stations operating in centre and south Portugal Mainland (8), South west and Centre of Spain (2, SFS and PAB) and Morocco (1, RTC), and also from 3 extended response SP stations from IM (2 in mainland and 1 in Madeira island). The definitive hardware was purchased and fully operating.
2. in Granada, at IAG. In this case the dataloguer is based on SEISLOG/SEISNET technology implemented on a QNX/SOLARIS platform, and is already concentrating data, in real-time, from 13 broad-band seismic stations + 9 SP operating in southern Spain.

As for the Seismic sharing data, the prototype is ready to allow real-time access to authorized users, using SEEDLINK protocol, through Internet and some of the IM broadband stations are already being accessed by CNSRT.

As for the Tide-Gauge and Sea floor Observatory, some efforts have been taken in order to integrate data from three tide gauges located at Cascais, Lagos, and Sines.

During the second year, a new version of the Seislog/Seinet will be checked and updated.

Task 5.2 Development of automatic procedures for rapid determination of seismic parameters and definition of thresholds for triggering the tsunami detection procedures.

An automatic location software (AUTOLOC) is running on the data concentrator. This software could be used as a starting point for the rapid determination procedure needed, but it will require major developments considering specific difficulties in fast evaluating earthquake magnitude and hypocentre depth.

Task 5.3 Development of an effective tsunami detection methodology. Definition of thresholds for issuing different levels of alarm messages .

The activities of the Portuguese have been integrated with the Portuguese Working Group for Tsunami Studies and Early Warning (GT-IMAT). This Working Group had already two plenary meetings and 1 working meeting with the IM President. The GT-IMAT has the responsibility to apply in Portugal the Implementation Plan decided in the NEAMTWS meeting in Bonn (last February) and follow the activities of the NEAMRWS WG's.

The IM has been appointed the Portuguese Focal Point for the NEAMTWS and was proposed as the Regional Watch Center for the Atlantic Area. The discussion of tide-gauge integration has been extensively discussed in the GT-IMAT and a good collaboration with the Hidrographic Institute (IH) is foreseen in the near future. The main target of NEAMTWS is the establishment of the Initial TWS by the end of 2007 and the Final TWS by the end of 2009. As regards IM, the main shortcomings as regards its role as RTWS are in manpower. The hiring of 4 graduated technicians is required as the contribution from the Portuguese Government for the RTWS. Discussions regarding these and other questions are continuing under the GT-IAMT umbrella.

The presentation proceeded with an overview of the "Topoiberia" and of the Seismic criteria for NEAMTWS Advisories

A specific presentation was focused on the Waveform analysis of Gulf of Cadiz/Cape St. Vincent earthquakes 2005-2007

WP6 Analysis - Paleotsunami and Paleoseismic records (WP6 Leader: CSIC)

presentations made by *Eulalia Gracia – CSIC*
Javier Lario – CSIC
Cesar Andrade - FFCUL
Luigi Vigliotti – ISMAR-Bo

Presentations available on the Nearest website : *WP6_Marrakech_11_07_CSIC*
WP6_1_Marrakech_11_07_CSIC
WP6_Marrakech_11_07_FFCUL
WP6_Marrakech_11_07_ISMAR

Task 6.1 Onshore sedimentological evidence of tsunami records
Task 6.2 Offshore sedimentological evidence of earthquake events

Several field trips and a cruise were successfully carried out:
- Boca do Rio (Algarve, Portugal), 19 - 22 March 2007
- Sagres – Boca do Rio (Algarve), 2 - 4 July 2007
- Rio Piedras (Huelva, Spain), 9 - 13 July 2007
- Boca do Rio (Algarve), 16 - 18 July 2007
- Boca do Rio – Alvor (Algarve), 2 - 4 August 2007
- Rio Piedras (Huelva, Spain), 17 - 22 October 2007
- NEAREST-07, Leg 2 (RV Urania), August 2007

Deviations from the project workprogramme

Task 6.1:

Fieldtrips and exploration coastal lowlands for tsunami deposit sites has been delayed due to the need of previous planning (time consuming). The end date for this activity should be re-scheduled to month 30.
Coring and recovery techniques maybe insufficient in some cases to provide sediment in quantity and quality adequate to allow identification of tsunami deposits as such. No sedimentological evidence of inundations that effectively occurred

Task 6.2 / 6.3:

The lack of news regarding the NEAREST-CORE cruise from the Spanish shiptime operators give to uncertainties about its results. As a matter of fact, if this cruise occurs AFTER autumn of 2008, there will be not enough time to carefully analyze the new material and only first results will be given by the end of the NEAREST project

Critical aspects to be taken in careful consideration:
- identification of a Moroccan interlocutor for WP6 (M. Hafid or A. El Mouraouah): crucial in order to organize future joined work on land and to prevent duplication of efforts
- importance to obtain the tsunami historical catalogue from GITEC (INGV Rome), as well as the new one from the EU project TRANSFER
- proper arrangements with UBO-Bordeaux / IUEM-Brest to get information about the first results of their cores in order to compare/correlate with UTM-CSIC results on the

SW Portuguese margin and make a synchronicity test on seismically triggered turbidite events

WP7 Analysis Modelling of tsunami impact in SW Portugal (WP7 Leader: FFCUL)

presentations made by *Maria Ana Batipsta - FFCUL*
Rachid Omira - FFCUL
Presentations available on the Nearest website : WP7_Marrakech_11_07_FFCUL

Task 7.1 Collation of the New Bathymetric Data
The collection of bathymetric data achieved using the GEBCO and SWIM databases provided by CSIC. Close to the shore, additional high-resolution, multibeam data was also acquired during summer 2007.

The GEBCO One Minute Grid was used as a starting point of DEM compilation. The grid was generated from GEBCO bathymetric contours and also includes land elevations from the Global Land One-km Base Elevation (GLOBE) database.

SWIM database was implemented during the Urania Campaign led by ISMAR on August-Sept 2007. ISMAR collected in fact a set of data in between the SWIM compilation (WP1) and the planned survey along Algarve. ISMAR also carried out the processing of the Urania-2007 swath bathymetric data.

Task 7.2 Implementation of a numerical tsunami model for SW Portugal
The work developed in this task follows the collaboration and feedback from TRANSFER project.

The preliminary tests were performed used the 1969.02.28 tsunami event as a “benchmark” in order to calibrate the model, because both source parameters and tide gauge data exist for the Portuguese coast. Tests were positive, and small changes to the original code, mainly in what concerns input/output.

In order to check the performance of the model a preliminary test was made using the instrumental readings of the 1969.02.28 tsunami

Task 7.3 Simulation of the 1755 tsunami in the “Boca do Rio” area
The Boca do Rio test area was chosen since it is one of the best documented area, concerning the 1755 tsunami and the valley it is still preserved nowadays. The source terms used was the one documented in DEFRA report (June 2006).

TASK 7.4 Production of inundation maps for Lagos-Sagres
The model produces predicts inundation along Boca do Rio on an extension of approximately 1 km inland.

TASK 7.5 Model parameterization and validation
The model used is the shallow water code COMCOT (Liu et al., 1994, Cornell Univ.).
The reliability of tsunami codes is a major topic of TRANSFER. To do so, benchmarks proposed at Catalina Island Workshop (2004) were run by the different teams and their results compared at the June 2007 meeting held in Fetya, Turkey.

Deviations from the project workprogramme

The swath bathymetric survey was completed by the end of July instead of month 12, as initially planned. Data are presently under processing.

The start of Tasks 7.3, 7.4, 7.5 was anticipated because of the collaboration with the other EU project “TRANSFER” which is running in parallel with NEAREST. Because the multibeam data set in the shallow area was already collected by summer 2007, even if not fully

processed, it was decided to anticipate the start of these tasks to be able to tune these NEAREST activities with the TRANSFER one

WP8 Analysis - Feasibility study and prototype for an EWS *(WP8 Leader: FFCUL)*

presentations made by Luis Matias – FFCUL
Presentations available on the Nearest website: WP8_Marrakech_11_07_FFCUL

Task 8.1 Simulation of tsunami generation scenarios
There has been a continuous progress on the data collector schemes, particularly at partner IM (for Portugal). There has been also a progressive integration of NEAREST activities within the IGC/NEAMTWS initiative that will make strong recommendations on the decision matrix to be applied for the Tsunami Warning and also on the fast parameter algorithms to be used by the Regional Centres.

Task 8.2 – Development of a simulator for the decision-maker authorities
The main activities were devoted to finish the conceptual modelling of the NEAREST-tsunami simulator and proceed with the modelling of some functionalities that made the tool able to:

- integrate the tsunami parameters that may be given by an external source (other WP's),
- evaluate the spatial impact of the tsunami and its consequences on the population,
- visualize the rescue operations and emergency facilities, and
- to model different operational strategies, as an aid to the political and operational authorities.

Deviations from the project workprogramme

The scheduling of tasks 8.1 and 8.2 met some changes regarding the planning foresaw in the DoW, not affecting the overall results of this WP.
Task 8.1 is less developed than expected given that it has a great dependency on the WP5 development. This is not considered critical and no corrective action is required.
On the other hand, given the work scheduling by Xistos, task 8.2 is much more developed that previously planned facilitating the work to be performed in the next periods with involvement of the other partners.

WP1 Analysis -Tsunami source identification (Leader: FFCUL**)**

presentations made by *Pedro Terrinha – FFCUL*
Eulalia Gracia – CSIC
Vasco Valadares, FFCUL
Presentations available on the Nearest website : *WP1_Marrakech_11_07_CSIC*
WP1_Marrakech_11_07_FFCUL

Task 1.1 Review of sources of tectonic origin

The following actions were performed:

- set up of a data set in digital format
- creation of the projects on seismic interpretation software (Openworks Suite, LandmarkTM) and on Geographic Information Systems (ArcGIS, ESRITM) with geophysical and geological data
- structural interpretation of the MCS dataset along with the high-resolution morpho-bathymetric data and set up of the Map of Tectonic Active Structures
- Seismo-stratigraphic interpretation of the MCS dataset
- Geomorphological interpretation of the multi-beam bathymetry and production of the Geomorphological Map
- compilation and selection of earthquakes events data

Task 1.2 Review of sources due to slope instabilities

The activities for this period were:

- finalization of the map of the marine geological and geophysical data recently acquired in the Gulf of Cadiz
- interpretation of seafloor topography based on SWIM swath-bathymetry, generation of slope maps, and identification of the nature of the seafloor from acoustic backscatter, sub-bottom structure and infill based on seismic profiling, and correlation with coring. Identification of mass wasting-related morphologies in the Gulf of Cadiz using Fledermaus visualisation software.
- recognition, analysis and mapping of the characterization and classification of the submarine mass wasting features of the Gulf of Cadiz

Deviations from the project workprogrammme

Task 1.1: The task was planned to end at month 12. Actually the activities carried out during the first year cover only 80%. Although the review has been completed and the working maps were ready by month ten to allow the planning of the Urania Campaign, the final elaborations necessary to prepare the deliverables D1 require up to 3 months more.

Task 1.2 The review of sources due to slope instabilities has been almost completed with the production of the working maps to be used for the planning of Urania campaign. The deliverable D2, reporting the final achievements of this task needs additional two or three months of work.

Task 1.3 A site survey using high resolution deep-towed side scan sonar (MAK 30-100 MHz) was planned to be carried out by R/V Professor Logatchev in June-July 2007, after the selection of the Geostar Abyssal Station site of deployment and before the deployment campaign (August-September 2007 with the R/V Urania. Unfortunately, the R/V Professor Logatchev was in the shipyard during that time for engine problems and we could not substitute it either because the equipment required was very specific, either because the costs for renting another ship were too high. A specific site survey was thus performed directly by R/V Urania, using the high resolution Chirp before the Geostar Abyssal Station deployment.

Day 2 - Friday 26 October 2007

WP9 Analysis – Circulation of project information to end users *(WP9 Leader: ISMAR)*

presentations made by Nevio Zitellini - ISMAR
Presentations available on the Nearest website : *WP9_Marrakech_11_07_ISMAR*

Task 9.1 Project communication
Presentation and distribution to the attending partners of the project brochure in which are briefly summarized its objectives, actions and expected results. The brochure is available also on the web.

Task 9.2 Project web site
Updating on the integration of the project web site nearest.bo.ismar.cnr.it

The next goal foreseen is to complete the web site with following sections that are under construction:

- a list of mutual related links to web sites of interest;
- the completion of the public section in which the results of the project, tailored to inform non-specialists and the general public, will be downloadable;
- a photo/movie section;

Task 9.3 Contact database
All partners were invited to contribute to the setting-up of a common database of contact persons, communities, institutions and authorities at both local and national levels. The contact database, not fully completed, actually include a list of Portuguese, Spanish and Italian people, institutions and journals that could be sensible to the hazard warning.

Task 9.4 Dissemination plan
This task foresees the using of different communication means as newsletters, electronic newsletters, regional and national press, radio/TV to reach the non scientific people. In addition the diffusion plan include the presentation of the project activity in scientific meetings or congresses.

Several press, of Italian and international journals were contacted and a satisfactory number of radio and TV interview were performed by the project coordinator Nevio Zitellini (ISMAR). Moreover scientific presentation, posters, participation to international congresses and scientific papers were done by the project coordinator and/or the other members of the Nearest team.

Other activities

- Meetings to attend in 2008

Critical aspects to be taken in careful consideration:

- Contact database

Scientific contributions from Advisory Board

presentations made by Hitoshi Mikada, Dept. Civil & Earth Resources Engineering -Graduate School of Kyoto University and Vasily Titov, NOOA Center for Tsunami Research
Presentations available on the Nearest website : *Mikada_Marrakech_11_07*
Titov_Marrakech_11_07

Hitoshi Mikada - Dept. Civil & Earth Resources Engineering - Graduate School of Kyoto University - expressed thanks for the invitation and introduced his work stressing the importance of the long-term monitoring.
Mikada comments on the Nearest project:

- a lot of work has done in a year after the project initiation
- the hypotheses proposed in WP1 could be testified in WP2
- the data from Pilot Study on Seismicity (WP3) could be used for Passive Structural Estimation
- the technical Developments (WP4) should be accelerated
- the earthquake Parameter Estimation (WP5) could be collaborated with EWS (WP8)
- products from Paleo-Tsunami/Seismic Studies (WP6) could be input to Analysis and Planning Group (WP7)
- the efforts to Enhance Public Awareness Important (WP9)
- the collaboration with Moroccan People could be encouraged, especially in WP3, WP5, WP6, WP7 and WP8.

Vasily Titov - NOOA Centre for Tsunami Research - presented his role and studies. He showed some data on the 2004 Sumatra tsunami impact, the Nov. 15, 2006 Central Kuril Tsunami, the January 13, 2007 Kuril Is. Tsunami, May 3, 2006 Tonga tsunami, the August 15, 2007 Peru Tsunami. Some videos on the DART deployment and simulations were played.
As for the future activities, some relevant steps were listed as the following:

- Tsunami Forecast System development (accuracy, speed, robustness)
    - Optimize DART network
    - New tsunami data inversion techniques
    - Local tsunami forecast
- Next generation models
    - Tsunami inundation impact
    - Landslide and other sources
- Application of forecast models for hazard assessment studies
    - Use of models for land-use planning
    - Probabilistic hazard assessments
- International coordination toward Global Forecast System (Australia, Indonesia, Chile...)

Input from the TRANSFER project

FFCUL, Maria Ana Baptista

Ms. Baptista as representative partner both in Nearest and Transfer (Tsunami Risk ANd Strategies For European Region) projects reported on the Transfer Project Meeting held in Rhodes the week before the Nearest Marrakech Meeting. Ms. Baptista focused on the common research aspects between the two projects.

EMSO European infrastructure

INGV, Paolo Favali

Presentation of EMSO: a European Multidisciplinary Seafloor Observatories Research Infrastructure as a network of deep-seafloor observatories that will be deployed, from 2007 to 2011, on specific sites offshore European coastline to allow continuous monitoring for environment and security. They will be organised in a unique management structure at European level (and part of a global endeavour in sea-floor observatories), for long term monitoring of environmental processes related to ecosystem life and evolution, global changes and geo-hazards.

Among the expected results:

- major advances across marine sciences
- better knowledge-based support to European policies in environment and security (GMES).

Analysis of critical tasks and identification of possible solutions

(Open session coordinated by Nevio Zitellini)

The coordinator opened the session underlining the good flow of activities already done and expressing his optimistic view about the fulfillment of the targets foreseen.
Among the critical tasks, he underlined in particular:

- After the buoy deployment some problems arose on the electronics on the buoy itself. This implied that at the end of the NEAREST 2007 cruise all the failed apparatus was taken off from the buoy and bring to Italy to check it in an appropriate way.
In October 2007 (16-21) a new mission was organized by INGV in Gulf of Cadiz in order to restore the buoy after a new calibration of the acoustic communication system made by Tecnomare (buoy set up developer) and Sercel (acoustic system supplier. In addition the mission had also the purpose to control the GEOSTAR observatory mission status and the reconfiguration of the mission parameters with special regards to those related to the seismic event detection.

- The number of OBS deployed during the NEAREST2007 cruise were 22 instead 24 cause the following problems: 1) the power connector of one recorder pressure tube was damaged. 2) The remaining anchor was used to conduct a test measurement with OBS07 close to the position of the GEOSTAR observatory. OBS07 was successfully recovered after 2 days. This station was planned to be re-deployed at the end of the cruise.
3) During deployment of OBS14 another problem occurred, because the head buoy became trapped below the OBS that could prevent its recovery. To save the OBS we released it from its anchor before it reached the ground. OBS14 was re-deployed with the last available anchor.
At the end the OBSs n. 7 and 24 remain onboard at the end of the cruise. To get out this problem a new cruise with a little Portuguese ship is planned in October to deploy this instruments.

Steering Committee Meeting

The first part of the afternoon was addressed to the NEAREST Steering Committee meeting, involving only the responsible members for each project partner. During such meeting also financial and administrative issues have been tackled.
The detailed report on the Steering Committee meeting is available in a separate specific file.

Final session

The coordinator summed up the reporting aspects discussed during the Steering Committee Meeting.

Cesar Andreade (FFCUL) reported on the outcome of a short session that took place at the same time of the Steering Committee in order to arrange a restricted meeting in Morocco to present and discuss the recent geological observations in Morocco that can provide relevant material for work packages 1 and 6. The CNRST agreed to host the workshop and to coordinate the following field trip that will be foreseen in March 2008 in Rabat.

The meeting was closed with a special thanks to the hosting Institution for its precise organisation and support.

European Commission
FP6 – Priority 1.1.6.3

NEAREST	**Integrated observations from near shore sources of Tsunamis: towards an early warning system (NEAREST)**	**CNRST**

INSTITUT NATIONAL DE GEOPHYSIQUE
Centre National pour la Recherche Scientifique et Technique

SPECIFIC NEAREST MEETING
Tsunami Hazard on Moroccan Coasts: Multidisciplinary Approach

MINUTES OF THE RABAT WORKSHOP, 26-29th March 2008

Hosted by:
The Centre National pour la Recherche Scientifique et Technique,

Participants:
Portugal : Cesar Andrade, Conceiçäo Freitas and Pedro Costa (FFCUL)
Italy: Luigi Vigliotti and Luca Bellucci(ISMAR)
France: M-A Gutscher and Nisrine Maad (UBO)

Morocco:
Institut National de Géophysique CNRST
Azelarab EL MOURAOUAH, Abdelouahad BIROUK, Mohamed KASMI et Aomar IBEN BRAHIM A, Touria EL MRABET et Fatima KAABOUBEN

Faculté des Sciences de Kénitra
El Arbi TOTO, Mohamed BENAMMI, et Mohamad HAFID

Faculté des Sciences El Jadida
Bendahhou ZOURARAH, Samira MALLAS, Kaoutar HOSNI

Faculté des Sciences Rabat
Abdallah EL HAMMOUMI et Mohamed KEROUM

Faculté des Sciences et Techniques Tanger
Bouchta EL MOUMNI.

Institut Scientifique Rabat
Nadia Mhammdi

Ministerial Departments

1. Direction de la Protection Civile, Rabat : **PC**
2. Etat Major Général de la Gendarmerie Royale, Rabat
3. Direction Technique de Habitat : **DTH**
4. Centre Royale de Télédétection Spatiale : **CRTS**
5. Office National des Hydrocarbures et des Mines : **ONHYM**
6. Département de l'Enseignement Supérieur, de la Formation des cadres et de la Recherche Scientifique.

Objectives of the Meeting

During the annual NEAREST meeting held in Marrakech in October 2007 and with reference to the suggestion of the NEAREST Project leader Pr. ZITELLINI, the NEAREST partners have been invited to a Workshop in Rabat in order to integrate Moroccan data into the various NEAREST work packages. A call to participate in a NEAREST Workshop in Rabat and an international field mission was launched for the 26, 27, 28 and 29 of March 2008.

The field trip was devoted to the presentation of new observations relevant to the Moroccan Atlantic coast as well as sampling in two potential sites.

Logistics

In order to organize the Rabat Workshop and field work in My Bouselham and Larache, the CNRST made available to participants two 4-wheel drive vehicles and a utility vehicle.

The CNRST assured the reception and transportation of the Portuguese and Italian participants from the Casablanca airport to Rabat (120 km), in order to allow them in timely attending the Workshop sessions.

Starting on March 27th, two field trips were organized to undertake work on coastal deposits and structures in the My Bouselham-Lalla Mimouna and Larache regions. For these field trips, the CNRST made available three field vehicles to participants.

Workshop

The Workshop entitled "NEAREST SPECIFIC MEETING: Tsunami Hazard on Moroccan Coasts: Multidisciplinary Approach" took place from 14H00 to 20H00 on Wednesday, March 26, 2008, to allow the Portuguese and Italian partners to take part into the two scheduled sessions, since their plane arrived late in the morning of March 26, 2008.

The work of this workshop was opened by the Director of the CNRST who welcomed the participants and focused on the importance of implementing the NEAREST objectives for tsunami prevention in Morocco, in particular the establishment of a test tsunami warning local center in Morocco.

The workshop was composed by two sessions. The first one was moderated by Professor Aomar IBEN BRAHIM and involved presentations relating to workpackages 1, 3 and 5.

Two presentations concerned the work package 1: Tsunami source identification. These presentations were given by :

- M. HAFID: Geodynamic evolution of the Moroccan Atlantic margin,
- M.-A. Gutscher: Onshore and offshore NW deformation in Morocco: active tectonics and active faults.

As part of workpackage 3: Seismological monitoring, three presentations were given by:

- T. EL MRABET: The large historical earthquakes and tsunamis that affected Morocco;
- F. KAABOUBEN: Catalogue of historical Tsunamis that affected Morocco: recent data;
- A. IBEN BRAHIM: Atlantic earthquakes: Harmonization of locations and velocity model.

Three presentations concerned workpackage 5: Data integration /integrated tsunami detection network, namely:

- M. KASMI: New national seismological network VSAT.
- A. BIROUK: sharing and integration of data between the NEAREST regional hubs
- EL MOURAOUAH, A. IBENBRAHIM, Mr. KASMI and A. Birouk: Seismic monitoring in the region Lalla Mimouna: Prelimenary data of the mobile seismic Network.

The second session focused primarily on workpackages 6 and 7 and was moderated by Professor Dr. Cesar Andrade of the University of Lisbon (Portugal).

Five presentations were given under WP 6: Paleotsunami and Paleoseismic records:

- M. BENAMMI, A. EL MOURAOUAH, Mr. HAFID, A. BIROUK, E. TOTO, A. IBEN BRAHIM and M. KASMI: New Neotectonic field observations in the south-western Pre-Rif between Sidi Allal Tazi and Moulay Bouselham (North Western Morocco)
- E.A. TOTO, A. BIROUK, Mr. BENAMMI, A. EL MOURAOUAH, Mr. BASRI, Mr. A. IBENBRAHIM, Mr. HAFID, M, KASMI: New geological and geophysical evidences for a pontential active faults near Lalla Mimouna, western Morocco.
- B. ZOURARAH, S. MELLAS, Mr. FREITAS, C. ANDRADE, Mr. MANAN, R. GRIBOULARD, Kh. MEHDI, A. MHAMDI ALAOUI, Mr. ROBIN and Ch CARRUESCO: The lagoons of Morocco and witness exceptional phenomena (Tempestites and Tsunamites).
- N. MHAMMDI AND F. MEDINA. Events sedimentological along the Atlantic coast of Morocco, possible relationship with the tsunami of 1755?
- Luigi VIGLIOTTI: Analysis of lagoon deposits in Italy and Morocco.

As for WP7: Modelling of tsunami impact in SW Portugal, a presentation was given by Pr. KERROUM and A. EL HAMMOUMI on the Vulnerability assessment: Methodologies and preliminary results.

Discussions were held at the end of each session.

Fieldwork in the NW of Morocco

The NAREAST Moroccan partner provided logistics for two separate field trips:

- identification of suitable sites and sampling of lagoon deposits in the My Bouselham coast and in the estuary of Loukos (Larache);
- presentation of new observations of the neotectonic structures between My Bouselham and Larache.

The CNRST made available for this work, three cars, two boats and engaged local workforce.

In consultation with the various participants to the field work, including researchers from the Faculty of Sciences of El Jadida and the Faculty of Science and Technology in Tangier, a number of cores were sampled in the lagoon of My Bouselham and in the Oued Loukos estuary in Larache.

For active structures, the members of the Morocco NEAREST Group presented their main findings on the new neotectonics observations between My Bouselham and Larache.

Steering Committee Meeting Minutes

List of participants:

Partner n.	Acronym	Representative
1	ISMAR	Nevio Zitellini Gabriela Carrara (observer)
2	FFCUL	Maria Ana Baptista Livia Moreira (observer)
3	CSIC	Juan José Danobeitia
4	AWI	Wilfried Jokat Wolfram Geissler (observer)
5	UBO	Marc André Gutscher
6	INGV	Paolo Favali Laura Beranzoli (observer)
7	TFH	/
8	UGR	José Morales
9	IM	Fernando Carrilho
10	CNRST	Azelarab El Mouraouah
11	XISTOS	Herculano Caetano

Assistant and Rapporteur: Alessandra Borgatti (ASTER)

Nearest 2008 cruise organization

The coordinator presented the main issues to be decided about the August 08 Cruise organization and in particular:

- the scheduling of the OBS recovery
- the scheduling of the Geostar recovery
- the multibeam survey
- risks and contingency solutions

The PIs participated in the discussion adding information and suggestions. The OBS insurance expiry date implies that the OBS recovery has to be ended before August the 22nd. Thus it was agreed that the Geostar recovery will be made after the OBS recovery. Main constraints pointed out refers to vessel and work teams availability. URANIA will be available from 1/08/2008 to 04/09/2008 The coordinator presented different presumptions about possible delays due mainly to the weather conditions. Some remarks were made on the staff involved in the two operations, the time of the teams exchange in Faro and the Urania carrying capacity. INGV agreed to have their staff ready with some advance to assure a prompt beginning of the Geostar recovery.

The draft scheduling of the cruise has been agreed as follows:

01 August 2008 – Start NEAREST2008 cruise (first leg) from an Italian port (probably Palermo), embarking on board the GEOSTAR/MODUS equipment, the OBS recovery equipment. Embarking of ISMAR, INGV (pars) and AWI people.

13 August 2008 - End of the first leg. Disembarking of the OBS recovered, desembarking AWI people (pars in case of non total recovering of the OBS). Embarking INGV and TFH people.

14/15 August 2008 – Leaving from Faro and start of the second leg of the cruise. Recovering of the GEOSTAR station, of the mooring and, in case, of the remnant OBS.

29 August 2008 – End of the second leg, entering in Faro and disembarking of TFH, INGV and AWI people.

29/30 August 2008 – leaving Faro and tranfer to Palermo
04 August 2008 – Arrive in Palermo. End of NEAREST2008 cruise. Demob

Obviously this is a draft schedule of the operations so, except the starting and the ending of the cruise, all the other dates could change.

Dissemination: contribution to the contact database

The Coordinator reminded to the PIs that they are in charge of providing contributions to the Contact Database. The target are local institutions and authorities, especially the civil protection ones but also (especially for the partners less involved by possible Tsunami events) journalists and newspapers. The Coordinator stressed the importance of the dissemination activity. Everybody assured a contribution to this task.

Participation to the Nearest-seis cruise

The cruise will take place between October 27th and November 13th, 2007.
A short remark was referred to the refraction experiment campaign in charge of CSIC and UBO. The cruise is very interesting for many partners but the participation chances will be checked in consideration of the space on board. It was agreed that Valenti Sallares (CSIC) will take charge of the participants management. Wide-angle seismic cruise (Nearest-Seis) have been continuously done during this semester. The number of actions related to this task is increasing as we get closer to the cruise date. Partners participating to the cruise had to take in mind that in the same period they have to complete the 2nd year reporting activity. For this reasons technical reports shall be ready and validated by the coordinator before October 26th.

AGU Fall meeting participation

The Coordinator reminded that the participation to the AGU Fall meeting in December 2008 will be an important appointment for the project dissemination. The deadline for the abstracts presentation is early September. The details of the participation and the results to be presented will be decided by e-mail well in advance.

Organization of a field trip in Morocco to study the neotectonics of the area

The Coordinator proposed to schedule another field trip in Morocco to study the neotectonic of the area. Taking into consideration the schedule of the sea campaigns and of the annual meeting, the best period identified was February 2009.

Date and place of next plenary project meetings

The coordinator pointed out that it would be appropriate to have at least one plenary meeting in each country participating to the Nearest project, in order to facilitate the participation and the contacts with the researchers of the different organizations, and to foster dissemination opportunity across Europe. During the first part of the project plenary meetings took place in Italy (Bologna), Portugal (Lisbon); Morocco (Marrakech) and Spain (Barcelona). The SC approved that the next meeting will take place respectively in Germany and in France. Although there was no representative member for TFH; N. Zitellini communicated that H. Gerber has declared that TFH would be glad to host the next annual meeting in Berlin, that was considered a convenient venue by every SC member. Moreover M-A Gutscher offered to host in Brest the next mid-year meeting, to be arranged in spring 2009.
The dates for the next meeting were eventually scheduled for the October 9th and 10th 2008, taking into consideration dates of the Nearest cruises, availability of the hosting organization and in general of all partners, and need to carry out a detailed assessment of the second year results in view of the reports to be issued at the beginning of November.
The meeting will take place in Berlin, and will be arranged in collaboration with TFH.

Reporting activities

In order to arrange a proper reporting activity of year 2, compliant with the other tasks of partners in Autumn 2008, it was agreed that templates for Workpackage Activity Reports and for Project Management Reports will be provided by Aster in July 2008. Complete reports shall be sent to the coordinator within the 7 October, to be discussed during the Berlin meeting.
The procedure for the provision of the financial data and Signed Form C will be circulated by Aster in September 2008. Signed Form C shall be available by 23 October at the latest.
The coordinator emphasized the importance of respecting deadlines; in the case of problems the coordinator should be promptly informed about a motivated delay and a new date for document/data delivery should be agreed.

Marrakech, 25 October 2007

Steering Committee Meeting Minutes

List of participants:

Partner n.	Acronym	Representative
1	ISMAR	Nevio Zitellini
2	FFCUL	Maria Ana Baptista Livia Moreira (observer) Luis Matias (observer)
3	CSIC	Eulalia Gracia
4	AWI	Wolfram Geissler
5	UBO	/
6	INGV	Paolo Favali
7	TFH	/
8	UGR	José Morales Soto
9	IM	/
10	CNRST	Azelarab El Mouraouah
11	XISTOS	/

Assistant and Rapporteur: Maria Grazia Zucchini and Alessandra Borgatti (ASTER)

The Coordinator opened the session pointing out that the Steering Committee meeting will not allow to take relevant final decisions, due to the absence of 4 member organisations, resulting in a lack of the necessary quorum. Nevertheless, he stated that despite this, the meeting will be important to start a discussion focused on several important issues, particularly at management level.

Ratification of additional money transfer to Xistos

The Coordinator summarized the main steps that led to the decision to transfer additional funds to Xistos. The request for the funds had been made because of the anticipated implementation of a relevant part of Xistos activity in Nearest project.
After a consultation with Xistos itself and with the Work Package leaders of all WPs in which Xistos is involved, the Coordinator proposed a new distribution of Xistos man-power breakdown for the duration of the whole project duration in accordance with the new situation. ISMAR administration agreed to transfer in advance an additional amount to Xistos, calculated taking into consideration the new budget breakdown. The proposal, formally communicated by letter to the SC members on 15th July 2007, was approved by a majority of two thirds of all Parties (8 out of 11 project partners) and the decision was legally taken.
Although Xistos did not attend the Steering Committee meeting, some direct contacts with the Mr. Zitellini and Mr. Matias (FFCUL) took place by phone. The Xistos general financial situation remains critical, but it was considered that this will not impact on the project final results and on the continuation of Xistos activities in the project. In any case the situations will be carefully monitored by the coordinator in the following months.

Reallocation of money previously assigned to sonar recognition

In the first instance the R/V Logatchev sould be used to perform a detailed sonar recognition survey on the place foreseen for GEOSTAR deployment. Unfortunately the ship was un-available for technical reasons independing from the Portuguese team. This high resolution survey was performed by Urania, during the NEAREST 2007 cruise, using the Chirp sonar equipment.
The money initially assigned to the sonar recognition were utilized for two additional cruises, initially not foreseen, with the following purposes:

1) to repair and restore the electronics of the buoy after a new calibration of the acoustic communication system.
2) To deploy the two OBS, that were not possible to deploy during the main cruise for technical reasons, and complete the OBS network at sea.

These two objectives at sea are completely coherent with the NEAREST project.

Reporting activities

The Meeting continued with a presentation on the stage reached in the preparation of the Nearest activity reports for the first year of project. Ms Zucchini listed the documents already produced and the integration expected by each partner.

Most of the information appertaining to the Periodic Activity Report had already been collected but certain integrations were required concerning the importance of:

- integrating the information of all partners involved in each work package
- explaining each potential deviation from the project work programme and every connected corrective action
- splitting the man/month of each partner involved in each work package
- updating the GANNT as precisely as possible
- integration of the plan data for using and disseminating the knowledge

Regarding the Periodic Management Report, Ms Zucchini focused the attention on:

- the description of the work performed as a key point
- the need for the AC contractors to estimate the number of person-months of permanent staff working on the project

Regarding the financial situation at project level, Ms. Zucchini showed a tabular overview of budgeted and actual costs.

It was pointed out that few partners presented a relevant level of underspending with respect to the budget initially foreseen for the period. The importance of an accurate six-monthly check on the budget was underlined, in order to anticipate potential critical situations and take corrective actions as soon as possible.

The coordinator emphasized the importance of respecting deadlines for providing information; in the case of problems the coordinator should be promptly informed about a motivated delay and a new date for document/data delivery should be agreed.

Date of next Project meeting

The next project meeting was confirmed for Spring 2008 (provisionally for May 8th and 9th). The meeting will take place in Barcelona (Spain), and will be arranged in collaboration with CSIC. The exact period will be defined in January by e-mail.